

Conference Paper

Use of River Transportation in Jambi City

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Abstract

This study aims to describe the changing use of river transportation in Jambi city, identify what factors drive these changes, explore the public's perception of river transportation, and to offer policy suggestions. This study involves a survey and uses analytical methods to evaluate the findings. The key factors impacting evolving usage of river transportation in the region destination, schedule, price, time effectiveness and comfort. However, though still favoured, this transportation mode requires long term government support – not merely financial but also managerial to foster the development of river transportation as a tourist attraction.

Keywords: River Transportation; Perception; Transportation Services.

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1. Introduction

Indonesia as an archipelago has many resources and problems. Likewise with the existence of rivers that exist in areas in Indonesia which sometimes can be a problem but can also be profitable for the region. Successful development is development that can be said to be able to develop an area in accordance with its potential for the welfare, prosperity and justice of the people. Each region is unique because it has different potential areas. Therefore, a development policy is needed in accordance with the conditions of the region. Transportation is one of the basic needs of the community in carrying out its activities, including for geographically separated areas such as rivers. River transportation used to be transportation the only one that connecting areas separated by rivers. During the Old Order and New Order times, the Government was very concerned about the existence of rivers and their connecting transportation. This can be seen in the policies adopted in Pelita III in the field of river, lake and ferry transportation, namely increasing the use and expansion of infrastructure and facilities such as ships, docks, shipping safety facilities on rivers, lakes and crossings. In addition, improvements are also made in the fields of institutions, legislation, administration and management so that these transportation companies can run smoothly and efficiently.

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(Hidayati, Iswari Nur and team. 2010. Remote Sensing Teaching Materials for Urban Studies. Yogyakarta: UGM. p. 28)

In the era of reform, development based on advances in technology are increasingly being carried out. Not only for primary goods but also in the transportation and transportation sector which triggers an increase in the effectiveness and efficiency of transportation use. The concrete results that can be seen are the number of road repairs and the construction of connecting roads and bridges in each area separated by rivers. The intervention of such rapid technological advances has certainly had a positive and negative impact on all segments of society. (Ibid)

Jambi City as a city that is also passed by a large river, namely the Batanghari River, has also experienced the same thing in this technological advancement-based development. The government strives for smoothness and convenience in the transportation sector by actively building roads and pedestrian bridges. On the other hand, traditional transportation is still being pursued by the community and for the community itself, especially river transportation. The existence of this traditional river transportation is still sought after and needed by a small part of the community who do not have access and assets to use other transportation. The construction of a bridge in *Jambi* City has resulted in two connecting bridges on the western and eastern edges of *Jambi* City. In fact, in 2013, a pedestrian suspension bridge is being built between the two previous bridges that connect the Central Business District (CBD) center with the residential and cultural center in *Seberang Jambi* City.

This has resulted in a shift in the use of transportation modes from river transportation to land transportation. The construction of the bridge has made river transportation increasingly abandoned. Not completely abandoned, river transportation still survives amidst pressures for the construction of bridges and land routes. The existence of river transportation and connecting bridges also overlaps and cannot function optimally. In addition, this river transportation service seller who maintains the existence of river transportation admits that they depend on the income they get from their only livelihood. People who persist in using river transportation, of course, also have reasons and factors that influence it. These reasons and factors are important for the sustainability of river transportation in order to improve services and in deciding subsequent policies.

2. Research Methods

The study was conducted at two central crossing points located in Pasar *Jambi* District as the center of the Central Business District (CBD) but also affecting two sub-districts in

the northern part of the Batanghari River, namely Danau Teluk and Pelayangan districts which function as centers of settlement and cultural heritage. The two crossing points are two ports, namely Pasar Angso Duo Port and Mall WTC Harbor.

Distributing questionnaires needed to collect data, including data on user characteristics, travel patterns, service quality and user perceptions. User characteristics data include gender, age, type of work, income, personal vehicle assets and education level. Data regarding travel patterns includes the purpose of travel, type of trip, intensity of trips, accessibility and travel time. Data regarding service quality includes passenger capacity, number of ownership, vehicle maintenance, service time and integration between modes. Meanwhile, perception users covers affordability, time effectiveness, convenience, security, satisfaction and availability. All data is primary data taken directly from users/respondents. The sample is determined using purposive sampling method where everyone who uses river transportation can be a respondent.

Data analysis was performed using quantitative qualitative descriptive analysis method by referring to the information provided by key persons and respondents. To answer the first objective of this study, a qualitative descriptive analysis was carried out by holding the information provided by the key person. The second objective is answered by regression analysis with the criteria for selecting a model to determine the factors that influence the use of river transportation. Then to answer the third objective is to use the method of scoring with a Likert scale because it involves the perception index. And the fourth goal is to make policy directions using descriptive analysis methods in accordance with the answers to the previous objectives.

3. Result and Discussion

In general, transportation means the process of transporting or carrying something from one place to another. (Kamaludin, Rustian. (1987). *Transportation Economics* (First Edition). Jakarta: Ghalia Indonesia. p. 33) There are several factors that influence the magnitude of the generation of transportation, such as income, vehicle ownership, household structure, land value, distance to activity centers, settlement density and accessibility. The awakening then gives rise to a travel process where there are two types of travel, (Op. Cit) namely home based travel and non home based travel. Home-based travel is a journey where the house is the point of origin or destination point, or is the point of origin and also the point of destination of a trip. While Non-home based travel is a journey where the home is neither the origin nor the destination point of a

journey. For example, a business trip or shopping that does not come from home or home. (Op.Cit)

Transportation or travel applies not only on land but also in waters or rivers. According to Act No. 21 of 1992, it is stated that river, lake and ferry transportation is transportation using ships that conducted in rivers, lakes, reservoirs, swamps, riverbanks, canals and canals to transport passengers, goods and/or animals which are operated by river and lake transportation companies that the arrangements are arranged in a manner integrated intra and intermodal that is a unity order national transportation and use fixed and regular routes that are complemented by irregular and irregular routes. (Act No. 21 of 1992) Types of river transportation that are in *Jambi* City is a type of transportation Klotok/Ketek river with specifications to serve goods and passengers for short-distance crossings, carrying 12-15 people and is driven by a diesel-fueled engine. (Sari, fortune gems. (2008). Thesis: shifting of river transport movement in the Martapura river, Banjarmasin city. Semarang: Undip) This type of pier/port is still considered a traditional port because it uses makeshift wood or pontoons.

River transportation has been used for a long time and has even become a culture for the people of *Seberang Jambi* City. The existence of the Batanghari River in *Jambi* City is the first center of community activity. So that river transportation was also the main transportation for the people on the banks of the Batanghari River at that time. Until now, this river has become one of the pulse of people's lives, including as a daily transportation route in mobility, transportation, transportation of commodities, fishing, even a small part of it also uses it as a toilet. The development of a city cannot be avoided from the movement of its population. The size of a settlement is not only limited by the size of the area from which the settlement gets food and other necessities, but also by the consideration of population movements. (Morlok, Edward K. (1984). Introduction to Engineering and Transportation Planning (Editor: Yani Sianipar). Jakarta: Erlangga. p. 11)

The development of transportation is also influenced by urban development. *Jambi* City has officially become the provincial capital since 1960. Therefore, the development of river transportation in this study also began in 1960. At that time, river transportation used was a canoe or rowboat made of wood. This boat is 1.5 meters wide and 5 meters long. The shape of this rowing boat has the exact same front/bow as the rear/stern. The existence of this rowing boat grew until the 1975s. This canoe or rowboat is used as a livelihood where a small part of the community sells crossing services using the rowing boat. This activity is managed independently by individual communities. This rowing boat requires a lot of energy to cross, so that the job as a rowboat miner is dominated

by the male gender. The wages earned at that time were insignificant but sufficient to meet needs.

Technological developments spur developments in all fields including machinery in the transportation sector. This creates a space for convenience and efficiency for human work. Likewise with changes that occur in land transportation where previously only bicycles and non-motorized vehicles were used, then developed into motorbikes, cars and other motorized vehicles. Likewise, what happens in river transportation where the discovery of machines and fuels that can facilitate human work. Starting in the 1976s, rowing boats were transformed into engine boats which the people of *Jambi* call *Ketek Boat* because of the sound of the engine sounding tek tek tek and quite loud. This engine boat is not much different from a rowboat, it's just that the front and rear are made different where the front/bow is made more tapered and the rear/stern is made not tapered because it is a place to put the engine and steering wheel. The width of this boat is approximately 2.5 meters with a length varying between 6-8 meters.

This transportation development resulting in energy efficiency, time and transportation costs. The increasing speed of travel, the more energy efficient and the lower the cost of transportation makes the effects of distance and time limits almost negligible, resulting in the expanding reach and development of a city. With the trend of improving transportation, Morlok said that the economic boundaries have also become flexible because travel costs have decreased and are also caused by an increase in the size of the population's income, making it possible to spend more money on transportation costs.

The development of river transportation after the 1986s did not change much. Changes only occur in the transportation infrastructure itself, namely the addition of land roads and pedestrian bridges. The *Jambi* Provincial Government has succeeded in building the Aurduri I bridge at the western end of *Jambi* City. The purpose of this bridge construction is to facilitate the flow of transportation between cities and between provinces, which is expected to have a positive impact on regional economic development. However, the construction of this bridge had a negative impact on the use of river transportation, namely on the decline in river transportation passengers because they switched to land transportation. However, the decrease in river transportation users is not too large, namely only 5-15%.

In 2010, the Government again succeeded in building a second bridge, namely Batanghari II Bridge, which is at the eastern end of *Jambi* City. This bridge aims to facilitate transportation of economic products as access to support regional export and import to the global market, serve the flow of goods and services on the eastern

Sumatra route and accelerate the development of the inland area of the east coast of *Jambi* Province and its surroundings. The construction of this bridge has again had a negative impact on river transportation where 30-50% of river transportation users have switched to using land transportation because this bridge is closer to the CBD center in Pasar *Jambi* District. The river transportation route in *Jambi* City has not been determined with certainty but most of the crossings take the same route. This time, in *Jambi* City itself, there are actually several crossings or what *Jambi* people often refer to as ports. The main port is in the Angso Duo Market Area. Pasar Angso Duo Port is usually used by many people who make crossings with the aim of shopping and doing activities around Angso Duo Market, which is the main market in *Jambi* City. The river transportation operating in this area is more than 50 boats/*Ketek*. In one day, *Ketek* miners in this place can cross at least 5 times a crossing so that if they carry 10 people in one crossing at a cost of IDR 2,000 per person, they can get an income of IDR 100,000 per day.

The second largest port is the port which is located behind Mall WTC Batanghari. This port is more widely used by people who aim to shop for secondary needs and work in the service sector because it is a mall area and shopping complex. River transportation in this area is about 40 boats/*Ketek*. In one day, the *Ketek* miners in this place can only cross an average of 2 times because they use a queuing system. They make the crossing by maximizing the number of passengers, namely 15 people, so for IDR 2,000 per person, they can earn at least IDR 60,000 per day. If it is assumed that all the *Ketek* here get the same number of passengers, which is 30 people per day, then there are 1200 passengers who travel through this port every day.

The third port is the port located in the Ancol area in front of the Governor's Office Complex. This port is mostly used as a tourist port because the target passengers are tourists. There is less river transportation here, which is only 15-20 *Ketek*. The three ports mentioned above are ports located south of the river. Of course there are also ports located north of the river. Sanggar Port is the main port located north of the river, while other small ports are located in each sub-district such as in Olak Kemang and Ulu Gedong Villages which are in Danau Teluk District and in Tengah, Jelmu, and Arab Melayu Sub-districts in Pelayangan District. This aims to facilitate accessibility for so that it is closer and easier to reach. The state of the port is north of the river it's more traditional. The existence of the main port in front of the studio is also the central port of all the ports north of the river.

The number of river transportation in this port can reach 50 boats/*Ketek* with 2000 passengers per day. Another port north of the river is a small port serving a small portion

of the community. For example, in Olak Kemang and Ulu Gedong Villages in Danau Teluk District, there are 50 *Ketek* with the ability to cross 1000 people a day.

The port in Kelurahan Tengah has 15 boats/*Ketek* with crossings for 300 passengers. There are 10 *Ketek* seaports in Jelmu and Arab Melayu Kelurahan, which can carry 400 people every day. If taken into account as a whole, this river transportation becomes employment for approximately 295 people and passengers who still use it are approximately 5200 people. Thus, when compared with the total population in Danau Teluk and Pelayangan districts, which amounted to 26,397, the percentage of people who are directly or indirectly involved in using and depending on this transportation reaches 20.8% calculated as a whole, this river transportation becomes employment for approximately 295 people and passengers who still use it are approximately 5200 people. So, when compared with the total population in Teluk Danau District and Pelayangan District, which amounted to 26,397,

The existence of river transportation which is still maintained until now is of course influenced by many factors. First, the analysis is carried out by identifying user characteristics, travel patterns, service quality and public perceptions.

From the identification of user characteristics, travel patterns, service quality and community perceptions, a regression analysis was carried out using SPSS. The regression test aims to determine the influence factors of the dependent variable. The results of multiple regression tests are often not as expected. To anticipate this, a better way is chosen to build a model that can really describe the data and can ultimately be used to predict the independent variables. The best way to choose the model is to consider the coefficient of determination (R^2), standard error of variance (s^2), adjusted R^2 , PRESS statistics (Predicted residual sum of square), Cp Mallow's, AIC (Akaike Information Criterion) and BIC (Bayes Information Criterion). (Zulaela. (2010). Applied regression analysis. p. 21) A good model according to results Regression analysis with model selection is a model built with the dependent variable intensity and variable independent in the form of travel destinations, travel time, price, time effectiveness and convenience. This means that the use of river transportation that still exists today is influenced by these factors. (Ibid.)

Frequent travel destinations Public with using river transportation is 40.8% for shopping in the CBD area of Pasar *Jambi* District, 33.8% for working in the CBD center, 11.3% for school, 9.9% for others and 4.2% for recreation. Travel times that are often done using river transportation are 28.2% in the afternoon, 26.8% in the morning, afternoon and evening, and 25.4% only in the morning and evening. The price/fare that a person has to spend to make one crossing using river transportation is also not too expensive, which

is only IDR 2,000 without having to spend more energy and effort than using a private vehicle. Time effectiveness and convenience are also important factors for people who only travel to urban centers. (Director General of Land Transportation. (2005). Jakarta: Land Transportation Master Plan)

The level of service provided by river transport miners is an important part of being assessed by the community individually and objectively. This study took 71 respondents who used river transportation, and asked them to fill in 28 questions related to affordability, time effectiveness, comfort, safety and satisfaction. From the results of the survey and filling in the questionnaire, it was found that the community categorized this simple and traditional river transportation as having good modal services, although in reality there are still many facilities that need to be fixed and repaired. The community also considers that river transportation is still very necessary for the people of *Seberang Jambi City* to carry out their activities in the CBD area of *Jambi City*.

River transportation is the first transportation that connects the CBD area of *Jambi City* with the northern area of the river as a center of settlement and culture. River transportation that developed before/in the 1975s was a very traditional rowboat. Over the years, over 1976, these traditional boats began to use motorized engines so that transportation and transportation work became easier. Then, above the 1986s, the government has made efforts to establish roads and bridges that connect areas separated by rivers. Bridges that have been successfully built are the Aurduri 1 Bridge and the Batanghari II Bridge.

Identification factor influence the use of river transportation states that there are five reasons people use river transportation. These factors are the purpose of the trip, travel time, price, time effectiveness and convenience.

From the results of the survey and filling in the questionnaire, it was found that the community categorized this simple and traditional river transportation as having good modal services, although in reality there are still many facilities that need to be fixed and repaired.

4. Conclusion

The existence of the Batanghari River which divides Jambi City has very good benefits if the government can manage it well. One of the waterfront city concepts that are now beginning to develop and be utilized by several big cities, the government can also do to increase regional income and the sustainability of the city. One of them

is by maximizing the existence of rivers as a means of transportation both traditional transportation, tourist transportation or transportation of natural resource products.

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