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THE EFFECT OF SUPPORTING FACILITIES AND BASIC LIQUID LOGISTICS ON BATAM LANAL OPERATIONAL ABILITY

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ABSTRACT

This research is conducted to find out the influence of liquid logistic supply. In this case, the freshwater and the naval base facilities especially the dock on the operation ability of Batam Naval Base. The method that is used in this research is descriptive quantitative by using a questionnaire in the Likert scale as the research instrument. The questionnaire is given to 63 respondents. The respondents consist of the Batam Naval base and Indonesian warship crews. This research uses some theoretical basis, such as influence theory, competence theory, logistics theory, standardization theory, and operation theory. The researcher uses a multivariate analysis application program by using Statistical Product and Service Solution (SPSS) 25 version for windows. The result of the research indicates that (1) the liquid logistics and the facilities of the Naval Base give a significant effect positively to the ability of Batam Naval Base operation evidenced by the results of the F test which shows a significance value less than 0.05, which is 0.000, (2) the liquid logistics partially give significant positive effects to the ability of Batam Naval Base operation evidenced by the results of the t-test which shows a significance value less than 0.05, which is 0.005, (3) the facilities of Naval Base partially give significant positive effect to the ability of Batam Naval Base operation evidenced by the results of the t-test which shows a significance value less than 0.05, which is 0.000. From the research, we can conclude that the supply of liquid logistics and the facilities of the Naval Base take an important role in the development of Batam Naval Base operation ability fully and partially the development of Batam Naval Base operation ability fully and partially.

Keywords: Liquid Logistics, Base Facilities, Batam Naval Base

I. INTRODUCTION

In the Indonesian Navy Base Standardization Administration Manual (Pum-7.03), in order to support the operational activities of the SSAT elements, the Base has several main tasks, namely providing combat support, logistical support, administrative support and special support for elements of the Indonesian Navy (ships, pesud, and Marines), carry out operations, and carry out maritime potential empowerment by utilizing facilities and infrastructure owned by the base itself and related agencies in its territory.

Related to the duties and functions of the base, Batam Lanal, which is a type B Naval Air Station, experienced problems related to the support function of anchoring facilities and supply facilities. Notes indicating the presence of constraints can be summarized in the table in the appendix. From the table it can be seen that no Freshwater Requests to Receive (PUT) are

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supported (TAP). In addition, the KRI berth that carried out the re-supply was Batu Ampar Pier where the pier belonged to PT. Pelindo. This shows that there are constraints on logistical support, especially Freshwater and Wharf. The distance between the port/dock and Mako Lanal is quite close. However, dock support facilities such as fresh water cannot be supported because a fresh water pipe network system is not yet available.

There is another alternative that can facilitate KRI with a large size, more than 80 m, namely Batu Ampar Pier, owned by Pelindo. The port is a port that the Indonesian Navy relies on, even though it has limitations. If there is a KRI that will dock to carry out re-supply or other purposes, then the ship will direct the ship to dock at Batu Ampar Port. This is not in accordance with the purpose of establishing a base, which should have facilities to support the operational activities of the elements of the Indonesian Navy. In accordance with the standard set out in the Indonesian Navy Base Standard Administration Manual (Pum-7.03) that the Base must be able to carry out its function to provide logistical support.

This problem gives an overview to the author about the situation in the field of Logistics Base in Lanal Batam. Therefore, the authors are interested in carrying out more in-depth research. In this study, the author will examine the effect of Liquid Logistics support and the wharf as one of the base facilities on the Batam Lanal Operational Capability, where these three variables are vital requirements for the SSAT Element carrying out operations in the area around Batam. With good support, it will guarantee the success and smooth implementation of operations and patrols. In addition, good support from the base is an indication of the readiness of the Indonesian Navy in dealing with both military and non-military threats.

According to [1] ability comes from the basic word "able" which when associated with a task/job means "can" (adjective/state) perform the task/job, resulting in goods or services as expected [2]. Then in standard and commonly used terms the term "skill' is translated into "ability" so that what is meant by the words "ability" here is synonymous with "skill" [3]. Katz *in* [1] defines skills in the field of management as 3 basic types that every manager needs to have in order to be able to carry out his duties to lead efficiently and successfully, namely technical skills, human skills and conceptual skills [4].

Understanding Logistics has shifted, along with the times. According to [5] Logistics is the entire material, goods, tools and facilities needed and used by an organization in order to achieve its goals and various targets. Meanwhile, there are several other logistics theories according to [6], which say that logistics is the process of planning, implementing and controlling the effective and efficient flow of storage of raw materials, inventory in process and finished goods connected with information from point of origin to point of origin. Consumption, to meet needs.

From some of the logistical meanings above, if related to the military, it can be interpreted as Military Logistics, which is the process of planning and budgeting for the maintenance and organization of material support as well as facilities and services on an ongoing basis to combat units and tactical units in order to achieve the goals set at the time and the chosen place. Meanwhile, if it is related to the TNI, it can be interpreted as TNI Logistics, which is everything related to the provision and fulfillment of material needs, facilities and services in an appropriate manner so that the function of implementing logistical support can be carried out effectively and efficiently. Then if it is associated with the field of operations, it can be interpreted as operations logistics.

2. RESEARCH METHOD

Method

The type of research used in this research is a descriptive quantitative method [7]. Descriptive quantitative is to describe the object of research at the current state based on the facts as they are, then analyzed and interpreted, the form is in the form of surveys and developmental studies [8]. The quantitative method is research data in the form of numbers and analysis using statistics [9]. In researching the relationship between variables, which is strictly carried out through statistical analysis, researchers carry out measurements or observations to test certain theories, objective data are generated from empirical observations and measurements, validity and reliability of scores in research instruments guide researchers to interpret research data [10].

The population in this study was Batam Lanal Members, KRI Personnel, Batam KSOP members and Batam private freshwater providers, with a total population of 167 people. In this study, samples taken from the Lanal Batam population were based on the Slovin formula with the assumption that the population is normally distributed. In this paper, the author uses an error of 10%. Calculation of the sample size, using a total population of 167 people and a 10% leeway/error percentage, a sample of 63 respondents is obtained.

To carry out good research does not only discuss the validity and reliability of data but is influenced by the quality of data collection [11]. Data collection is a method needed to answer the research problem formulation [12]. Data collection techniques were carried out by collecting primary data and secondary data, where the primary data was carried out by distributing questionnaires to the research sample, namely Batam Lanal members and other parties involved. Meanwhile, secondary data was obtained from observation and literature studies related to research [13]. The data collected in the research is used to test hypotheses or answers to questions that have been formulated, because the data obtained will be used as the basis for drawing conclusions.

Data Analysis

In this study, quantitative data analysis techniques were used, namely a data analysis technique using numerical calculations and statistical formulas from secondary data that had been collected. The quantitative analysis steps are validity and reliability tests [14]. Descriptive analysis is used to describe the results of research in the field, especially those related to research respondents. In addition, it will also explain the distribution of each variable, namely the independent or independent variable. Multiple linear regression analysis is used for studies that have more than one independent variable. Multiple linear regression analysis is used to determine the direction and how much influence the independent variables have on the dependent variable [15].

$$Y = a + \beta 1\ X1 + \beta\ 2\ X2 + + \beta\ n\ Xn.$$

Where:

Y	=	dependent variable
A	=	Constant
β 1, β 2, ..., β n	=	regression coefficient on each independent variable
X1, X2, ..., Xn	=	are each independent variable

In this study, multiple linear regression will test and obtain multiple linear equations about how much influence the ability of liquid logistics support (X1) and base facilities (X2) has on Batam Lanal Operation Capability (Y) or can be written in the form of a linear equation: Y = f(X1, X2).

3. RESULT

Multiple Linear Regression Analysis

Multiple linear regression analysis is used to measure whether or not there is a relationship between two or more variables and shows the direction of the relationship between the independent variables and the dependent variable. Can be seen in Table 1.

In this study, multiple linear regression analysis was used to measure the presence or absence of influence between Liquid Logistics Support and Base Facilities as the independent variable on the Batam Lanal operational capability as the dependent variable. To find out about this, data processing uses the SPSS program version 25 for windows. The results obtained are in accordance with the Table 1.

The multiple linear regression equation obtained from the results of data processing is as follows:

Y = -5.998+ 0.557 X1 +0.195 X2

Table 1. Multiple Linear Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients
		B	std. Error	Betas
1	(Constant)	-5,998	4,297	
	Support Liquid Logistics	,557	.046	,788
	Facility Base	,195	,067	, 191

a. Dependent Variables:BATAM LANAL OPERATION

The explanation of the multiple linear regression equation above is as follows: The constant value is -5.998. This means that the independent variables are Liquid Logistics Support (X1) and Fasibase capacity (X2) is constant or equal to zero, and then the Batam channel operating capability (Y) will be -5.998 units.

The coefficient value of Liquid Logistics support (X1) is 0.557 and has a positive regression coefficient. This indicates a unidirectional change. That is, every time there is an increase in liquid logistics support by one unit, it can increase the operational capability of Batam Lanal by 0.557 units and vice versa if there is a decrease in liquid logistics support by one unit, it can reduce Batam Lanal operations by 0.557 units assuming the independent variable others constant.

The coefficient value of Base Facilities (X2) is 0.195 and has a positive regression coefficient. This does not indicate a change (still in the same direction). That is, every time there is an increase in the Base Facilities by one unit, it will increase the operational capability of the Batam Lanal by 0.195 units assuming the other independent variables are constant.

Coefficient of Multiple Determinations (R2)

In this study the analysis of the coefficient of multiple determination is used to measure how much the variation in the ups and downs of the Liquid Logistics Support (X1) and Base Facility (X2) variables can affect the variation in the ups and downs of Batam's line operation capability (Y). From the results of data processing using the SPSS program version 25 for windows (Table 2).

Based on the Table 2, it is known that the magnitude of R Square (R2) is 0.804 or 80%. This shows that 80% of the variation in the difficulties of the Batam Lanal Operational Capability (Y) can be influenced by the difficulties of Liquid Logistics Support (X1) and Base Facilities (X2) while the remaining 20% is influenced by other variables outside the research.

Table 2. Coefficient of Multiple Determinations (R2)

Summary model[b]				
Model	R	R Square	Adjusted R Square	std. Error of the Estimate
1	,897a	,804	,798	4,359

a. Predictors: (Constant),BASE FACILITIES, LIQUID LOGISTICS SUPPORT
b. Dependent Variables: LANALBATAM OPERATIONS

Partial Influence Test with t test

The t test is used to determine the partial effect of the independent variable on the dependent variable. The criteria for testing the t test according to [15] are if the probability value is less than 0.05, then partially the independent variable affects the dependent variable. The t-test carried out in this study was used to partially test the effect of Liquid Logistics Support (X1) and Base Facilities (X2) on Batam's line operation capability (Y). The t test criteria in this study are:

1. If the probability value or significance value is > 0.05, then partially Liquid Logistics support (X1) and Base Facilities (X2) have no effect on the ability of Batam's channel operations (Y).

2. If the probability value or significance value is <0.05, then partially Liquid Logistics Support (X1) and Base Facilities (X2) have an effect on the ability of Batam's channel operations (Y). From the results of data processing using the SPSS program version 26 for windows, the following results are obtained

Table 3. Partial Influence Test with t test

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	std. Error	Betas	Q	Sig.
1	(Constant)	-5,998	4,297		-1.396	, 168
	Support Liquid Logistics	,557	.046	,788	12,050	,000
	Facility Base	,195	,067	, 191	2,916	,005

a. Dependent Variables: BATAM LANAL OPERATION

Based on Table 3, the coefficient of determination above shows that the value of R Square is 0.353. This figure implies that the variables Communication (X1) and Creativity (X1) simultaneously affect the Y variable in this case Maritime Potential Development (Y) of 0.353 or 35.3% and the remaining 64.7% is influenced by other variables outside this regression equation or the variable that is not examined.

Simultaneous Influence Test with F Test

The F test is used to show the simultaneous effect of the independent variable on the dependent variable. The criterion for testing the F test according to [15] is if the probability value is less than 0.05, then simultaneously the independent variable affects the dependent variable. In this study, the F test was used to determine whether there was a simultaneous effect of Liquid Logistics Support (X1) and Base Facilities (X2) on Batam Lanal operational capability (Y). The criteria for the F test in this study are:

1. If the probability value or significance value is > 0.05, simultaneously Liquid Logistics Support (X1) and Base Facilities (X2) have no effect on Batam's line operation capability (Y).

2. If the probability value or significance value is <0.05, simultaneously Liquid Logistics Support (X1) and Base

Facilities (X2) affect Batam's line operation capability (Y).

From the results of data processing using the SPSS program version 26 for windows, the following results are obtained:

Table 4. Simultaneous Effect Test with F Test

Variable	Sum of Squares	df	MeanSquare	F	Sig.
Regression	4687,110	2	2343,555	123,328	,000b
residual	1140,159	60	19,003		
Total	5827,270	62			

a. Dependent Variable: BATAM LANAL OPERATION
b. Predictors: (Constant) BASE FACILITIES, LIQUID LOGISTICS SUPPORT

From the table above it can be seen that the significance level is less than 0.05, which is equal to 0.000. This shows that simultaneously Liquid Logistics Support (X1) and Base Facilities (X2) have an effect on the Batam channel's operational capability (Y).

4. DISCUSSION

Fresh water (X1) and wharves (X2) have an influence on Batam Lanal operations (Y). This is evidenced by the results of the F test that shows a significance value of less than 0.05, which is equal to 0.000. This research means to support the first hypothesis that "fresh water support and wharves have a significant positive effect on the operational capability of Batam Lanal. The results of this study indicate that the operational capability of the Batam Lanal is influenced by the fresh water and wharf support provided to the operating Elements. For this reason, the leadership of the Indonesian Navy should pay attention to the fresh water and wharf support provided to the Indonesian Navy Elements who are carrying out operations in the Batam Lanal work area so that the Navy's tasks can be achieved.

Dock support partially has a significant positive effect on the operational capability of the Batam Lanal. This is evidenced by the significance value of the t test, which is 79 that is smaller than 0.05, which is 0.000. The results of this study indicate that the higher the pier support, the higher the Batam Lanal operational capability. Thus, if the operational capability of the Batam Lanal is to be increased, it is necessary to fulfill the optimal support for dock facilities.

Fresh water support partially has a significant positive effect on the operational capability of the Batam Lanal. This is evidenced by the significance value of the t test that is smaller than 0.05, which is equal to 0.005. The results of this study indicate that the smoother the fresh water support, the higher the operational capability of the Batam Lanal. Thus, if the operational capability of Batam Lanal is to be increased, it is necessary to provide fresh water support to operating elements, both physically in the field and administratively.

5. CONCLUSION

Based on the results of research conducted to analyze and prove the effect of liquid logistics support and base facilities on the operational capabilities of the Batam Lanal, several conclusions can be drawn as follows: 1) Based on the results of the F test with a significance value of less than 0.05, which is equal to 0.000 for the liquid logistics support variable and base facilities, it shows that there is a large influence on the operational capability of the Batam Lanal. The F test is used to show the simultaneous effect of the independent variable on the dependent

variable. 2) Based on the results of the t test with a significance value of less than 0.05, which is equal to 0.000 for the liquid logistics support variable, it indicates that there is a large influence on the operational capability of the Batam Lanal. Thus, it has been known whether there is a partial influence between Liquid Logistics support (X1) on Batam Lanal operational capability (Y), and 3) Based on the results of the t test with a significance value of less than 0.05, which is equal to 0.000 for the base facility variable, it indicates that there is a large influence on the operational capability of the Batam Lanal. Thus, it has been known whether there is a partial influence between the Base Facilities (X2) on the Batam Lanal operational capability (Y).

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