

PKP-PK Unit Personnel Strategy Analysis in Mitigating Aircraft Accidents at Adi Soemarmo Boyolali International Airport

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Abstract

This study aims to find out how well and how hard the Aviation Accident Assistance and Fire Fighting (PKP-PK) personnel handle fires at Adi Soemarmo Boyolali International Airport. This research will help by facilitating PKP-PK to follow the safety SOP (Standard Operation Procedure) if an incident occurs. Case study method descriptive qualitative research was used for this study. The PKP-PK unit at Adi Soemarmo Boyolali International Airport was used as a research location. The results of the review show how the progress and progress of the Avionics Accident Management and Fire Fighting (PKP-PK) workforce in tackling fire incidents at the Adi Soemarmo Boyolali World Air Terminal. PKP-PK personnel always carry out their responsibilities in accordance with applicable regulations.

Keywords: PKP-PK Unit Personnel, Aircraft Accident Mitigation, Adi Soemarmo



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INTRODUCTION

In this modern era, we have entered the era of globalization, where all needs can be fulfilled easily due to technological advances. Unavoidable needs, such as the need for mobility or transportation. Transportation technology is needed in everyday life. One means of transportation is an airplane. Air transportation is capable of traveling very far, such as across cities, provinces, countries, and even oceans. Aviation safety is an important component of air transportation, aviation safety is a top priority that is considered by airlines due to human transfer activities that involve lives. To tackle the problem of plane crashes involving human lives, airline companies around the world have made provisions in laws and regulations regarding aviation, in which it states that every airport must have an Aviation Accident Assistance and Fire Extinguisher (PKP-PK). This provision is focused on if there is an accident or fire in the area around the airport, it can provide first aid so that it is not too late in handling aircraft accident cases which involve many human lives.

(Yusuf Muhammad and Kusumawati Dedes, 2019) defines that the airport area has standard facilities such as fire fighting vehicles, safety clothing, and others. PKP-PK officers have a very important task in providing the first and fastest fire service in providing first aid in the airport area. A PKP-PK officer must have a helping spirit and a high sense of humanity. Adi Soemarmo Airport was formerly called the Panasan Air Base (Lanud), this airport was inaugurated on February 6, 1946 after the proclamation was carried out, this airport is operated by pilots from Indonesia, the airport is slowly being built into an airport that has complete facilities that support flight process so that it can run smoothly, orderly, and safely. So that it does not have the potential to cause a hazard that can threaten human life.

(Umar and Hodi, 2017) defines that all airports have a great potential for the possibility of having a plane crash in the airside area, this can be proven from the many incidents of accidents that have occurred in various airport areas. Even though all airport areas have PKP-PK officers to provide first aid in the event of an accident, these accidents can potentially kill human lives.

Aviation Accident Assistance and Fire Fighting (PKP-PK) is a part of the emergency management unit at the airport that is located and is responsible to the Airport Service Unit (UPBU). Therefore the Aviation Accident Relief and Fire Service (PKP-PK) has the main task and main task of saving lives and property from incidents and accidents (incidents and accidents) at airports and their surroundings. In addition, the main duties of the PKP-PK Service are also to carry out operational activities including administration, standby, rescue, prevention and suppression, as well as training and maintenance.

When an airplane crash occurs, the incident cannot be delegated to just one person in charge of the incident. Because each officer concerned is also responsible for the incident. Many factors are the reasons why the accident can occur, including the engine shutdown due to birds in the air, the engine being hit by lightning, bad weather, being exposed to cumulonimbus clouds, navigation factors, systems that cannot function properly, and other factors. human error. Before carrying out their duties as PKP-PK officers, prospective new officers will carry out training and maintenance. This exercise aims to make these officers have a responsive and alert attitude in the event of an accident in the airport area. From year to year aviation safety and security are getting better, so that there has been a minimum of one aircraft accident in the past year. If while on duty there is no accident that must involve the work of a PKP-PK, then what the officer does is stand by.

The PKP-PK unit has a big responsibility in dealing with accidents or fires in the airport area or outside the airport area with a distance of approximately 5 miles. The aspect of safety and security in the airport area is the number one principle that must be prioritized. All people in the world know that air transportation is one of the safest public transportation to use, besides that air transportation is also the fastest mode of transportation in the world. Each PKP-PK unit personnel can see the progress of the performance of each officer, this performance can be seen when an accident occurs in the airport area, whether the officer is ready, responsive, and swift in helping the victims who are on the plane. PKP-PK officers are divided into several tasks that will help other staff such as providing services for driving ambulances, providing first aid directions when there is an accident.

In the PKP-PK unit, there is a manual that will be filled in by the officer, the book contains a list of updating the condition of the equipment or fire engines in good condition or something needs to be changed. The purpose of this research is to be able to see how the performance of the PKP-PK unit is implemented in an effort to improve flight safety in accordance with national regulations. Therefore the researcher wants to make observations of PKP-PK officers at the airport. Based on this analysis, the authors conducted a study entitled "Analysis of PKP-PK Unit Personnel Strategies in Mitigating Aircraft Accidents at Adi Soemarmo Boyolali International Airport".

From the various backgrounds that have been described, the researchers determined several problem formulations, namely: What is the Strategy for the Aviation Accident Relief Unit and Fire Extinguisher (PKP-PK) if an incident (mitigation) occurs at Adi Soemarmo Boyolali Airport? The purpose of this study is considered from the formulation of the problem that has been reviewed above, including: Knowing the Strategy of the Aviation Accident Relief Unit and Fire Extinguisher (PKP-PK) if an incident (mitigation) occurs at Adi Soemarmo Boyolali Airport?

Literature Review

Legal Basis

In a corporate agency where the company is concerned with the safety of human life, it must have statutory rules that are used when working. The legal basis for the PKP-PK unit is:

1. Law Number 1 of 2009 concerning Aviation Article 349 defines that facilities in the interest of aviation safety must function in accordance with the necessary requirements.
 - a. Government Regulation Number 3 of 2001 concerning Aviation Security and Safety, notifies that every member of the PKP-PK unit must have a system that is used during an emergency situation in the airport area.
 - b. The emergency in question is when there is a plane crash, fire on the engine, a threat that has the potential to endanger human life on board.
2. Regulation of the Director General of Civil Aviation Number: KP. 420 of 2011 concerning Technical and Operational Standard Requirements for Civil Aviation Safety Regulations Part 139 (Manual Of Standard CASR Part 139) Volume IV Aviation Accident Relief Services and Fire Extinguishers (PKP-PK).
 - a. PKP-PK facilities in the form of PKP-PK vehicles, PKP-PK operational equipment and supporting materials and personnel.
 - b. PKP-PK Vehicles are Main Vehicles that are equipped with PKP-PK operational support equipment and Support Vehicles are used by PKP-PK units to carry out operational tasks.
3. Regulation of the Director General of Civil Aviation Number: KP 04 of 2013 concerning Instructions and Procedures for Civil Aviation Safety Regulations Section 139-20 (Advisory Circular) CASR Part 139-20), Guidelines for Operation, Maintenance and Reporting Systems of Vehicles or Aviation Accident Relief Equipment -Fire Extinguisher (PKP-PK).
 - a. Every airport operator is required to have guidelines for the operation, maintenance and reporting system of PKP-PK vehicles/equipment.
 - b. Proper maintenance needs to consider the vehicle operating guidelines according to the provisions.
4. Based on the Decree of the Director General of Civil Aviation Number KP. 420 of 2011 in chapter XI maintenance of vehicles and equipment supporting the operation of PKP-PK as follows:
 - a. The PKP-PK unit office must have regulations or schedules regarding maintenance of facilities that have been provided by the government, so that the utilization of these facilities can be maximized.
 - b. Each airport must have a manual to collect data on the facilities provided.
 - c. Perform maintenance on vehicles and equipment supporting PKP-PK operations.
 - d. Carry out preventive activities such as attendance and evaluation obtained from checking facilities.
 - e. Repair equipment against damaged facilities. This activity aims to be able to maintain the facilities that have been obtained.
 - f. Aircraft maintenance with the attention of vehicle technicians.
 - g. PKP-PK vehicles that are more than 20 years old must be replaced immediately so that the vehicle is suitable and does not cause incidents that can endanger humans.

SOP (PKP-PK Standard Operating Procedure)

Atmoko (2011) defines that the Standard Operating Procedure is a rule regarding a reference standard used in the company when carrying out work. This SOP is considered as an important document that becomes a foundation for developing, growing, and processing companies. PP No.3 of 2001, CASR, Chapter 9 Annex 14 ICAO is used as a reference regarding SOP in the PKP-PK unit section. For other operational standard provisions, namely adjusting to the conditions in the field area.

SOP at an airport must comply with the provisions of the applicable laws and regulations. The SOP is no exception for the ARFF unit in carrying out the operation and maintenance of

equipment or vehicles according to their needs. The applicable SOP means maintenance (maintenance) activities for ARFF facilities must be carried out by personnel who already have competency certificates in accordance with the provisions of the vehicle category.

Parameters that must be tested by personnel performing maintenance on the ARFF are the average and beam range, acceleration, response time, maximum speed, and braking distance. (SOP) Standard Operating Procedures for each operation have different handling procedures, such as Training (Training) is one way to develop one's abilities with training when using facilities or equipment according to their respective fields. Then operational are personnel who carry out administration, preparedness, rescue, prevention and blackout and the facilities used such as main vehicles and others need to heat the engine, check, and wash it so that these conditions are good when operating. The following are some of the SOPs in PKP-PK:

1. SOP for the operation and maintenance of PKP-PK vehicles. Regulation of the Director General of Civil Aviation Number: KP. 420 of 2011 concerning Technical and Operational Standard Requirements for Civil Aviation Safety Regulations Part 139 (Manual Of Standards CASR Part 139) Volume IV Aviation Accident Relief Services and Fire Extinguishers (PKP-PK)
 - a. The facilities in the office are PKP-PK vehicles, PKP-PK operational equipment, and officers.
 - b. PKP-PK vehicles which are the first fleet to help if an accident occurs in the airport area.
2. SOP for personnel training and quality control. Regulation of the Directorate General Number KP 321 of 2018 covering Education and Training (Training/TRG)
 - a. Company training program.
 - b. Selection of unit officers.
 - c. PKP-PK service personnel training and licensing
 - d. Refresher training (refreshing course)
 - e. Human factors
3. SOP for fire prevention and protection. Preventive steps are taken for prevention if there is an unexpected event that does not know the time, such as an airplane accident.
4. SOP for the operation and maintenance of PKP-PK equipment. Based on the Decree of the Director General of Civil Aviation Number KP. 420 of 2011 in chapter XI maintenance of vehicles and equipment supporting the operation of PKP-PK is carried out so that the vehicle facilities are maintained properly.
5. SOP Incidents/accidents involving dangerous goods. Emergency response measures are carried out when airnav officers receive news of an accident or fire so that Alert III is carried out:
 - a. Go directly to the accident location via the access road and monitor the information provided by the Tower Officer,
 - b. Notify the local government fire department.

PKP-PK Facilities

In the book (Nasution 2008) provides a statement that international airports and domestic airports require different fire engine facilities. So that each airport is provided with different fire engine facilities. Ha this was carried out by considering the aspects of needs in the field area. As for other supporting facilities in the form of water spray hoses, diesel pumps, safety clothing, safety shoes, and protective hats.

Main Duties of PKP-PK

(Syahid, 2011) defines the main tasks of PKP-PK as follows:

1. Operation (operation), 24-hour standby against flight accidents. Such as: Evacuation of passengers, salvaging goods. Fire rescue. Such as: evacuation, protection, help, prevention.
2. Maintenance (Maintenance), Ready Tools. Maintenance of PKP-PK tools and vehicles, checking, heating of equipment.
3. Training, regular and consistent physical training, so that when an accident occurs, PKP-PK officers can provide assistance and move quickly. Intelligence training.

PKP-PK Human Resources (HR)

Samsuni (2017) Defines that every goal that is successfully implemented must have a fairly long process in it, this is also applied in a company, organization or institution. A goal is one way for a company to develop and grow so that when carrying out work it will focus on one goal in the company. PKP-PK is a unit office in which PKP-PK officers have a duty when an airplane crash occurs in the airport area, besides carrying out rescue, other things that are carried out are extinguishing fires, saving people and goods at the scene of the accident in quick time to avoid the plane exploded because of the possibility of fuel leaks. According to ICAO regulations, all PKP-PK unit offices must be located near the runway. This has a positive aim, namely to be able to move quickly when an accident occurs.

The PKP-PK unit provides life-saving services and property from an aircraft that has an incident, and extinguishes fires or extinguishes fires. The PKP-PK Unit at Adi Soemarmo Boyolali Airport has 4 Teams, namely: Teams A, B, C and D, each team consists of 13 people and each team is led by 2 leaders, namely Squad Leader and Team Leader Team. In operational implementation, there is a division of time, tasks and work functions between employees of the PKP-PK Unit. Having 11-hour shift working hours is divided into 4 shifts and each shift consists of 13 employees. In order to maintain work safety, employees are required to carry out performance according to with the SOP that has been determined so that there are no errors in work.

According to the KP-12 Flight Law Chapter III No. 7 it is stated that PKP-PK Personnel as referred to in number 3 have main tasks and main tasks, one of the main tasks is to carry out activities: Operations (operation) including administration, standby (stand by), rescue , prevention and suppression. The seriousness of the employees of the PKP-PK unit at Adi Soemarmo International Airport is proven in carrying out routine activities every 6 months holding battery test activities which are useful for looking at physical, skill and skills tests. Other activities are also carried out once every 6 months FPP or inspection activities and socialization of fire handling to all employees working at Adi Soemarmo International Airport.

Human resources are the most important aspect in driving the process of achieving goals within the company, human resources are also the foundation of a company. This can be seen when a small company grows into a large company, the development of the company is due to the support of HR staff, then other factors, namely comfort in the company, as well as supporting facilities provided such as the company providing employee rights according to the rules, the company providing opportunities for employees to develop and compete.

Relevant Research

Table 1. Relevant Research

No	Name	Title	Year	Research Result
1.	Lukiana	Maintenance of PKP-PK Vehicles at Hang-Nadim	2015	The implementation of work standards at airports refers to PP No. 3 of 2001, CASR. This standard is a

		Airport Batam		general provision that is commonly used by all PKP-PK offices in carrying out their duties.
2.	Ari Susetyadi	Evaluation of Aviation Accident and Fire Fighting Equipment Facilities (PKP-PK) at Kendari Airport	2012	There are several obstacles in carrying out tasks in the airport area, these obstacles are in the form of a lack of command cars and ambulances for duty.
3.	Muharam Abimawan Fauzan dan Bima Cahya Putra	Vehicle Maintenance Information System Design and Operational Fire Fighting Equipment Unit PKP-PK at PT. Angkasa Pura II	2018	The results of this study are the rules regarding maintenance and repairs that have been carried out properly according to schedule. Not yet known about goods or facilities that are damaged and need replacement.
4.	Miftakhul Rokhman Nur Ash Shidiq dan Siti Nur Azizah	Effect of Training and Accuracy of Work Placement on Performance with Motivation	2019	From the research results, the results of the T test were $4.731 > T \text{ table } 1.9866$. With the provision of a significance level of $0.000 < 0.05$. In increasing performance efforts in a company, the step that must be implemented by the company is to provide training in order to provide new insights and memories about the motivation to work in the company to achieve goals in the company.

RESEARCH METHODS

Research Design

Qualitative method was chosen in this research. According to Sugiyono, 2011 the research method is a method that is used when looking for data, this method is considered a scientific method that is in accordance with the general provisions for finding data, the data in question is data in the form of observations, field surveys, combined methods. Qualitative research is research that requires a source to be used as accurate data in accordance with the purpose of answering a problem statement.

Location and Time of Research

Research will be carried out if this research method is continued for a thesis or final assignment in diploma IV of the air transportation management study program on the College of Aerospace Technology (STTKD) campus. The research location was carried out at Adi Soemarmo Solo Airport and this research lasted for two months, starting from 01 August 2022 to 30 September 2022.

Data Sources and Types

There are two data that will be displayed, these data are primary data and secondary data.

1. Primary Data. Primary data is data that is directly obtained from research objects related to research and is the main data. Data obtained directly in the field either by conducting unstructured interviews, observations, and others. In this research, interviews will be conducted with the PKP-PK Unit
2. Secondary Data. Secondary data is a source of indirect data obtained on the object of research. This secondary data was obtained from literature studies and other information related to research. In this research secondary data is in the form of data available at Adi Soemarmo Solo Airport in the implementation of these activities as well as other related supporting data.

Data Collection Technique

Complete data requires a technique when looking for data, data collection techniques as follows:

1. Interview. An interview is a conversation activity between two or more people, this activity aims to explore the information needed by the researcher. There are stages of conducting an interview including submitting an interview letter, as well as collecting a question from the interviewee, but each company has its own requirements so the interviewer must follow the company's procedures. Semi-structured guidelines: Semi-structured interviews are interviews that use a more relaxed question method and follow the flow of the interview. The author prepares a list of questions that will be answered by the resource persons.
2. Observation. Sugiyono, 2018: 229 observation is a technique of observing, seeing, and feeling the situation at the observation site. Observations were made on the research object, environment, situation, and interactions at the research site. This observation was carried out as a sequence of stages of the research. Observations made are expected to obtain data that are appropriate or relevant to the research topic. This technique is the observation of research on the research object. Researchers made direct observations of the PKP-PK unit facilities.
3. Documentation. Documentation is a supporting part to strengthen a research data. The most common documentation is such as photographic evidence while in the field area, important documents that can support research.

RESEARCH RESULTS AND DISCUSSION

Before the author directs research and leads interviews with PKP-PK unit workers at the Adi Soemarmo Boyolali air terminal to provide research results that test the correctness of the information, the creator has formulated the problem in Part III, namely: In the event of an incident or incident response at Adi Soemarmo Airport Boyolali, what is the strategy for the Aviation Accident Management Unit and Fire Fighting Unit (PKP-PK)? The information used to answer the problem definition above was obtained through direct perception at the Adi Soemarmo Boyolali terminal and then technical meetings with 3 PKP-PK units, in particular: Mr. Winarno as Operations Supervisor, Mr. Sonny as Supervisor and also Mr. Dian Supriadi as Arff Squad Leader .

PKP-PK Unit Personnel Strategy in Mitigating Aircraft Accidents at Adi Soemarmo Boyolali International Airport

Aviation Accident Management Unit and Fire Extinguisher or more commonly referred to as PKP-PK is a unit located at an airport or airport whose mission is to save the lives and property of aircraft that have had an accident or other incident. occurring within the airport or airport boundaries. Based on their abilities and licenses, PKP-PK employees have certain roles in carrying out their work. Typically, staff member licenses serve as a yardstick for how well they carry out their responsibilities. so that not all PKP-PK units do the same thing or do the same thing.

The KP-12 Aviation Law, Chapter III Numbers 9 and 10 states that the PKP-PK Workforce must have the right things such as 3 faculties that are ready and skilled in their fields, have the accompanying obligations and abilities: 1 faculty as an officer who is also a true Fleet driver and 2 other staff as agents. At Adi Soemarmo Boyolali International Airport, PKP-PK unit employees are divided into four teams, known as Teams A, B, C, and D. Each team has 13 members and is led by two team leaders, each of whom is skilled and trained in their respective

fields. Responding to the fact that every Indonesian airport must have an "Aviation Accident Assistance" service in the event of an emergency. UU no. 217 explains this in detail. 1 of 1999 concerning Aviation, and public authorities have implemented a Security Board Framework (SMS) in the aviation area. The Indonesian government through the Minister of Transportation has created a Roadmap to Zero Accident policy work plan to achieve and improve aviation safety. Providing guidance to the Indonesian aviation industry regarding the application of SMS is one aspect of this effort.

Security Executive Framework (SMS) - An efficient and fast methodology that characterizes the activities in which a sound board is completed by an organization to achieve good or proper security. "The PKP-PK unit provides services to save lives and property from aircraft involved in incidents, as well as extinguishing fires or extinguishing fires." The implementation of this SMS is not only to get all the elements. What is more important is for all elements to interact and work well within the organization." The PKP-PK Unit at Adi Soemarmo Boyolali Airport consists of four teams: Teams A, B, C, and D each have 13 members and are commanded by two leaders. namely Team Leaders and Team Leaders. In functional implementation there is a division of time, tasks and work abilities between representatives of the PKP-PK Unit. It has an 11-hour work shift divided into 4 movements and each shift consists of 13 representatives.

Employees are required to carry out their duties in accordance with standard operating procedures (SOP) that have been established to prevent errors in work and maintain work safety. and main tasks, one of the main tasks is to do exercises: The main objective of an operation (operation) is to save human life and property, and its components include administration, standby, rescue and suppression. The seriousness of the representatives of the PKP-PK unit at Adi Soemarmo Boyolali International Airport was shown in carrying out routine activities such as clockwork, holding battery tests which were useful for surveying physical tests, skills and abilities and various activities which were also carried out once. such as clockwork or review exercises and socialization of fire prevention to all workers working at the Adi Soemarmo Boyolali terminal.

A heartbreaking story occurred some time ago or November 30, 2004 when a Lion Air business plane flight number JT 538 crashed at the Adi Soemarmo Boyolali Air terminal. When bad weather hit flight JT 538 which was scheduled to land at Adi Soemarmo Boyolali Airport for Surabaya, Lion Air type MD-82 veered off course. The National Transportation Safety Committee (KNKT) concluded that the aircraft overshoot (slipped or was out of control) occurred due to runway hydroplaning conditions which caused the surface to be inundated with rainwater. The plane stopped near the cemetery after passing over the edge into the rice fields. This accident actually could not be separated from the pilot's mistake because he did not use the arrival method by not activating the spoiler. In a plane crash that killed 163 people, 23 people died and 17 people were injured.

Procedures for PKP-PK officers at the Adi Soemarmo Boyolali Air Terminal in preventing fires. Airport building fires can occur due to various reasons, including: gas leaks, electrical short circuits, and human error. As a result, incident handling is the responsibility of the PKP-PK unit. The PKP-PK unit plays an important role in incident prevention at the airport. As a result, PKP-PK units go directly to the field when unwanted events occur. Conducting fire prevention and protection screening for other unit officers at the airport regarding the prevention and control of building fire hazards is one of the strategies used by the PKP-PK unit to prevent fires from occurring. Providing a light fire extinguisher or also called APAR that is hung or placed in an easily accessible place for use in the event of a fire in a room or other part

of the building is another strategy. APAR must always be guaranteed to function normally. Firefighters are generally inspected once a month by PKP-PK teaching staff.

From the perception of the experts at the Adi Soemarmo Boyolali Air Terminal PKP-PK Unit, the presentation of the workforce must be seen from the technique during preparation, as well as when carrying out activities in an activity against an episode that occurs. Basically all faculties have the capacity and permits in accordance with their obligations and work. However, some faculties with good performance, they also add their own training hours outside of training hours to add other skills and abilities. The performance of PKP-PK employees cannot be separated from adequate facilities such as: A large and vital office, break room and recreation room.

As an illustration of a case related to the PKP-PK Functional Fire Extinguisher Support Vehicle and Unit Data Framework Plan at PT. ANGKASA PURA II By Muharam Abimawan (2018), Maintenance/Support are all types of movements carried out to maintain the state of an item or hardware, or return it to a certain condition. The concept of all activities needed to maintain or maintain the quality of a facility or machine so that it can function properly in its initial condition is then defined as maintenance, with an emphasis on the core definition according to the book.

CONCLUSION

The following conclusions can be drawn from the results of the research that has been carried out: The PKP-PK work unit at Adi Soemarmo Boyolali Global Air terminal held a shift framework or division of work completion plans. The shift work system was chosen in carrying out the task because it is expected that PKP-PK employees can perform optimally while on duty, so that work results and productivity can run smoothly and safely. In addition, the PKP-PK staff at the Adi Soemarmo Worldwide Boyolali Air Terminal are in accordance with their capacities in their fields, as evidenced by the permits claimed by the PKP-PK workers at the Adi Soemarmo Global Air Terminal and the offices that assist them in carrying out their obligations. PKP-PK employees carry out their responsibilities in accordance with the applicable Standard Operating Procedures or SOPs and with full sincerity. The efforts of the PKP-PK faculty in preventing fires at the air terminal are as follows: screening other unit officers at the airport regarding the prevention and control of building fire hazards for fire prevention and protection.

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