ANALYSIS OF THE EFFICIENCY LEVEL OF FISH AUCTION PLACES IN NORTH JAKARTA CITY

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Abstract

Fish Auction Place can be interpreted as a place where the sellers and buyers is doing the transaction of fish through the auction process, in this case the process of selling the fish using bidding way in a public. North Jakarta City has 3 (three) active fish auction places which are TPI Muara Angke , TPI Muara Baru, and TPI Kalibaru. Efficiency is the ratio of output and input. DEA is a non parametric method that uses a linear programming model to calculate the ratio of output and input for all units that are compared. This study aims to identify infrastructure facilities, analyze the efficiency level and compare the efficiency of Fish Auction Locations in North Jakarta. The method used in this research is descriptive method. Sampling method used is purposive sampling. The method used to analyze the efficiency of TPI is the forth DEA banxia forontier analysis tool. There are two out of three TPI that have been efficient or can be said to have score of 100% efficiency that are TPI Muara Angke and TPI Muara Baru. As for Kalibaru TPI has not achieved efficient scores and obtained a score of 21.2% efficiency.

Keywords*: Fish Auction Place (TPI), DEA, Efficiency, Banxia Frontier Analysis*

A. INTRODUCTION

Jakarta is located on the coast of the Northwestern part of Java Island where to the north Jakarta is surrounded by sea waters. exists to support fishermen's income and make it easier for fishermen to auction off their catch. Based on the population distribution, the DKI Jakarta area in 2016 had a population of 10,277,628 people divided into several Regencies and Cities namely the Thousand Islands, South Jakarta, East Jakarta, West Jakarta, North Jakarta and Central Jakarta. DKI Jakarta has sea and land areas that are mandated for the capture fisheries and aquaculture sectors. The fisheries sector in capture fisheries provides the largest contribution in terms of both production volume and production value, compared to other commodities such as ponds, ponds, etc. The Fish Auction Place (TPI) is one of the places where fish auction activities are also

one of the factors that can drive , increase business, and improve the welfare of fishermen (Wiyono, 2005).

According to Sinaga *et al.* (2012), Fishing ports have a function to improve the smooth operation of fishing, landing catches,processing fish and marketing fish. With the existence of fishing ports, the smooth operation of fish catching, landing, processing and marketing activities is expected to be easier.

Fishing ports have roles and functions in fish resource management and utilization activities, including for ship mooring and loading and unloading services, quality development and processing of fishery products, fish marketing and distribution, production data collection, implementation of counseling and community development, supervision and control of fish resources, and implementation of government functions. The operational implementation of fishing ports and fish landing bases requires attention in terms of management (Haro *et al.,* 2014).

One of TPI's main functions is to organize marketing or auctions of fishermen's catches. In the auction process, TPI will carry out a bidding process that is appropriate and not excessive when dealing with traders, so that an appropriate price and payment system will be created without harming the traders. TPI has a function as a place specifically provided by the Regional Government to carry out fish auctions including the loading and unloading of fishery products. TPI is the center for fisheries economic development in terms of production, processing and marketing (Dianto et al, 2004).

Research Objectives :

The objectives of this study are as follows:

1. Identify existing facilities and facilities in 3 (three) Fish Auction Sites (TPI) in North Jakarta City in relation to TPI efficiency;
2. Analyze the efficiency of the Fish Auction Place (TPI) in North Jakarta City, and

B. RESEARCH METHODS

This research was conducted using a descriptive method, namely by making direct observations to the field to observe aspects that are included in the scope of research to describe precisely the empirical conditions at the present time. Analyze and make general conclusions about the object under study, for example counting the number of baskets. According to Supranto (2003), descriptive methods can be exploratory which aims to allow researchers to describe the situation at a certain period of time as a basis for making decisions.

According to Ali (2017), efficiency is one of the performance parameters that underlies the entire performance of an organization. The ability to produce maximum output with existing inputs is a highly expected performance measure. When efficiency measurement is carried out, banks are faced with the condition of how to get an optimal level of output with an existing input level, or get a minimum input level with a certain level of output. By identifying the allocation of inputs and outputs, it can be further analyzed to see the causes of inefficiencies. The analytical tool used in measuring performance with an efficiency approach in this study is Data Envelopment Analysis. According to Paramita (2008), technical efficiency can be measured by approaches from the output side and input side. The measurement of technical efficiency in terms of output is the ratio of observation output to limit output. This efficiency index is used as

an approach to measure the efficiency of techniques within the stochastic frontier. The measurement of technical efficiency from the input side is the ratio of input or frontier costs to input or observation costs.

According to Lubis (2006), a fishing port is a place that has various facilities that are useful in carrying out its functions and roles as a port Facilities contained in fishing ports or fish landing bases consist of basic facilities, functional facilities and additional facilities.

TPI exists to support fishermen's income and make it easier for fishermen to auction their catch. The Fish Auction Place (TPI) is one of the places for fish auction activities is also one of the actors that can mobilize, improve business, and prosper fishermen (Wiyono, 2005).

Theauction cannotbe separated from the facilities and infrastructure and fishermen's catches that support the performance of the fish auction site. TPI as a means of infrastructure is a unit of water areas, as well as land areas and facilities in the fishing base, both natural and artificial. TPI is the center of fisheries economic development both in terms of production, processing and marketing. The existence of TPI can contribute to increasing fish production, foreign exchange income, opening jobs and increasing income, increasing the supply of fresh fish and increasing local government income (Amiruddin, 2014).

Efficiency is the ability n toobtain the expected output at the expense of minimum input power or energy, or it can be interpreted where an activity carried out has been said to be efficient if the activity has reached the optimum output with minimum input sacrifice. The level of efficiency of a TPI is inseparable from the facilities and infrastructure that support the performance of the fish auction site. The efficiency of a Fish Auction Place can be influenced by several factors including management management, facilities and infrastructure, andauction activities at TPI. (Hidayah 2017).

The sampling methodused is the purposive sampling method because the sample needed must be sourced from sources who understand and understand not arbitrarily the sample to be more valid the sample obtained, According to Munir (2011), the purposive methodSampling is done by taking people who are correctly selected by the researcher according to the special characteristics possessed by the sample. Purposive samples are carefully selected samples that are relevant to the research design. Researchers will try to have representatives of the population in the sample. With deikian, it is sought that the sample has a representative.

The analytical technique used to analyze the level of efficiency of TPI management is to use a non-parametric approach , namely Data Envelovment Analysis (DEA), which is basically a linear programming-based technique. The DEA concept is to measure the relative efficiency of Economic Activity Units (UKEs) that use many inputs and other UKEs in a sample that use the same types of inputs and outputs. In DEA, the relative efficiency of UKE is defined as the ratio of total weighted output/weighted input (Susilowati and Ikhwan, 2004).

According to Sarwoto (1987), efficiency is the ability to achieve the expected results (output) at the expense of minimum labor or costs (input) or in other words, an activity has been carried out efficiently if the implementation of activities has reached the target (output) with the lowest sacrifice (input). Data calculation is carried out using *banxia*

frontier analysis software, namely by looking at the efficiency score of each Economic Activity Unit (UKE), in this case TPI. If the score obtained is equal to 100%, then the TPI isnot efficient. But if the score obtained is less than 100%, then the TPI is not efficient. In order for an inefficient UKE to become efficient, it is necessary to make improvements or change existing *inputs* and *outputs* in accordance with TPI that has reached an efficient value.

C. RESEARCH RESULT
1. General State of Fisheries

The general condition of capture fisheries in North Jakarta has considerable potential, DKI Jakarta Province has sea and land areas that can be utilized for the fisheries sector, such as processing, aquaculture and the capture fisheries sector. In this case the capture fisheries sector has a sizeable contribution both in terms of production volume and production value. There are currently 7 (seven) fish auction houses in North Jakarta, but only 3 (three) are active, namely Muara Angke, Kalibaru and Muara Baru. in DKI Jakarta Province is managed by the Food Security, Maritime Affairs and Agriculture Office of DKI Jakarta Province.

The general condition of capture fisheries in North Jakarta has considerable potential and is open todevelopment based on production data in the table above. The results of tangkapan landed are catch resultswith high economic value as evidenced by the production value of catches and cultivation in the table above. This factor can attract fisheries business actors to support fisheries production in North Jakarta itself, facilities and infrastructure that can improve the business need to be developed, namely the Fish Auction Place (TPI) as a place for the auction process to occur and the center of economic activities both buying and selling and so on. According to Niswati (2014), Data Envelopment Analysis is a method for evaluating and solving problems by integrating several inputs and outputs.

In the DEA approach, there are two models based on the relationship between input and output variables, namely the CRS (Constant Returns To Scale) model proposed by Charnes, Cooper and Rhodes (1978) and the VRS (Variable Returns To Scale) model developed by Banker (1984). from its predecessor model. The model with CRS conditions indicates that the addition of factors of production (input) will not have an impact on additional production (output). While the model with VRS conditions will show that the addition of a number of production factors (inputs) will increase or decrease production capacity (output). Usually the results of output-oriented and input-oriented DEA model calculations will identify exactly the same efficient DMU. The efficiency value for the output-oriented model will be the same as the efficiency value for the input-oriented model. The average efficiency value for the input-oriented VRS model will generally be greater than the input-oriented CRS model (Yasar A. Ozcan in Puspitasari and Ratna, 2017).

According to Prasetyo (2008), DEA is a non-parametric method that uses a linear programming model to calculate the ratio of output and input ratios for all units being compared. Introduced for the first time by Charnes. Cooper, and Rhodes (CCR) in 1978. This method does not require a production function and the calculation results are called

relative efficiency values. So it can be said that DEA is a method not a model. Data Envelopment Analysis is a multifactor analysis method to measure the efficiency and effectiveness of a group of homogeneous Decision Making Units (DMU).

According to Alchusna and Destri (2012), the basic model of Data Envelopment Analysis (DEA) was introduced by Charnes, Cooper, and Rhodes in 1978. The DEA method was created as a tool for evaluating the performance of an activity in a homogeneous entity unit (organization or company). called a decision making unit (DMU).

2. Existing Conditions of Muara Angke and Fishing Facilities

Muara Angke Fish Auction Site (TPI) has a land area of 3000 m². The buildings and facilities at the Muara Angke TPI location are *Breakwater*, piers, fences, TPI offices, auction floors, prayer rooms, toilets, canteens, water, parking lots. The auction floor area of TPI Muara Angke is 190 m² located right next to the TPI office. The number of TPI Muara Angke personnel is 10 people and the number of auctioneers is 2 people, weighers are 12 people, baskets are 2 people and compliers are 2 people. The number of baskets owned by TPI Muaara Angke is quite banyak but there are 30 pieces used and this belongs to TPI Muara Angke. Fishermen in the Muara Angke area are quite a lot and they auction their catches at TPI Muara Angke because it is close to the port, besides that many baskets are ready to buy catches, but not all fishermen auction their catches are directly exported and imported to national and international companies. Fishermen at TPI Muara Angke are divided into national fishermen and modern fishermen, they use a fleet of pan penangkarswith 5-5 0 GT motor boat engines. The fishing gear used by fishermen in the Muara Angke TPI area is very diverse, there are many types of fishing gear used, but for fishermen who make sales transactions through auctions at TPI with gill net fishing gear or *gillnets*, there are ring trawls, bubu, *boukeami* and so on. The result of the catch is very variegated fish.

Muara Angke Fish Auction Place is a place to make buying and selling transactions or to auction catches in North Jakarta. The auction process as well as buying and selling or markets for retail are also in this place. Fishermen who own the catch usually land their bonds and then sell them through auctions, after that the fish baskets prepare to compete in price with each other to buy the catch, the catch will be sold again by the fish basket to the market, exporters, processing, restaurants, or directly purchased by the community itself. This auction place is open from 08.00 WIB to 15.00, the completion of the auction process depends on the number of catches auctioned at TPI. Employees from the Fish Auction Place are ready at the auction venue starting at 07.30 WIB. The ship docked at the dock was erratic, when the ship was docked then the crew began to sort the fish then weighed and then sorted which fish would enter the auction. The auctioneer prepares to conduct the auction process after the fish are arranged and the baskets are ready to gather. Auction officers carry out transaction activities at TPI Muara Angke in turn, they take turns and there are rest hours. The division of work is in accordance with the schedule made, if there are officers who are unable to attend, they will be replaced by other officers, or existing TPI personnel. The fish basket entitled to buy the catch is the fish basket that wins the auction process (buying the catch at the highest price). To be able to carry out the auction process at TPI Muara Angke, baskets are required to register first. The basket is required to register and then provide a security deposit to

the financial officer in the amount of Rp. 1,000,000 This security deposit functions when the basket leaves when buying auction results or as collateral if the basket cannot pay off payments or purchases at TPI. Thus, not everyone can participate in the auction process, only people who want to seriously buy. TPI Muara Angke does not impose a levy because the DKI Jakarta Provincial government is reluctantto withdraw the levy because it will burden fishermen.

Production data and production values at the Muara Angke Fish Trafficking Site in 2012 to 2016 are as follows:

Table 1. Production Data and Production Value of Muara Angke for 2012 -2016

No.	Year	Product (Ton)	Value Product (Rp)
1	2016	107.481,9	3.168.445.885.614
2	2015	90.761,8	1.833.121.646.545
3	2014	27.013,9	112.525.566.355
4	2013	28.318,5	92.997.409.386
5	2012	27.739,8	87.762.822.925

Source : Muara Angke Kota Jakarta Utara, 2017.

The fishing facilities used in Muara Angke are dominated by boats from 5 to 30 GT. Fishermen who carry out the auction process are fishermen with gill net fishing gear, and purse seines and so on. Fishermen in Muara Angke are fishermen who have long trips for months because the boats are quite large and fishermen in Muara Angke who land their catches come from many cities, some are from Apex, Jepara, starch, Indramayu and so on.

3. Existing Conditions of Kalibaru and Fishing Facilities

The Kalibaru Fish Auction Place has a land area of 780 m². The buildings and facilities in Muara Angke include docks, fences, parking, offices, auction floors, water, toilets, canteens. The auction floor area itself is 70 m². The number of personnel from Kalibaru is 8 people with 1 auctioneer. The number of baskets used in Kalibaru is 25, but 7 are used. The baskets belong to Kalibaru. The fleet used in Kalibaru has a size of 5 GT to 20 GT. Fishermen in Kalibaru use a variety of fishing gear, such as nets and so on. The Kalibaru Fish Trade Center is an active one in North Jakarta. The process of buying and selling the catch occurs in this place. Fishermen land their fish through the loading dock and then sell it through an auction. Bakul will buy fish through the unloading dock and then resell it through an auction.

Production data at the Kalibaru Fish Auction Place 2012 – 2016 are as follows:

Table 2. Kalibaru production data for 2012 – 2016 T

No	Year	Production (Ton)	Value Produksi (Rp)
1	2016	4.082,8	119.723.774.000
2	2015	2.743,9	76.650.065.000
3	2014	1.271,1	34.274.686.000
4	2013	467,5	623.151.000
5	2012	352,1	509.750.000

Source : Kalibaru Kota Jakarta Utara, 2017.

The fishing equipment used in Kalibaru is of various types and sizes. Many fishermen sell their catch to or to collectors. Fishermen in Kalibaru use a variety of fishing gear, they don't all of the results will be auctioned, there are also those that are directly exported and imported to private companies. At the start of 2016, many fishermen used environmentally friendly fishing gear. Most fishermen from Kalibaru have daily fishing trips.

4. Existing Conditions of Muara Baru and Fishing Facilities

The Muara Baru Fish Auction Place is located in Muara Baru, Penjaringan Village, North Jakarta. The Muara Baru Fish Auction Place is under the management of the DKI Jakarta Province Food Security, Maritime Affairs and Agriculture Agency. Muara Baru Fish Auction Place has a land area of 3000 m². The buildings and facilities at the Muara Baru location are the auction floor, parking lot, canteen, bathrooms, wharf, office. The auction floor area of the Muara Baru Auction Venue is 300 m². The number of employees on duty at this office is 15 people with 2 auctioneers where one is part of the auctioneer and one is the note taker and takes turns. There are 50 baskets in Muara Baru, these baskets belong to Muara Baru itself. The fishing fleet in Muara Baru is 5 GT to 20 GT. The fishing gear used is gill nets, purse seines, and so on.

Production data at the Muara Baru Fish Auction Site for 2012 – 2016 are as follows:

Table 3. Data Produksi Muara Baru Tahun 2012 - 2016

No	Year	Production (Ton)	Value Product (Rp)
1	2016	174.500,8	4.391.167.536.515
2	2015	234.867,1	7.012.078.294.965
3	2014	271.859,8	7.084.879.026.504
4	2013	247.958,9	5.703.642.621.302
5	2012	215.608,2	4.461.310.786.536

Source : Muara Baru Kota Jakarta Utara, 2017.

Berdasarkan data dari Muara baru jumlah produksi mengalami penurunan dari tahun ke tahun, produksi perikanan tangkap di Muara Baru yang tertinggi terjadi pada tahun 2014, dan pada tahun tahun setelahnya mengalami penurunan hingga pada tahun 2015 turun yakni jumlah produksi 234.867 Ton. Kemudian pada tahun 2016 mengalami penurunan lagi yakni jumlah produksi sebesar 174.500 Ton

5. Results of Efficiency Analysis in North Jakarta City

Analysis of the efficiency of the Fish Auction Place () was carried out using the "Banxia Frontier Analyst 4 software". In the analysis of efficiency in North Jakarta City, there are eleven input variables that are included in the analysis process including the area of the auction floor (m²), Number of vessels (units), Number of baskets (fruit), number of employees (people), Number of auctioneers (people), Total ships (units), number of carts (pieces), number of scales (pieces). The output factor included is production (tons).

Based on the results of calculations using DEA Banxia Frontier Analysis 4. The efficiency score for each Fish Auction Place () is obtained as follows:

Tabel 4. Skor Efisiensi di Jakarta Utara

No	Nama	Skor Efisiensi (%)

1	Muara Angke	100
2	Kalibaru	22,8
3	Muara Baru	100

Source : Hasil Pengolahan Data Penelitian, 2018

From the results of the analysis with the Banxia Frontier Analyst 4 software, it can be seen that the Fish Auction Place () which has a score of 100% is Muara Angke and Muara Baru. Where in these conditions the implementation and targets have the same value so that the achievement that must be made is 0%, in this case the input that is owned is in accordance with the expected output and does not exceed the expected target limits. From the table above it can be seen that those who have achieved a score of 100% or can be said to be efficient based on field research, there are still possibilities for development in , especially in terms of facilities and infrastructure. In the end it can improve the welfare of fishermen and regional income. The results showed that Kalibaru did not show a score or did not reach the 100% efficient target score and the score obtained was 22.8%. This is due to the implementation and targets that are carried out to be greater in implementation, causing less efficiency in the management. According to Pramitasari et al (2006) Efficiency analysis using DEA (Data Envelopment Analysis). Data calculation is done using the Banxia Frontier Analysis software, namely by looking at the efficiency score of each UKE (Economic Activity Unit), in this case it is . If the score obtained is equal to 100%, then it is said to be efficient. But if the score obtained is less than 100%, then it is not efficient. In order for UKE which is not yet efficient to become efficient, it is necessary to make improvements or change existing inputs and outputs in accordance with the potential improvement value generated by the DEA calculation, in accordance with those that have achieved an efficient value. DEA is a non-parametric approach that is often used in efficiency measurement research. The data used are input and output variables which are then processed to produce a certain efficiency score for each Decision Making Unit (DMU). The efficiency score obtained from the measurement results with DEA is the relative efficiency score between each DMU. Based on the DEA approach, a DMU that is input and output oriented is said to be efficient if it obtains a score equal to 100%, and is not efficient if the efficiency score is less than 100%. If the score is less than 100%, it means that the DMU is still carrying out wasteful actions in using its inputs. According to Pramitasari et al (2006), if a value reaches 100%, it means that it is efficient, that is, it has been able to minimize input to achieve maximum output.

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This is reinforced by Huri and Susilowati (2002), Efficiency as measured by DEA analysis has a different character from the concept of efficiency in general. First, the efficiency measured is technical, not economic. That is, DEA analysis only takes into account the absolute value of a variable. The basic unit of measurement that reflects the economic value of each variable, such as price, weight, length, content and others, is not considered. Therefore it is possible to have a pattern of calculating the combination of various variables with different units. Second, the resulting efficiency value is relative or only applies within the scope of the group of UKE (Economic Activity Units) being compared.

6. The Efficiency of the Muara Angke Fish Auction Place

Based on the results of the analysis of "Banxia Frontier Analyst 4 software." Fish Auction Place Muara Angke gets a score of 100% score, so Muara Angke is declared efficient. Muara Angke analysis data can be seen as follows:

Table 5. Results of Muara Angke DEA analysis

	Input / Output	Actual	Target	Potential Improvement
Input	Floor area	190	190	0.00%
	Number of Ships	1040	1040	0.00%
	Number of Baskets	30	30	0.00%
	Number of employees	10	10	0.00%
	Number of Auctioneers	2	2	0.00%
	Number of Carts	1	1	0.00%
	Number of Scales	2	2	0.00%
Output	Production Amount	107.481	107.481	0.00%

Source : Research Data Processing Results, 2018

Based on the table above, it shows that the efficiency value of the Fish Auction Place () in Muara Angke reaches 100%. achieve efficient conditions (score 100%). The values of the Muara Angke input and output variables must be maintained and added to the number of scales, number of employees, number of auctioneers and so on according to the needs and service system provided to fishermen and baskets to keep getting an efficient score. Based on the analysis of the Banxia Frontier Analyst 4 Software, the input factors from Muara Angke should be maintained or increased as well as the output factors must be maintained or increased so that the efficient value is maintained.

7. Efficiency of Kalibaru Fish Auction Place

Based on the results of the analysis of "Banxia Frontier Analyst 4.". Kalibaru Fish Auction Place obtained a score of 22.8% score, so Kalibaru was declared inefficient. Kalibaru analysis data can be seen as follows:

Table 11. Kalibaru DEA Analysis Results

	Input / Output	Current	Target	Potential Improvements
Input	Floor Area	70	8	-87.83 %
	Number of Ships	220	46	-78.80 %
	Amount of Basketball	5	1	-94.39 %
	Number of Employees	8	1	-94.39 %
	Number of Auctioneers	1	1	-91.03 %
	Number of Carts	1	1	-95.52 %
	Number of Scales	1	1	-91.03 %
Output	Production Quantity	4.08 2	4.082	0.00 %

Source : Results of Research Data Processing, 2018

Based on the efficiency score obtained from the DEA calculation for Kalibaru, an efficiency result score of 22.8% was obtained where in these conditions the implementation, target (actual) and has not reached efficiency. In order to be efficient, it must add output variables. The output variable is the amount production has which should have the same value as the input variable, and it should be the value of the production amount or output variable added so that later it can be said to be efficient. Unlike the efficiency score that has reached 100%, there is no need to increase or decrease input and output variables. According to Pramitasari (2005), in theory to increase efficiency against - which has not reached 100% or efficient, can be done by adding inputs. Although in practice, this is not easy to do. In order to achieve the target efficiently, it must increase input variables such as the number of ships from 220 pieces to 266 pieces, then increase the number of baskets from 5 pieces to 6 pieces, increase the number of employees from 8 people to 9 people, increase the auctioneer from 1 person to 2 people and increase the number of production produced by further promoting so that more ships land their catch.

8. Efficiency of the New Muara Fish Auction Place

Based on the results of the analysis of "Banxia Frontier Analyst 4.". Fish Auction Place () Muara Baru obtained a score of 100% score, so Muara Baru was declared efficient. Muara Baru analysis data can be seen as follows:

Table 12. New Estuary DEA Analysis Results

	Input / Output	Current	Target	Potential Improvements
Input	Floor Area	300	300	0.00%
	Number of Ships	2030	2030	0.00%
	Amount of Basketball	50	50	0.00%
	Number of Employees	15	15	0.00%
	Number of Auctioneers	2	2	0.00%
	Number of Carts	3	3	0.00%
	Number of Scales	2	2	0.00%
Output	Production Quantity	174500	174500	0.00%

Source : Results of Research Data Processing, 2018

Based on the table above, it shows that the efficiency value of Muara Baru obtained an efficient score of 100%. The input variable released by Muara Baru is proportional to the output variable obtained and the potential improvement is 0% so that Muara Baru has reached an efficient condition (score 100%). The value of Muara Baru input and output variables must be maintained and added to the number of scales, number of employees, number of auctioneers and so on in accordance with the needs and service system provided by fishermen and baskets to still get an efficient score. In these conditions between the actual input / output (actual) and the target have the same value so that the achievement that must be done is 0%, in this case the input owned is in accordance with the expected output and does not exceed the target limit so that Muara Baru is declared efficient. Based on Banxia Frontier Analyst Software analysis 4. then the input factor from Muara Baru should be maintained or reduced. And the output factor of Muara Baru must also be maintained or increased so that the efficient value is maintained.

9. Utilization Rate in North Jakarta City

The efficiency score obtained from calculations with DEA for the third in North Jakarta was obtained by two that were already efficient (100%), namely Muara Angke and Muara Baru. Meanwhile, the inefficient one is Kalibaru. Based on the efficiency score obtained from calculations with DEA for Kalibaru, an efficiency score of 22.8% was obtained where in these conditions the implementation and (actual) target and have not yet reached efficiency. If it is based on variable output with a total production of 4,082 tons per year, in order to be efficient, it must be added to the amount of output value because looking at the conditions in the capital country, it should be a pilot, but the amount of production value is declining due to several factors, one of which is that fishermen prefer to auction their catches to Muara Angke and Muara Baru because they are closer and more crowded.

This is reinforced by Maharani (2012), DEA is one of the non-parametric approaches that is often used in efficiency measurement research. The data used are

input and output variables which are then processed to produce a certain efficiency score foreach Decision Making Unit (DMU).

This is reinforced by Rahayu (2012), In efficiency analysis using DEA (*Data Envelopment Analysis*), data calculations are carried out using *banxia fontier analysis software*, namely by looking at the efficiency score of each UKE (unit of economic activity), in this case TPI.

A fish auction place is a place to auction fish, where there is a meeting between the seller (fisherman or owner of the fishery) and the buyer (trader or agent of the fishing company). Fish gan auction place is a place that helps fishermen in marketing caught fish through auctions. The location and division of space in the pelela ngan buildingmust be planned so that the flow of products (flow of products) meshquickly. This is with the consideration that fishery products are products that quickly experience a decrease in quality, so that if the flow ofthis product is disrupted, it will cause a decrease in fish quality (Lubis, 2006).

D. CONCLUSION AND ADVICE
Conclusion
The conclusions that can be drawn from the research that has been done are as follows:
1. The condition of facilities and infrastructure in the three cities of North Jakarta is already in good condition such as the condition of Muara Baru, Kalibaru and Muara Angke because it is supported and supported by sufficient facilities and infrastructure. However, some facilities from Kalibaru do need a little improvement to repair some damaged things such as lighting and so on.
2. The efficiency level in North Jakarta is based on calculations with DEA Software Banxia Frontier Analyst 4. Of the three, there are two that have been efficient or can be said to have received a score of 100%, namely Muara Angke and Muara Baru. Meanwhile, those who have not reached the efficiency score are shown by a score that has not reached 100%, namely Kalibaru.
3. Efficiency comparison rate in North Jakarta after analysis with DEA Software frontier analyst 4. Shows that of the three in North Jakarta including Muara Angke, Muara Baru and Kalibaru have different efficiency values where for Muara Angke and Muara Baru have a score of 100% because in these conditions between implementation and target (actual) have the same value in this case the value of the input variable and the value of the output variable. Meanwhile, Kalibaru has not achieved an efficiency score and obtained an efficiency score of 21.2%. This is because the conditions between the implementation and the target (actual) do not have the same value, the expected output is not in accordance with the input so that it is not in accordance with the expected target.

Suggestion
Suggestions that can be given are as follows:
1. Those who have achieved an efficiency score of 100% must be maintained so that the factors of increasing the amount of production also continue to increase.

2. It is necessary to repair and add facilities and infrastructure to support the course of fish auction activities or activities, equipped with complete sanitation facilities in each.

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