

OPTIMIZATION OF DOMESTIC CARGO DELIVERY HANDLING TO IMPROVE SERVICES AT CARGO TERMINALS

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Abstract

The cargo terminal is one of the services inside the airport to process shipments and receipts of air, domestic and international cargo. The purpose of this study is to describe the conditions of laying cargo shipping equipment, and find out the handling of cargo by cargo delivery officers at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan. This study uses a type of qualitative descriptive research to determine the handling of domestic cargo at the cargo terminal and the laying conditions at the cargo delivery facility have been optimized and in accordance with applicable regulations. With data collection methods in the form of observation, interviews, and documentation of research objects. The results of the study found baggage cart facilities that were not in accordance with their placement, and the handling of goods by cargo terminal officers that were not in accordance with standard operating procedures. So that conclusions can be drawn by returning the placement and handling of cargo goods according to the rules and the use of empty areas in storage as a step to minimize the level of congestion in the staging area at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan.

Keywords: Terminal Kargo, Kargo Domestik, Baggage Cart

INTRODUCTION

The role of air transportation is very important for the community to facilitate activities with distances that are difficult to travel, therefore air transportation must be supported by appropriate infrastructure so that it can be used properly. Airports are very important in supporting air transportation infrastructure, areas that are closed and difficult to reach through land and sea transportation can now be overcome by the existence of routes for air transportation to connect remote, closed and difficult to reach areas.

The cargo terminal is one of the main service facilities inside the airport to process shipments and receipts of air, domestic and international cargo aimed at smooth cargo processing and meeting aviation security and safety requirements [1].

Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan has a domestic incoming, international incoming, domestic outgoing,

and international outgoing cargo terminals at the cargo terminal, problems are still found arising from cargo handling by domestic cargo delivery officers at the cargo terminal and existing facilities are adequate but the laying conditions at cargo delivery facilities are still ineffective.

“Aerodrome, a defined area on land or water (including any building, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft” [1]. Domestic Airport is an airport that is designated as an airport that serves domestic flight routes [2].

Service road is a Ground Support Equipment (GSE) vehicle access road to meet the needs of aircraft in the airside area. Service road roads within airports, are used by Ground support Equipment (GSE) or ground equipment to aircraft to get to or from serving an aircraft.

One of the important facilities at the airport is the cargo terminal, which handles the delivery and receipt

of cargo both domestically and internationally. The purpose of the terminal is to ensure cargo processing runs smoothly and meets aviation security and safety requirements. In addition, the cargo terminal has special storage facilities for valuables, dangerous goods (DG) and others. The inspection function is performed in the inspection room of the cargo terminal. There are four parts of the cargo terminal: domestic output, international output, and domestic incoming [1].

Customers are quite satisfied primarily domestic cargo terminal services Juanda Airport in Surabaya [4]. Factors that affect service at the cargo terminal such as the number of employees, administration, and acceleration result in service that is quite satisfied by customers [5]. Worldwide, air cargo transport has grown about 50% faster than passenger transport during 1995 and 2004 [6]. Air cargo transport involves a series of services from origins to destinations to move cargo through a shipper, a forwarder, a trucker, an airline (or carrier), and a consignee [7]. Air cargo is a mode of air transportation that better for good substitute than other modes of transportation such as sea or rail [8]. Air cargo is used for the transport of urgent goods over medium to long distances. Its selling points are speed and reliability [9].

Based on this background, a problem formulation is taken, namely:

1. What are the conditions for laying cargo delivery facilities by domestic cargo delivery officers at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan?
2. How to optimize the handling of outgoing domestic cargo shipments at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan?

METHOD

Qualitative methods are used to find out about the opinions of resource persons related to problems, make observations, and documentation [10]

Research Design

The method used is a descriptive approach, in which the research design contains all the processes needed in planning and conducting research. Research design is a research plan and structure to get answers to research questions [11]. The research was carried out in two stages, namely planning and implementation [12] :

- a. Planning includes problem identification, problem formulation, problem identification, theoretical foundation, and problem formulation.
- b. Implementation includes data collection (population, sample, and instrument

development), instrument testing, data analysis as well as conclusions and suggestions.

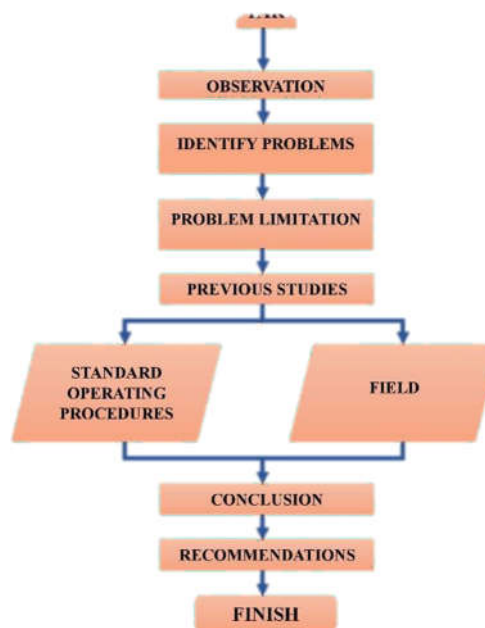


Figure 1 Research Design

Object of Research

The object of research is everything in any form set by the researcher to be studied so that information is obtained about it, then conclusions are drawn [13].

In this study, the object of research to be taken is cargo handling by domestic cargo delivery officers, and describes the conditions of laying cargo shipping equipment1 to improve services at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan.

Data Collection Techniques

Data collection methods or techniques can be done by *interviews*, questionnaires, observations, and a combination of all three [13]; [14].

Data collection on optimizing domestic cargo handling at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan. Then the following method is used:

Observation (Field Study)

Observation is a data collection technique that has specific characteristics when compared to other techniques [13]. Observation is also not limited to people, but also other objects of nature. The purpose of observation is an explanation of qualitative research that will produce theories and hypotheses, which are used in testing theories and hypotheses.

The observation made is direct observation at the scene that will be used as the object of research.

Literature Study

Literature study is research that uses various data sources that can be used to research, reduce, and explain comprehensively in various aspects both individuals, groups, and an organizational system or event systematically [15]; [16].

Literature studies conducted by researchers through regulations to review things that are considered to cause problems, guidelines and references to the understanding contained in the discussion of problems, including explanations of the titles of the problems raised accompanied by several opinions from experts edited from various sources.

For this reason, in this study, regulations that are in accordance with this problem are found in:

1. The Decree of the Director General of Civil Aviation Number SKEP/140/VI/1999 concerning Requirements and Procedures for Operating Vehicles on the Airside explains that *Ground Support Equipment (GSE)* may not leave and park vehicles in the airside area [17].
2. Regulation of the Director General of Civil Aviation Number KP Number 326 of 2019 concerning Technical and Operational Standards of Civil Aviation Safety Regulations Part 139 (*Manual Of Standard CASR – Part 139*) Volume I Airport (*Aerodrome*) [18].

Documentation

Document study is a study of written documentary material in the form of newspapers, texts, letters, films, articles, manuscripts and so on [19]. With this method, researchers collect data from existing documents, so that records related to research are obtained such as: overview of the Airport Cargo Terminal, conditions related to handling domestic cargo shipments, records, and so on.

Interview

Interviews are used as a data collection technique if researchers want to conduct preliminary studies to find problems that must be researched, and also if researchers want to know things from respondents in more depth [20].

In this study, interviews will be conducted with the resource person responsible at the cargo terminal to strengthen the research data and ensure the truth of the problems that have been found really occurred and know the chronology of the incident.

Data Analysis Techniques

The writing method in this final project is qualitative descriptive analysis. According to Sugiyono, qualitative research methods are research methods used to examine natural object conditions, where researchers are the key instrument, data collection techniques are triangulated, data analysis is inductive, and qualitative research results emphasize meaning rather than generalization [13].

With data collection techniques in the form of interviews and questionnaires. The data obtained will later be combined with the results of literature studies based on existing regulations. The stages of analytical techniques that will be used in qualitative analysis are:

1. Data Reduction

That is the stage of simplification, grouping, and elimination of data that is not needed so that the data produces quality and useful information, so that conclusions can be drawn easily.

2. Display Data

That is the stage of presenting data where a set of data will be arranged in an orderly, structured and easy to understand, so that the resulting conclusions will be in the form of narratives in the form of records of 25 field observations, matrices, graphs, networks or charts. So that the data will be organized and arranged and interrelated.

3. Conclusion and Verification

That is the final stage used to ensure that data reduction refers to the objectives of the analysis that will be required. At this stage will produce conclusions from the collected data by looking for relationships, similarities, and differences that can be drawn conclusions and answers to existing problems. Conclusions at the initial stage will be convincing and valid if supported by strong evidence. Verification carried out to assess the suitability of data on the basic concepts of the analysis is more precise and objective.

RESULT AND DISCUSSION

Research Results

Interview

The interview was conducted online via WhatsApp chat to the *Branch Manager of PT. Angkasa Pura Logistics Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan*. This interview was conducted with Mr. Lasono, the interview was conducted by asking 7 different questions each.

Based on interviews that have been conducted with *Branch Manager of PT. Angkasa Pura Logistics Sultan Aji Muhammad Sulaiman Sepinggan International*

Airport Balikpapan, obtained the results of interviews as follows:

Table 1 Interview Results

Researcher Questions	Interviewee's Answer	Pattern
What causes baggage cart buildup in the service road area?	Well, for the accumulation of cargo itself occurs due to the compaction of incoming mas cargo loads, which results in baggage carts spreading to the service road area	Cargo stacking occurs due to compaction of incoming cargo loads, which results in baggage carts spreading to the service road area
How often does baggage cart buildup occur in the service road area?	If it's quite often, especially at 11 o'clock and above in the staging area is already full	At 11 o'clock and above, the accumulation of baggage carts is already dense
How to reduce baggage cart buildup in the service road area?	If that problem, we ourselves overcome it by arranging according to applicable SOPs, so if the area is neatly arranged, the baggage cart will automatically be reduced	Arrange baggage carts neatly according to applicable SOPs, so the area is neatly sealed automatically baggage carts that accumulate so reduced
How many baggage carts are there in the staging area?	For that problem, there is no exact number of baggage carts, because they are not AP Log	The number of baggage carts is uncertain, because it does not belong to AP Log
In your opinion, is there a need for additional staging areas to minimize buildup in the service road area?	It is very necessary to add to the staging area, especially on holidays, and holidays, at that time a lot of cargo goods arrived, but because the	It is very necessary, but the cargo terminal area is very limited so it must adjust to these conditions

	cargo terminal area is very limited so we have to adjust to these conditions	
In storage C there are still areas that can be utilized, in your opinion, if later used for the placement of baggage carts as an effort to reduce the accumulation of baggage carts in the service road area?	It depends, we must be able to see the condition of how storage C is. Is it worth it or not. To be a decent place must also implement some SOPs and permits as well	Must be able to see the condition of storage C whether feasible or not, to become a decent place must also apply several SOPs and permits
How to make workers at cargo terminals understand SOPs and applicable rules	Once a week we usually do briefing to refresh the officers at the cargo terminal, so that our collective desire can be achieved to handle goods safely in accordance with procedures.	Once a week do briefing to refresh the officers at the cargo terminal, so that they can be reached to handle goods safely in accordance with procedures.

Based on the results of interviews that have been conducted with the Angkasa Pura Logistics Branch Manager stated that there was a buildup in the service road area, there was compaction of incoming cargo loads, so that the staging area compaction occurred and expanded to the service road area. The cause of inhibition is due to the large number of baggage carts that are not neatly arranged, resulting in inhibition of incoming and outgoing cargo. To handle compaction, it is necessary to understand existing SOPs and rules, so that compaction in the service road area is reduced.

The addition of the staging area is very necessary, but because the cargo terminal area is very limited, the Angkasa Pura Logistic must adjust to existing conditions, the placement of baggage carts on storage C must be seen as feasible conditions or not, and it must go through licensing first.

Observation (Field Study)

Inside the cargo terminal building there are four parts, namely the domestic incoming cargo building, international incoming, domestic outgoing, and international outgoing.

Activities at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan look quite crowded, especially in the domestic incoming cargo terminal area, in this case researchers present two tables that show activity activities at the cargo terminal from January to March.

Table 2 Domestic Cargo Data

Month	Domestic Cargo (Kg)		
	Income	Outcome	Total
Jan	2.718.563	1.005.232	3.723.795
Feb	2.448.995	1.027.704	3.476.699
Mar	2.721.416	1.118.538	3.839.954
Total	7.888.974	3.151.474	11.040.448

Table 3 International Cargo Data

Month	International Cargo (Kg)		
	Income	Outcome	Total
Jan	285.126	53.487	338.613
Feb	303.615	38.872	342.487
Mar	347.215	23.379	370.594
Total	935.956	115.738	1.051.694

The density of activity at the incoming domestic cargo terminal resulted in disruption of other activities, and the accumulation of facilities in the staging area, and the flow of movement of domestic outgoing cargo, and international outgoing cargo became narrow due to baggage cart facilities leading to domestic incoming cargo.



Figure 2 Activity in incoming cargo domestic

During observations (field studies) in the staging area, precisely in the build up and break down, there were problems that occurred in the area and the problems occurred repeatedly, without the right action or solution in handling the facility.



Figure 3 Baggage cart parking at service road

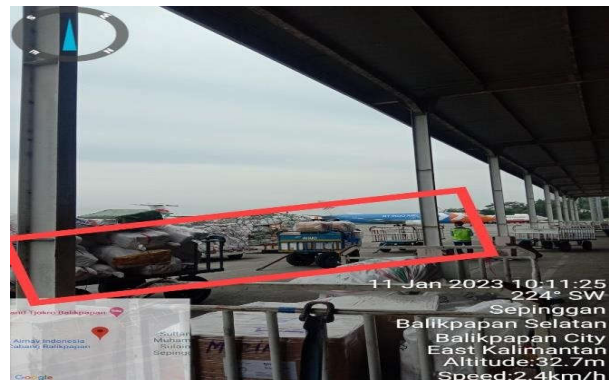


Figure 4 Second baggage cart parking at service road

In the picture above, it can be seen that there is a non-motorized GSE vehicle facility, namely a baggage cart parked in the airside area in the service road area. the incident was unattended, and the incident seriously endangered the safety and security of other GSE riders, GSE vehicles of any type are prohibited from parking and leaving the vehicle in the airside area [17].



Figure 5 Unloaded baggage cart parking at service road

In the picture above, you can see a baggage cart that does not load goods, but in its wrong placement, the baggage cart in the picture above should not be parked in the service road area, so as not to interfere with movement at the cargo terminal and other GSE vehicles.

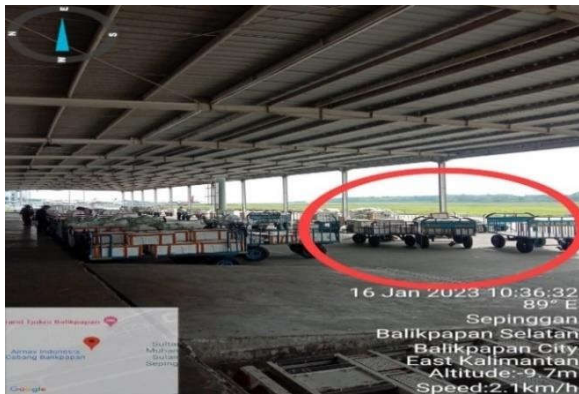


Figure 6 Baggage carts are not neatly arranged

The picture above shows a baggage cart facility that is not neat, this causes a buildup in the stragging area and causes baggage cart facilities to be parked in the service road area.



Figure 7 Baggage cart parking outside staging area

The picture above is the result of baggage cart facilities that are not neatly arranged, and result in overflow of baggage cart facilities to the service road area.

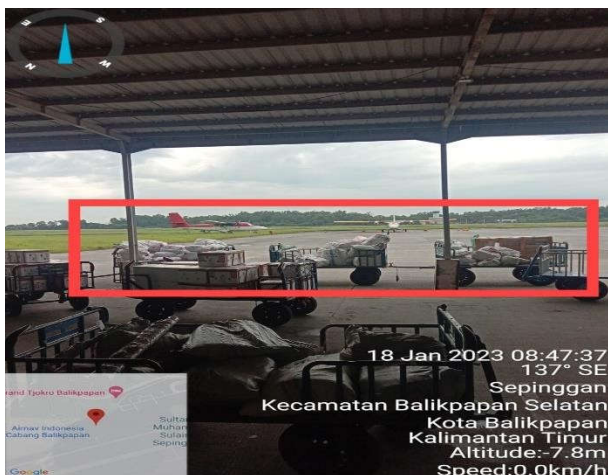


Figure 8 Second baggage cart parked outside staging area

In the picture above, 3 baggage cart facilities were found parked in the service road area, the incident was that the baggage cart facilities in the staging area were not well arranged so that there were obstacles to other baggage carts to enter the staging area.



Figure 9 Unloaded baggage cart parking outside staging area

In the picture above, it happened at 10:31, there are three empty baggage cart facilities parked in the service road area, from the picture the arrangement of facilities in the cargo terminal, especially in the staging area there is still an empty place, but in the picture above there is one baggage cart facility that is not well organized, so that the baggage cart facilities parked in the service road area are blocked from entering the staging area.

In handling cargo shipments by cargo terminal officers, it was found that there was damaged packaging due to handling that was not in accordance with Standard Operating Procedures (SOP) as a result if the goods inside were at risk of being lost and damaged. This can harm the party of the Aircraft Cargo Expedition (EMPU) who will bear the cost of loss of damage and loss to the customer due to service by unscrupulous officers at the cargo terminal in handling not in accordance with Standard Operating Procedures (SOP), from this incident it could be that the Aircraft Cargo Expedition (EMPU) loses trust.

CLOSING

Conclusion

Based on the results of the research that has been done, it is concluded, among others:

1. According to the discussion above, the condition of laying on cargo delivery facilities by domestic cargo delivery officers at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggian International Airport Balikpapan, in handling in the staging area, there are findings caused by the buildup of baggage cart facilities at the incoming domestic cargo terminal, in this finding makes staging conditions. The area is not neat, so the baggage cart facility extends to the build up area and to the service road area.

2. Optimization of handling domestic cargo shipments at the Cargo Terminal of Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan, still lacking in handling cargo that is not in accordance with standard operating procedures, it was found that there were unscrupulous cargo terminal porters who moved goods from pallets to baggage carts not according to procedures resulting in damaged cargo goods. Damaged goods enter the irregularity cargo or goods that experience problems when handling cargo goods.

Suggestion

Based on the conclusions above that have been described, suggestions and inputs can be given, namely for handling domestic cargo shipments in the staging area, the officer responsible for the cargo terminal must understand the applicable procedures and regulations by briefing once a week so that there is no misunderstanding in doing work and in handling the buildup of baggage cart facilities in the staging area, in order not to accumulate and widen until the service road handling area must be neatly arranged so that the handling of baggage cart facilities is in accordance with applicable procedures and regulations.

There needs to be an understanding of related regulations and standard operating procedures in areas that can be placed for baggage cart facilities, as officers responsible for cargo terminals, especially in staging areas, it is necessary to arrange baggage cart facilities to make them look neat, and in handling cargo shipments, officers responsible for cargo terminal areas provide understanding related to carrying handling goods according to existing procedures, so that cargo goods lifted by workers do not suffer fatal damage. Input from researchers if there is a buildup in the staging area, my suggestion is that there are no cargo cart facilities to be placed in storage area c right on the right side of the incoming domestic cargo terminal. Storage area c has an area of 3240 m², with a length of 54 meters, and a width of 60 meters. In storage area c there are still minimal non-motorized GSE vehicles so that storage area c can be used for baggage cart facilities. In handling in the staging area, terminal officers are responsible for arranging and arranging baggage carts in the staging area to make it look neat and orderly.

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