

## Performance of Paotere Port in Makassar, South Sulawesi, Indonesia

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**Abstract:** This study aims to analyze the performance of the port of Paotere-Makassar and their impact on service of the ships, using Formula Port Planning and Operational Performance Calculation according to Decree of the Minister of Transportation Number: KM 53 Year 2002 port performance is still low, Arrival Rate (AR) averaging 3 ships per day and Turn Round Time (TRT) is relatively long for each ship with a BOR value of 97.79%. Berth Through Put (BTP) is still below 30 thousand tons per month. The low performance of Paotere Port affect the service of the ships, so many ships tethered or anchored in the port is not because the number of ship arrivals (AR) is high, but because Turn Round Time (TRT) is relatively long, exceeding 24 hours per day per ship and influential against postphone time (time delayed which is not beneficial for the ship was in port) and add idle time (time wasted).

**Keywords:** Performance, Ship Services, Quayside Utility, Efficiency

### I. INTRODUCTION

Paotere port in Makassar city established in the 14th century by the Sultanate of Gowa and Tallo, belong to the local port as a port of the oldest people in Makassar [1]. This port is used as a port of the boats of the citizenry, became the center of commercial fisherman, have break water along the 400 meters, pier 120 meters long with a width of 6 meters, a depth of 5 meters and has a port basin area of 200 m<sup>2</sup> to serve ships have larger ton the activities of loading and unloading, and has 11 piers, four piers are used for loading and unloading logistics, and seven other piers are used for anchoring a ship [2].

Performance of Paotere Port not shows optimal conditions, operational hours Paotere Port only 8 hours. Ideally, can operate for 24 hours, the arrival and departure of the ship can not be directed only at working hours. Ship management services are still manual, so that ships that require modern services not choose Paotere Port as a loading and unloading. Service ships, 2014 in Paotere Port categorized with a value less than optimal speed loading and unloading of 15 tons/alley/hour, quayside utility and BOR indicators 126.42% greater value than the BOR recommended [3,4,5].

Theoretically the port is a transport infrastructure that is quite important for a country, especially in an archipelagic country like Indonesia, the port can improve the economics of the State [6,7,8,9]. Paotere port as a local port, a strategic role in serving the cruise people [10] for the transport of logistics and/or animals even passengers using sailing ships, traditional motor sailing ships and motor ships of a certain size [11,12,13].

Factors to be considered in the operational performance of the port [14] is 1) Services Ships with average indicators of ship visits per day, Turn Round Time at the port is calculated since the ship arrived at the location of anchorage until the ship departs leaving the location of anchorage (limit the waters of the port), Berthing time (BT) while in mooring (first time to the last time), Berthing Working time (BWT) to perform activities of loading and unloading the logistics while in mooring, Idle time (IT) and the Effective Time (ET) which is used to perform the loading and unloading of logistics, and Not Operation Time (NOT) the ship while in mooring; 2) Utility Wharf/Berth namely the Power (logistics traffic) in mooring/pier (Berth through Put). Usage levels pier (Berth Occupancy Ratio) is the ratio of usage time pier with the amount of time the operation expressed in percentage (%).

### II. RESULTS AND DISCUSSION

Based port hieraki, Paotere Port including local ports, are in locations that are not passed regular sea transportation, except pioneering and distance with other ports is 5-20 miles. Paotere Port including local feeder ports in the country scale, volume control and a limited number of load feeders to the main port and the port collector. Paotere port classified on local port collector, outreach to the regency/city. However Paotere Port can be categorized as a regional feeder port seen from the range of services capable of serving in the province. In fact, because the range of services can inter-province [14,15].

Paotere Port is the port with the traditional route, captains and crew who sail the ship has expertise prime as accomplished seaman, have the waves were friendly, as the central economic activities, and maritime destination, as well as the port of Paotere always crowded with ships anchored but has limited the length of the quayside and port less professional management.

**Table Recapitulation of the call and the arrival rate at the port of Paotere**

	<b>Year 2015</b>	<b>Call</b>	<b>Total of Day</b>	<b>Arrival Rate</b>
1.	January	101	31	3.25
2.	February	103	28	3.67
3.	March	89	31	2.87
4.	April	81	30	2.70
5.	May	93	31	3.00
6.	June	75	30	2.50
Total Call (January-June 2015)		<b>542</b>		
Average Call per month		<b>90.33</b>		
Average Arrival Rate (AR)				<b>2.99</b>

**Source:** Office of Makassar Main Port Authority, 2015 (The results of data processing)

The port's performance based on several indicators is as follows: 1) Service ships related to Arrival. Based on Table Arrival Rate (AR) it appears that the number of arrival of the ship to Paotere Port for one semester (January-June 2015) as many as 542 ships, an average of three ships per day. One of the factors causing low ship visits in Paotere Port is an imbalance between the flow of logistics into and out flow of logistics; 2) The services of logistics in and out to the Port of Paotere Makassar along one semester from January to June 2015, a total of 35,320 tonnes (equivalent to 33,100 m<sup>3</sup>) per month on average 5,880 tonnes or the equivalent of 5,520 m<sup>3</sup>. On average per month in the first quarter (January-March 2015) and the second quarter (April-June 2015) average of the second quarter (6,540 tonnes/month) more than the first quarter (5,880 tonnes/month); 3) The utilization rate of the quayside (BOR) is 97.79% per month, port usage is maximal for close to 100%. BOR average per month in the second quarter (April-June 2015) indicate BOR of 104.86%, which means maximum utilization of own quayside; 4) Power and mooring/quayside or Berth Through Put (BTP), amounting to 176 thousand ton-meter. Average per month is 29,350 tonne-meters; number of items on the quayside is not the same every time. In the second quarter (April-June 2015) the volume of logistics at the quayside less than the volume of logistics in the first quarter (January-March 2015). Capacity of Warehouse/Fields or Sheed Through Put (STP) or Open Storage Through Put (OSTP) for one semester (January to March 2016) reached 7,400 tonnes / m<sup>2</sup> or 1,230 tonnes / m<sup>2</sup> per month. On average per month in the second quarter of 2015 tend to be larger in volume compared to the first quarter of 2015; 5) Consumption levels of Warehouse/Fields (Sheed Occupancy Ratio / SOR) for six months (January to June 2015) was 2.5 million tonnes, equivalent to 3.8 million m<sup>3</sup>. Average per month is 432,280 tonnes. SOR of Paotere Port tends to excess in capacity, meaning the port capacity should be increased above the maximum position, around 434,670 tonnes or 652,010 m<sup>3</sup> per month. The utilization of warehouse and yard at the sea port is 7.961.00 m<sup>2</sup> (100%), the effective area of the port is 4777 m<sup>2</sup> or 60.00% of the total area.

In the case of ships service, in principle not be separated from the role and functions of Paotere Port as local port. As described above, there are a number of limitations on the local port. Among other things, the new location which not pass the regular sea transportation unless pioneer; acts as a feeder; a depth of less than 4 meters; and acts as a feeder port [14].

The Uniqueness in Paotere Port, after the completion of the loading, the ship did not immediately move/sail back. But wait until there are loads more, so that the ships sail if existing new charge. Therefore, although Arrival Rate is quite low, at 3 ships per day, but what makes this port seemed to be filled with moorings is on Turn Round Time (TRT) which is relatively long time for each ship. TRT average where the ship is more than 24 hours after unloading goods, and even there the ship leaned few days. The old sizes actually TRT for each ship is very relative, because it depends on how fast the ships obtain the order new cargo.

Associated with a slow is TRT effect on Postpone Time (PT). Postpone Time ships are relatively long time in Paotere Port also means influencing Berthing Time (BT). BT is the number of hours the ship while in mooring (first time to the last time). Postpone time also affects the Idle Time (IT). IT is the number for a ship that is wasted/unused hours of work planned to perform activities of loading and unloading of logistics (excluding breaks) [10].

### III. CONCLUSIONS AND RECOMMENDATIONS

Performance of Paotere Port in Makassar is still relatively low. Arrival Rate is quite low, at 3 ships per day; Turn Round Time (TRT) is relatively long for each ship, while the rate of use of the quayside or Berth Occupancy Ratio (BOR) was as high as 97.79% on average per month. The impact of poor performance Paotere

Port primarily related to the arrival rate, TRT and BOR affect the poor service ships and at idle time (IT), the ship is wasted hours of work planned.

Should be the way of manual port at the Paotere Port replaced with a system of information technology based computerized and website, making it easier for the port of entry into the service system of the National Single Window (NSW) which in turn can improve the performance of the port and to think of a solution so that the port storage area is not overloaded like to apply term limits buildup.

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