# Application of Occupational Safety and Health in Cargo Handling by PT. Mulio Citra Angkasa at H. Asan Sampit Airport

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#### Abstract

Occupational Health and Safety are all efforts and thoughts made in the context of preventing, overcoming and reducing the occurrence of accidents and their impacts through the steps of identifying, analyzing and controlling hazards by implementing an appropriate hazard control system and implementing legislation concerning occupational safety and health. . The purpose of this study is to find out the implementation of the implementation of Occupational Safety and Health (K3) in cargo handling by PT. Mulio Citra Angkasa (MCA) at H. Asan Sampit airport. The method used in this study is using qualitative research methods where researchers conduct interviews, documentation, and direct observation in data collection. The interviews used were semi-structured interviews and the researchers conducted interviews with managers, supervisors and senior cargo executive staff at PT. Space Imagery Master. Researchers went directly to the field in conducting direct observations to see the activities of the cargo operational unit and observing the implementation of Occupational Safety and Health (K3) when handling cargo. Researchers also conducted documentation in the form of interviews and documentation. The result of this research is the Application of Occupational Safety and Health (K3) in cargo handling by PT. Mulio Citra Angkasa at H. Asan Sampit Airport that there is still a lack of application of K3 in cargo handling. The deficiencies in the implementation were due to the unavailability of K3 experts and there were several violations committed such as negligence in the use of personal protective equipment (PPE) by cargo personnel.

Keywords: Occupational Health and Safety (K3), Cargo, Airport



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#### **INTRODUCTION**

In developments in this globalization era, the use of air transportation services has shown a significant increase. The consideration is mainly in terms of time, where the time taken by air transportation is shorter and it is increasingly competitive with other transportation such as buses and trains, so that people are more interested in using air transportation. This progress has a positive impact on Indonesia at this time, especially transportation services which are developing very rapidly. However, on the other hand, it has a negative impact on humans, especially workers. To be able to build a productive, healthy and quality workforce, good management is needed, especially with regard to Occupational Safety and Health (K3) issues.

In Law No. 13 of 2003 concerning "Manpower" article 86, the first paragraph states that every worker or laborer has the right to obtain protection for, occupational safety and health, morals and decency, and treatment in accordance with dignity and values. religious values. In the second paragraph it is stated that in order to protect the safety of workers or laborers in order to realize optimal productivity, work safety and health efforts are carried out. According to the Manpower Act No. 13 of 2003 article 87, every company is required to implement an occupational safety and health management system that is integrated into the company's management system. Suardi, (2016) as quoted in Herlangga, (2021) reveals that good and directed implementation of OSH in an industrial setting will have a good impact, one of which

is quality Human Resources (HR). In the world of aviation, aviation safety does not stand alone, but is related to the human factor, both prelight and inlight service. Transportation of goods is one of the contributors to aircraft accidents in the air. Many cases of accidents occur due to cargo handling that is not in accordance with procedures. Various ways are used by companies to reduce the impact of work accidents because this will affect the company's income and furthermore, cause accidents when planes take off and land or while in the air.

Ground handling companies as airline partners in carrying out ground operations are required to implement safety rules and regulations in accordance with the standards set by the airline. Currently, to address the differences in standards from each airline, ground handling companies are starting to implement ISAGO or the International Standard of Ground Operation. With the presence of ISAGO, ground handling companies are considered to have standardized operations in accordance with international safety systems. Practically safety can be interpreted as a form of control over the occurrence of an unwanted loss, either in the form of injury, damage or other losses. In this case, it includes efforts to prevent work accidents.

According to Rizaldy and Rifni in their book entitled Basic Management of Cargo Handling (Air from/to, sea, via land) revealed that the types of accidents that occurred in cargo handlers were slips, bumps, falling goods, run over by trolleys and hit by welding. Factors that influence the occurrence of accidents are the lack of employee attention to the surrounding environment and microclimatic factors, namely noise and temperature. Increasing the number and variety of hazards in the workplace, if not accompanied by proper control, work accidents can occur. In addition, unsafe work processes and work environments that do not meet K3 requirements can also lead to an increase in the number of work accidents. Occupational Health and Safety (K3) needs to be considered in the work environment, because health is a state or situation of a person's health both physically and mentally while work safety is a situation where workers are guaranteed safety when working both in using machines, aircraft, work tools, processes processing as well as the workplace and the environment are also guaranteed. If workers feel safe and comfortable, it is hoped that work productivity will be increased.

Occupational Safety and Health (K3) is an important aspect of human resources. Companies play an important role in maintaining Occupational Safety and Health (K3) Human Resources (HR) or employees. As we know, air transportation prioritizes safety as the most important selling point of this transportation service, of course, supported by proper facilities and infrastructure and human resources who are capable of operating it well. The same is true for the H. Asan airport in Sampit, Central Kalimantan, which is managed by the Airport Management Unit. This airport has a runway of 1,850mx30m which can be accommodated by Boeing 737-200 aircraft. The airlines operating at this airport are Nam Air airlines with the Boeing aircraft type, the Jakarta-Sampit-Jakarta route, Wings air airlines with the ATR aircraft type, the Surabaya-Sampit-Surabaya route, and Citilink airlines the ATR type with the Surabaya-Sampit-Surabaya route. These two types of aircraft cause noise in the apron area and its surroundings.

In Herlangga's research, (2021) concerning the analysis of the quality of Occupational Safety and Health in Cargo handling at Pangkalan Bun airport, he said that the facts in the field found that many employees did not use protective equipment and found several old safety equipment that were no longer suitable. Therefore, the provision of sufficient and adequate protective equipment and replacing safety equipment that is no longer feasible or exceeds the service life limit is very necessary in order to avoid accidents in the form of incidents or accidents. Some protective equipment that must be used in special jobs such as:: protective helmets, protective gloves, masks, protective boots and vests. Employee awareness in using

personal protective equipment is still minimal and assumes that using protective equipment increases the workload and increases the time in which it is used. There are also those who feel uncomfortable in using personal protective equipment and the training provided is poorly understood by employees.

Occupational safety and health standards that are ignored often cause accidents to employees. Of course accidents cause losses both economically and at the level of employee health. Occupational health is something that must be considered by employees in order to create a work environment that is healthy, safe and free from environmental pollution. However, awareness of this is not maximized and can affect the performance of the employees themselves so that it can increase the chances of accidents which ultimately reduce the productivity and efficiency of employees in the company. Sources or potentials that can cause injury can be identified through aspects of hazard identification in the form of mental or physical abnormalities caused by worsening situations or work process processes. The aim of the research is to find out the implementation of the implementation of Occupational Safety and Health (K3) in cargo handling by PT. Mulio Citra Angkasa (MCA) at Sampit H. Asan Airport and to find out the obstacles faced by officers in implementing Occupational Safety and Health (K3) in cargo handling by PT. Mulio Citra Angkasa (MCA) at Sampit H. Asan Airport.

#### **Theoretical Basis**

Occupational health and safety as stated by Mangkunegara (2016) in the Company's Human Resource Management book namely, Occupational Safety and Health (K3) refers to conditions that are safe or safe from suffering, damage, or loss in the workplace. Occupational Health and Safety (K3) is the science of preventing accidents by identifying hazards, analyzing hazards with risk assessment and controlling them. Meanwhile, what affects whether or not OSH in a place is the responsibility of management and also the participation of all workers (W. Citra Juwinta Sari, 2017).

#### Sampit H. Asan Airport

Indonesia as an archipelagic country, the mode of transportation is very important. With vast airspace and islands, air transportation is an unavoidable choice. Apart from having a wide range, air transportation has the advantage of being high-speed, modern technology with optimal service and safety standards. According to Annex 14 of ICAO (International Civil Aviation Organization) an airport is defined as a certain area on land or water (including buildings, installations and equipment) designated either wholly or partly for the arrival, departure and movement of aircraft. The main function of the airport is to serve the departure and arrival of aircraft and passengers and goods.

#### **Ground Handling**

Ground Handling comes from the word Ground which means land or on land, which in this case is at the airport and comes from the word Handling, from the basic word hand or handle which means hand or handle. To handle means to handle or do a certain job with full awareness. Handling means handling or service (services or to services). So that on many occasions, we often encounter the use of the word Ground Services (land services or services at airports). Triyuni, (2013) as quoted in Herlangga, (2021) Ground operations or Ground Handling is "an activity at the airport related to the services of airlines (airlines) for passengers and goods/baggage at the time of departure (Departure) and arrival (Arrival ).

#### Cargo

According to Rizaldy and Rifni in their book entitled Basic Management of Cargo Handling (Air from/to, sea, via land) reveals that Cargo or cargo is simply defined as all (goods) sent by air (airplanes), sea (ships), or overland (container trucks) which are usually for trading, both between regions/cities within the country and between countries (international) which is known as export-import. According to Rizaldy and Rifni in their book entitled Basic Management of Cargo Handling (Air from/to, sea, via land) revealed that handling in the world of aviation can be categorized based on the type of cargo.

### **Occupational Safety and Health (K3)**

According to Kepmenaker Number 463/MEN/1993, the notion of Occupational Safety and Health (K3) is a protective effort aimed at ensuring that workers and other people in the workplace/company are always in a safe and healthy condition, and so that every source of production can be used safely and efficient. According to the International Labor Organization (ILO) and the World Health Organization (WHO), occupational health is the promotion and maintenance of the highest degree of physical, mental and social well-being of all workers in all types of work, to prevent deterioration in the health of workers caused by their working conditions. protect workers in every job from the risks arising from factors that can interfere with health, placement and maintenance of workers in a work environment that is appropriate to the physiological and psychological conditions of workers and to create suitability between workers and everyone with their duties. According to Anwar Prabu Mangkunegara (2016), in his book Occupational Safety and Health refers to conditions that are safe or safe from suffering, damage or loss at work. Occupational safety and health indicators are the condition of the work environment, lighting, use of work equipment, physical and mental conditions of employees.

# PT Profile Mulio Citra Angkasa (MCA)

PT. Mulio Citra Angkasa (MCA) is a rapidly growing and reputable ground handling and airport services company present as a service partner for airlines in terms of certain operational functions. MCA is a private company based at Tjilik Riwut Airport, Palangkaraya and H. Asan Sampit-Kotawaringin Airport, Central Kalimantan with experience leading ground handling and airport service companies in Indonesia as service partners with all airlines. H. Asan Sampit airport cargo was taken over by PT. Mulio Citra Angkasa (MCA) since 2007 until now, meaning that around 15 years PT. Mulio Citra Angkasa has collaborated with H. Asan Sampit airport for the cargo section.

Table 1. Relevant Research							
No.	Name	Year	Title	Research Result			
1.	Dinar Dewi Kania, Eko Probo and Hanifah	2016	Analysis of Occupational Safety and Health (K3) Culture Factors in Cargo Handling at Soekarno Hatta International Airport	The K3 culture obtained, these conditions do not indicate safe conditions for workers or for operational activities and if not improved it will have a negative impact on Aviation safety in the future.			
2.	Maryam, Hasni, and Elisabeth	2021	The Influence of Occupational Health and Safety Culture (K3)	The existence of the COVID-19 pandemic resulted in PT. Angkasa Pura Logistik was forced to reduce employees until there were 75 employees left. With reduced numbers			

#### **Relevant Research**

#### Aurelia: Jurnal Penelitian dan Pengabdian Masyarakat Indonesia E-ISSN: 2964-2493 P-ISSN: 2962-0430 Vol. 2 No. 2 July 2023

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	Endang		on Employee	employees cause the workload per individual is
	Prokosawati.		Performance of PT.	also increasing. This can increase the risk to
			Angkasa Pura Logistics	occupational safety and health. In addition, the
			on During the COVID-19	threat of COVID-19 makes it necessary to pay
			Pandemic at	attention to a culture of occupational health and
			International Airports	safety (K3).
			Yogyakarta, Kulon Progo	
3.	Topan Herlangga	2020	Analysis of the Quality of	
			Occupational Safety and	Nam Air airline provides cargo services to
			Health (K3) on Nam Air	support the mobility of the people of Pangkalan
			Airline Cargo Handling by	Bun city. Briefing was carried out for personnel,
			PT. Avia Sejahtera	namely in the form of warnings to always apply
			Iskandar (Asi) at	SOPs and prioritize work safety. Then complete
			Iskandar Airport	the safety attributes in accordance with the
			Pangkalan Bun, Central	rules set by the SOP
			Kalimantan	

#### **RESEARCH METHODS Research Design**

The research design used in this study is a qualitative research method. Sugiyono (2019) suggests that the qualitative research method is a research method used to examine natural object conditions, where the researcher is the key instrument, data collection techniques are carried out in a triangulation (combined) manner, data analysis is inductive, and the results of qualitative research. According to Uma Sekaran and Roger Bougie (2017) Qualitative Data is data in the form of words. Examples of qualitative data are interview notes, transcripts of focus groups with open-ended questions, transcripts of videotapes, reports on experiences with a product on the Internet, news articles, and the like. The reason for using this method is because researchers are trying to describe or illustrate the application of K3 to cargo handling at the H. Asan Sampit airport, Central Kalimantan.

# Time and Place of Research

This research was conducted at H. Asan Sampit Airport, Central Kalimantan. For a period of 2 weeks from 10 January to 23 January 2023.

# **Research Subjects and Objects**

In research that uses a qualitative approach, the population and sample are not known as in quantitative research because research departs from cases of the existence of individuals or groups in certain social situations and the results only apply to that social situation. Arikunto (2016) states that the research subject is to define the research subject as an object, thing or person where the data for the research variable is attached, and which is at issue. According to Sugiyono (2019) explains that the object of research is an attribute or a trait or also the value of a person, objects or even activities which generally have certain variables set to be studied and conclusions can be drawn. The research object used in this research is the application of K3 in cargo handling at the H. Asan Sampit airport, Central Kalimantan.

# Data, Data Sources, and Resource Persons

The types of data in this study are primary data and secondary data. Primary data is data obtained directly from the source or can be referred to as primary data. Meanwhile, secondary data is data collected by researchers from available sources so that researchers can be referred to as second-hand (Mulyadi, 2016). In this study, primary data was obtained from interviews.

While secondary data will be taken from documents, observations, photos and others. According to Lofland 2012 (in Moleong, 2013) "The main data sources in qualitative research are words and actions, the rest are additions such as documents and others". Data sources will be taken from the results of interviews, field notes and observations. Resource person, According to Sugiyono (2019) Research informant (source person) is someone who has information about the research object. Sources from this research are Airport Heads, Managers and supervisors, senior Executive Staff and junior implementing staff.

#### **Data Collection Technique**

- 1. Interview. Interview is the process of obtaining information for research purposes by way of question and answer while face to face between the interviewer and the informant or the person being interviewed, with or without using an interview guide. According to Nasution in Sugiyono (2019) Interviews are used as a data collection technique if you want to conduct a preliminary study to find problems that must be investigated. Interviews were conducted by interviewing airport heads, managers, supervisors, senior executive staff and junior implementing staff. According to Sugiyono (2019) there are three types of interviews, namely structured interviews, semi-structured interviews, and in-depth interviews. Here the researcher chooses to conduct semi-structured interviews. According to Sugiyono (2019) this type of semi-structured interview is to find problems in a more open manner, where participants are asked for their opinions and ideas in the data collection process. The data used comes from personal information that is obtained from interviews with the head of the airport, managers, supervisors, senior executive staff and junior implementing staff. To avoid losing information, the researcher asked permission from the informant to use a recording device before conducting in-depth interviews, the researcher explained or gave a brief and clear overview and background regarding the topic of discussion or research.
- 2. Observation. According to Sugiyono (2019) Observation as a data collection technique has specific characteristics when compared to other techniques. This observation was carried out by observing and directly recording the object of research, namely by observing the activities carried out by cargo officers at H. Asan Sampit Airport, Central Kalimantan. In making an observation, the researcher must choose the things that are the focus of research, and overcome problems and find the latest ways to make decisions that are more effective.
- 3. Documentation. According to Sugiyono (2019) documentation is a method used to obtain data and information in the form of books, archives, documents, written numbers and pictures in the form of reports and information that can support research. Documents used by researchers in the form of photos, images, and data and so forth. Research results from observations and interviews will be more valid and reliable if they are supported by photographic evidence.

# **RESEARCH RESULTS AND DISCUSSION**

Based on research findings conducted in the incoming cargo handling section by PT. Mulio Citra Angkasa (MCA) at Sampit H. Asan Airport, then the next researcher will discuss the results of his research. The following are the results that the researcher will discuss in the following discussion: PT. Mulio Citra Angkasa (MCA) is a private company, one of which is based at H. Asan Sampit Airport, Central Kalimantan, which is engaged in ground handling. Where the activities include servicing incoming cargo/goods through the airport, including unloading, transfer from the aircraft to the storage area (cargo warehouse), preparing and storing the goods and handing them over to the owner, must arrive at the destination safely and the goods

are in proper condition . To maintain quality and customer trust, PT. Mulio Citra Angkasa must prevent the occurrence of cargo handling errors/irregularities that come to the incoming warehousing unit.

In implementing occupational safety and health (K3) handling of cargo units, regulations or rules are very important things to do and comply with. Broadly speaking PT. Mulio Citra Angkasa (MCA) uses ministerial regulations as well as several special regulations in implementing occupational safety and health (K3). The ministerial regulation in question is Law No. PM 53 of 2017 which regulates Cargo and Postal Security and the Supply Chain of Cargo and Post transported by airplane, Permenaker No.5 of 2018 concerning K3 Work Environment control in the workplace is carried out according to the control hierarchy including elimination efforts, substitution, technological engineering, administration, and/or the use of PPE, where the PPE used by the cargo unit workers of PT. Mulio Citra Angkasa includes masks, gloves, vests, ear muffs, and safety shoes. Law No. 1 of 2009 which regulates aviation. (Source: SOP of PT. Mulio Citra Angkasa H. Asan Sampit Airport).

Facts obtained from the field found cargo workers at H. Asan Sampit Airport by PT. MCA, has not been provided with K3 training, but always conducts briefings as on-the-job training for cargo unit workers. The briefings are in the form of briefings to always implement SOPs and prioritize occupational safety and health. However, there are some PT workers. Mulio Citra Angkasa (MCA) who committed violations or was indisciplined (did not comply with regulations) in implementing Occupational Safety and Health (K3), namely the negligence of cargo workers in using personal protective equipment (PPE), namely not using masks and gloves. This action can cause work accidents in the workplace. According to domino theory, (2012) in (Pratiwi, 2018) work accidents consist of five interrelated factors, namely working conditions, human negligence, unsafe acts, accidents and injuries.

This shows the performance of cargo workers by PT. MCA is not good, as it is well known that employee performance greatly influences the level of success in a company. Good worker performance will get good results in the development of the company. Conversely, poor employee performance will also have a negative impact on the company's success. Then in terms of the environment of Sampit H. Asan Airport it has not met the K3 standards which are assessed from the indicators of the K3 itself. These indicators are poor air circulation, lighting arrangements that do not meet K3 standards and limitations in the provision of PPE. So the health and safety of workers is guaranteed, not only from the SOPs that have been provided but from the cooperation between the workers themselves to carry out these regulations and supported by the available environment as needed.

#### CONCLUSION

PT. Mulio Citra Angkasa (MCA) has carried out several factors to improve the implementation of Occupational Safety and Health for Cargo handlers at H. Asan Sampit Airport, but has not yet conducted OHS training for its employees. Starting from the use of Personal Protective Equipment by cargo workers of PT. Mulio Citra Angkasa is in accordance with the existing SOP, as well as the environment that supports the implementation of the Occupational Health and Safety (K3) program. Behavioral factors and human resources (HR), as well as regulations are factors that need to be considered for occupational safety and health (K3), especially in handling cargo in operational units. The absence of training in implementing occupational safety and health (K3) programs and the existence of regulations and standard operating procedures (SOP) will greatly impact awareness of the importance of implementing Occupational Safety and Health (K3) in aviation.

Based on the results of the research and the conclusions presented, the researchers submit suggestions that can provide benefits to the airlines and other related parties in this study. The suggestions that the researchers convey are as follows: For companies, PT. Mulio Citra Angkasa (MCA) can apply occupational safety and health (K3) in the field of cargo and other operational units in order to create a healthy and good work situation, especially in the provision of worker training. For academics, this research is expected to be a reference and documentation for campuses and used as an additional reference for research in the field of Ground Handling. Especially in the cargo operational unit and the Occupational Safety and Health (K3) sector. For future researchers, this research is expected to be used as a reference in implementing occupational safety and health (K3) for cargo handling by PT. Mulio Citra Angkasa and hopes that it can be developed by further researchers and can be used as an additional insight for future researchers.

#### BIBLIOGRAPHY

- A. A Anwar Prabu Mangkunegara. (2016). "*Manajemen Sumber Daya Manusia Perusahaan".* Bandung: PT. Remaja Rosdakarya.
- Arikunto, S. (2016). Prosedur Penelitian Suatu Pendekatan Praktik. Jakarta: Rineka Cipta
- Asan, H. (1961). Sejarah Bandara H. Asan Sampit Kotawaringin Kalimantan Tengah (edisi revisi)
- Citra Juwitasari, W.(2017). Penerapan Kesehatan dan Keselamatan Kerja (K3) di Maskapai Citilink (Studi pada Karyawan Maskapai Citilink Denpasar Bali). *Skripsi*. Universitas Udayana.
- Dinar Dewi Kania, Eko Probo dkk. (2016). Analisis Faktor Budaya Keselamatan dan Kesehatan Kerja (K3) Pada Penanganan Kargo Di Bandara Soekarno Hatta International Airport. *Jurnal Manajemen Transportasi & Logistik* (JMTranslog) Vol. 03 No. 1.
- Herlangga, Topan. (2021). Analisis Kualitas Keselamatan dan Kesehatan Kerja (K3) Penanganan Kargo Maskapai Nam Air Oleh Pt. Avia Sejahtera Iskandar (Asi) di Bandar Udara Iskandar Pangkalan Bun Kalimantan Tengah. *Skripsi*. STTKD Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta.
- International Labour Organization. (2013). *Kesehatan dan Keselamatan Kerja di tempat Kerja*. Diakses dari <u>http://e-journal.uajy.ac.id/7519/3/MTS201893.pdf</u>
- Irzal. (2016). Dasar-dasar Kesehatan dan Keselamatan Kerja. Jakarta: Kencana.
- Istiqomah, Nur. (2011). "Proses Penanganan Penerimaan General Cargo Domestik di Pt Bts Cargo". *Thesis*. Universitas Nasional.
- Keke, Yulianti, Noel Gontu L. Tobing, and Irza Tanjung. (2021) "Pengaruh Keselamatan Kerja Dan Kesehatan Kerja Terhadap Kinerja Karyawan PT. Angkasa Kargo Unit Regulated Agent Terminal Kargo Bandara Soekarno–Hatta Tahun 2019." *Jurnal Transportasi, Logistik, dan Aviasi,* 1.1, 32-40.
- Korneilis,K., & Gunawan,W.(2018)"Manfaat Penerapan Sistem Manajemen K3 dalam Upaya Pencapaian Zero Accident Di Suatu Perusahaan". *Jurnal Sistem Informasi Dan Informatika (Simika)*, 1.01, 84-104.
- Layanan Bandara *PT Mulio Citra Angkasa Airport Services.* Diakses pada 4 Januari 2023 dari <u>https://www.ptmcaairportservice.co.id/</u>
- Layanan kebandarudaraan- *Syamsudinnoor Banjarmasin.* Diakses pada 5 Januari 2023 dari <u>https://syamsudinnoor-airport.co.id/id/pjkp2u-1/index</u>
- Maryam, Hasni, and Elisabeth Endang Prokosawati. (2022). "Pengaruh Budaya Kesehatan dan Keselamatan Kerja (K3) terhadap Kinerja Karyawan PT. Angkasa Pura Logistik pada Masa Pandemi COVID-19 di Bandar Udara Internasional Yogyakarta, Kulon Progo." *Reslaj: Religion Education Social Laa Roiba Journal*, 4.5, 1286-1297.

Moleong, Lexy.J.(2013). *Metodologi Penelitian Kualitatif* (Edisi Revisi).(2011).

- Peraturan Mentri Tenaga Kerja dan Transmigrasi No. 463/MEN/1993: Tentang Keselamatan dan Kesehatan Kerja.
- Primadi, Shelfian Dumas, Dyah Rachmawati Lucitasari, and Ahmad Muhsin. (2016) "Usulan Perbaikan Tingkat Pencahayaan Pada Ruang Produksi Guna Peningkatan Output Produk Pekerja Dengan Pendekatan Teknik Tata Cara Kerja." *Opsi*, 9.01, 59-68.
- Sekaran, Uma dan Roger Bougie. (2017). "*Metode Penelitian*". Edisi 6, Buku 2, Selemba Empat, Jakarta Selatan.

Sugiyono. (2019). "Metode Penelitian Kuantitatif Kualitatif dan R&D". Bandung:Alfabeta.

Sugiyono.(2019). *Metodologi Penelitian Kualitatif* (Edisi Revisi). Bandung: PT. Remaja Rosdakarya.

Undang-Undang Republik Indonesia Nomor 1 tahun 2009. *Penerbangan* Lembaran Negara Republik Indonesia Tahun 2009. Jakarta

Undang-Undang Republik Indonesia Nomor 13 Tahun 2003 *Ketenagakerjaan* Lembaran Negara Republik Indonesia Tahun 2003. Jakarta

Wardhani Sartono dkk.(2016). Bandar Udara. Pengenalan dan Perancangan Geometrik Runway, Taxiway, dan Apron. Edisi 1, buku 2, Yogyakarta Gadja Mada University Press.

- Wynd, Rizaldy. Rifni, Muhammad.(2013). "Manajemen Dasar Penanganan Kargo (Udara dari/ke, Laut.Via Darat)". Jakarta: Dalam Media.
- Yani Sufri, Andi Bunga Wati dkk. (2016). Penggunaan Alat Pelindung Diri (Apd) dan Tingkat Kebisingan pada Petugas Ground Handling Dibandara Mutiara SIS Aljufri Palu. *Jurnal Manajemen Transportasi*. Vol. 1 no.2 pp 1-6.