

Original Article

# Traditional Shipping Transportation System in Supporting the Economic Activities of the Island Community of Makassar City

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**Abstract** - This research identifies the economy of the Sangkarrang sub-district islands and inter-island sea transportation services. Assess the potential for economic development supported by sea transportation and develop a strategy for developing sea transportation in the islands of Makassar's Sangkarrang sub-district. This research combines quantitative methods and qualitative methods. To obtain more comprehensive, valid, reliable, and objective data. The results showed that (1) The economic development potential of the Makassar city island region is supported by 3 sectors, namely the tourism sector, the trade sector, and the utilization of natural resources. The tourism potential that can be developed is the typical food of the island community, tourist destinations, and community traditions. The trade sector requires fleets and docks on each island to make distribution channels more efficient and effective. The potential of natural resources through the development of mangrove forests and the results of marine resources caught by fishermen. (2) Economic activities of island communities are partly fishermen and become traders and government employees or State-Owned Enterprise. (3) The development strategy is training for ship crews related to sailing safety, increasing the attractiveness of island tourism through planning and promotion of marine and community tourism to encourage the attraction of movement to conduct research and technological development related to the effectiveness and efficiency of the operation of transportation facilities.

**Keywords** - Islands region, Traditional shipping, Accessibility, Blue Maritime Economy.

## 1. Introduction

The direction of development of the transportation sector is the realization of a reliable, capable, effective, and efficient transportation system. This is important in supporting and mobilizing development, national mobility, goods, and services, and supporting national distribution patterns and regional development. South Sulawesi Province has the *Spermonde* archipelago, which stretches from Pangkajene Islands Regency in the north to Selayar Regency in the south.

There are around 120 islands in the *Spermonde* Archipelago, and 12 of them are within the administrative area of Makassar City, namely in the Sangkarrang and Ujung Pandang Islands Districts. The Sangkarrang sub-district archipelago consists of the Barrangcaddi sub-district, which includes Lanjukang island, Langkai island, Lumu-lumu island, Bonetambung island, Barrang Lompo sub-district which includes Barrang Lompo island, and Kodingarenng sub-district which includes Kodingareng Lompo and Kodingareng Keke islands and small islands around Makassar City, namely Samalona island and small Lae-Lae island and Kayangan island.

The Sangkarrang sub-district islands have varying populations and incomes. This is influenced by natural resources, the distance of the island from other islands, and transportation services. The role of the transportation system is considered important for inter-island connectivity to support economic activities and make it easier to be accessed by the community to carry out daily activities for islanders, disparity in the price of goods, and maintaining the archipelago culture. The existence of traditional shipping, perceived by the community, is still low and limited shipping.[3-6]

## 2. Methodology

This research uses mixed methods, combining quantitative methods and qualitative methods, to obtain more comprehensive and objective data. The flow of this research is in Figure 1. This study measures the extent to which the quality and capacity of transportation facilities in the Makassar city archipelago area, using a questionnaire, a data collection technique containing questions submitted in writing to the research sample to obtain answers or responses and information related to research problems.

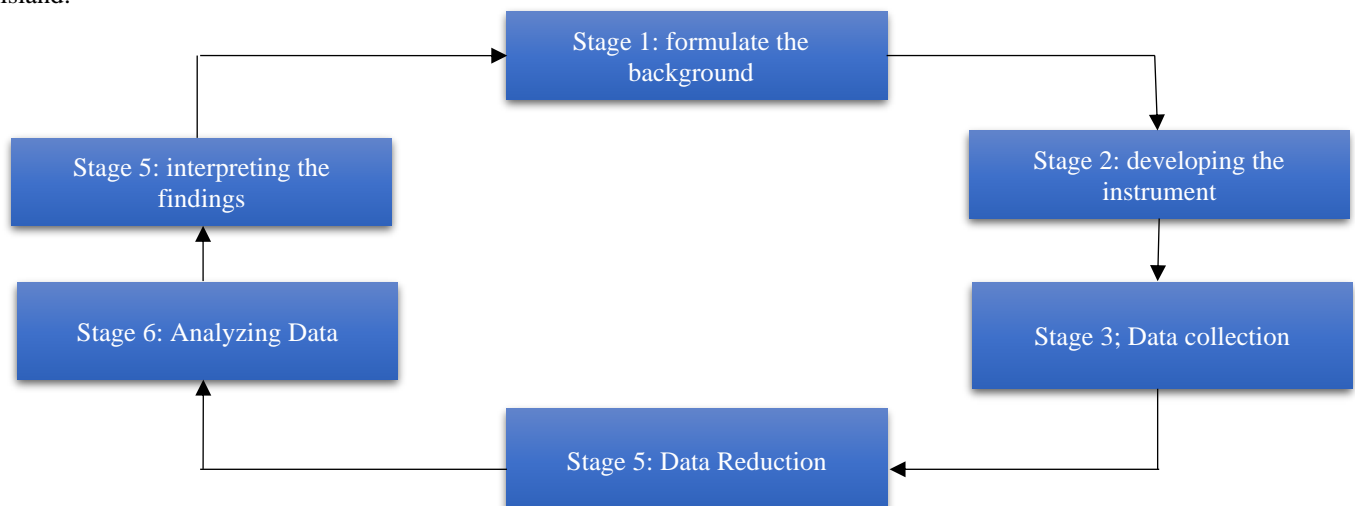


Fig. 1 Research flow



**Table 1. Types of occupations of the makassar city islands community**

Type of Work	Total	Percentage
Trader	160	9,6 %
Fisherman	1453	87,6 %
Civil Servants, SOEs & Employees	46	2,8 %
<b>Total Population</b>	<b>1659</b>	<b>100 %</b>

Source: Survey Results, 2022

In this case, the questionnaire has provided answers so that the respondent only needs to choose the appropriate answer. The measurement scale used is the Likert scale. The answer indicator used is the answer 0 means nothing, 1 means less good, 2 means quite good, 3 means good and 4 means very good.

### 3. Results and Discussion

#### 3.1. Economic Potential of the Region

Sangkarrang Islands Sub-district is a sub-district of the Makassar city area consisting of 12 islands. The economic system of most people is that they work as fishermen and traders, as well as employees of state-owned enterprises, private companies, and civil servants. The geography of the Sangkarrang Islands Sub-district, which consists of many islands, makes the community choose to become a fisherman utilizing the potential around the community settlement. The socio-economic structure of the Sangkarrang Islands community can be seen in Table 1.

Based on the table, people with professions as traders are 9.6%, fishermen 87.6% and civil servants, State-Owned Enterprises/employees 2.8%. The dominance of the island community works as a fisherman. The average income of the community as traders is IDR 2,149,000 per month, fishermen IDR 1,333,000 per month, and civil servants, State-Owned Enterprises/employees IDR 4,000,000.

1. The economic potential of the archipelago consists of tourism, trade, and fishing. Culinary is the typical food of the island community, such as shredded and seascapes, as well as community art traditions. The trade sector between islands and outside the islands and the natural resources of mangrove forests and fishermen's catches.
2. For economic activities, most island communities are fishermen, while others are traders and government or state-owned employees. Generally, people's livelihoods depend on natural resources that can be traded within the islands' internal and external regions.

The Makassar City Government has focused its attention on allocating development to the marine and fisheries sector centered on the islands. The integrated fisheries center development program shows the development of the islands in 12 islands. The aim is to build and improve economic activity, especially trade, to run effectively and efficiently. Developing marine and fisheries business centers based on coastal areas is carried out with integration, efficiency, and high-quality principles. The development of integrated marine and fisheries business centers in 12 selected locations, namely Kodingareng Lompo island, Kodingareng Keke, Lanjukang, Langkai, Lmu-Lumu, Bonetambung, Barang Caddi, Barang Lompo, Samalona, Lae-Lae, Small Lae-Lae, and Kayangan island. The map of business opportunities and potential advantages of regional trade from 12 island locations can be a reference for inter-sectoral stakeholders in utilizing available infrastructure or completing infrastructure that is not yet available. It is expected that inter-island connectivity in distributing marine and fisheries commodities can run commercially and benefit the welfare of coastal communities (Sulastriani, 2022).[14]

#### 3.2. Natural Resources

One of the natural resources on the islands that have the potential to be developed is the sandy expanse overgrown with shrubs. Coconut plants and perennials dominate the central part of the island to the north. Breadfruit, moringa, and papaya plants are also found in the center of the island, growing around people's houses.[7-12]

Residential areas are predominantly located in the central to southern part of the island, lined up facing and/or backing onto the beach from the east to west sides of the island. The island's eastern end is marked by a spit (tongue of sand), which will be clearly visible at low tide and extends out about 75 meters from the shoreline. The western to southern coastal fringes of the island are characterized by sandy land fractures due to abrasion. The physical characteristics of waters such as Kodingareng Island are characterized by very dynamic water phenomena. However, during the eastern season, Kodingareng Island is influenced by the Banda Sea, which passes through the Selayar Strait and Makassar Strait. The survey results have predicted that in the East and West seasons, the highest choppy in July and August and the lowest in November and October, with heights ranging from 0.11 (m) to 0.08 (m) (Tamti et al., 2014).[16]

About 70% of the population depends on fishing activities and the service sector, such as water transportation, shipping services, shops, carpentry, construction workers, teachers, civil servants, and wooden and fiber boat makers. The fishing gear operated on Kodingareng Island is purse seine and fishing rod, which are still using bombs. Types of fish caught on Kodingareng Island based on fishing ground distance: 0 (Zero) mile distance: Anchovy, *sibula*, and *bete-bete*, distance 2 - 8 miles: fly fish, mackerel, mackerel, and squid. The income of fishermen varies depending on the part they do, for example, purse seine fishermen earn around IDR 700,000 - 1,000,000/day, intermediary traders earn around IDR 700,000-1,000,000/day, and Pa'-balolang fishermen earn a gross income of around IDR 300,000 - 400,000/day (Sulatriani, 2022).[14]

#### 3.3. Traditional Shipping and Community Economy

The island community of Makassar City's economic activities rely on the shipping transportation sector to support inter-island interaction activities. The ship used has a capacity of 28 passengers and 2 two-wheeled vehicles. The fare for boat passengers is around IDR 15,000 for one trip. The frequency of trips is once a day, departing from the Kodingareng Lompo island dock at 07.00 a.m. and arriving at the dock at around 11.00 a.m.

Refueling for island community transportation is done at Potere Port and Untia Salodong Port. Refueling is an obstacle for island communities because it is centralized in Makassar city.

The people's shipping system applied by the island community is in accordance with the established rules in Law No. 17, such as prioritizing passengers by not carrying passengers beyond the capacity of the ship and prioritizing passenger comfort.[15]

#### 3.4. Tourism Activities and Development Policies

The potential of island tourism is a very wide beach, so the development of coastal areas and small islands can be tourist destinations. Marine tourism is prospective as a mainstay of Makassar City. There are several tourist destinations in Makassar City, among others: Natural tourism destinations, regional specialties, bathing places, and fishing spots for anglers.



Fig. 2 Traditional shipping transportation facilities



Fig. 3 Kayangan Island's white sand beach

The growth of tourism in South Sulawesi has been quite significant over a period of two years; in 2020, the contribution of the tourism sector to South Sulawesi's regional income was recorded at 6.8%, and in 2021, it rose to 7.88%, and in 2022 reached 8.48%. This contribution is accumulated from the activities of sectors and sub-sectors related to tourism, such as the hotel business, restaurants, transportation, and entertainment and recreation services managed by the private sector (BPS, 2022). The above figures have not shown a significant success compared to other tourist destinations in Indonesia. Therefore, policies are needed to encourage tourism to be more able to benefit the welfare of the community, especially the development of marine tourism in the archipelago.

Today, many tourism development programs have failed caused of two external factors, namely caused by the stage and design at the implementation stage. Based on observations and supported by some information, the implementation of tourism policy, especially marine tourism in South Sulawesi, is faced with various phenomena; the government and the community have not yet emerged the spirit of maritime culture in everyday life; there is no desire to raise the image of maritime for the younger generation both in the form of cultural activities and through research with the main target, in addition to preserving maritime culture, to be able to increase tourist visits to South Sulawesi.

In Perda No. 6 of 2007 concerning Coastal Zone Management, BAPPEDA of South Sulawesi Province emphasizes in article 29 that The implementation of tourism business in the Coastal Zone is carried out by the Regional Government and Regency/City Government, individuals, and legal entities in limited utilization zones. The tourism business referred to above is the business of natural tourism facilities such as lodging accommodation, food and beverages, water tourism facilities, tourist transportation, souvenirs, and cultural tourism facilities (Said, 2020).[13]

South Sulawesi Province has a history of marine life and a community culture rich in experiences of coastal life and adventures at sea. South Sulawesi Province has a coastline of 1,937.7 km and is responsible for managing approximately 48,000 km<sup>2</sup> of marine waters (RENSTRA No 17 of 2006), and has 298 islands and archipelagos, one of which is the Sangkarrang and Ujung Pandang islands located in the Makassar City area with characteristics that represent tropical islands (RENSTRA NO 17 of 2006, concerning the management of Coastal & Marine Areas of South Sulawesi Province).

Management of Coastal and Marine Areas of South Sulawesi Province is a strategic goal in optimizing the potential of marine tourism, namely increasing the attractiveness of marine tourism objects with program steps: restoration of tourism image, increasing the attractiveness of marine tourism products, strengthening the competitiveness of marine tourism products, with the target of increasing the number of tourist visits. [17]

The implementation of the program implemented from the strategy program on the 12 islands of Makassar city in the form of sustainable marine tourism development, development of formal and non-formal tourism education, increasing community participation in the management of marine tourism objects in a sustainable manner, increasing the contribution of marine tourism to increasing GRDP. The island region tourism development model includes:

1. Developing sustainable and environmentally friendly marine tourism in Makassar City.
2. Community involvement as a stakeholder in securing and preserving all tourism potential and tourism objects in order to avoid degradation of the physical environment and socio-cultural environment.
3. Make technical planning for special handling of snorkeling and diving tourism objects prone to decline in quality and quantity and have high selling value.
4. Planning research on the environmental impact of marine tourism activities.
5. Determination of legal traps in the form of Perda for zones planned as conservation areas. Strengthening the legal entity that can be a guide for the management of protected areas will greatly support the preservation of coastal ecosystems and small islands.
6. Awareness-raising activities, socialization, and training on coral reef rehabilitation up to the village level need to be improved—the process of awareness of the importance of maintaining environmental ecosystems through cultural and religious approaches.
7. There is a need to monitor mangrove ecosystems that are still good and conduct rehabilitation activities in damaged locations through the inclusion and involvement of communities, local NGOs, and universities (Anwar, 2014).[1]

**3.5. Islands Transportation Development Strategy**

Policy strategies related to the function of transportation as a support, namely opening isolated and remote areas and reaching remote or underdeveloped areas and border areas in the interior, can be stated as follows:

- a. Opening access to isolated, remote, underdeveloped, and border areas to encourage increased local production and address regional disparities.
- b. Connecting relatively underdeveloped rural areas with more advanced trade and government service centers.
- c. Improving functional linkages between production areas and collection and distribution centers, between ports along the coast, and between developing areas and less developed areas to encourage harmony, reduce inter-regional disparities, and support effective and efficient transportation services.
- d. Develop priority settlement centers located in underdeveloped regions or areas (Jinca, 2023).

**3.6. Islands Facilities and Infrastructure Development Strategy**

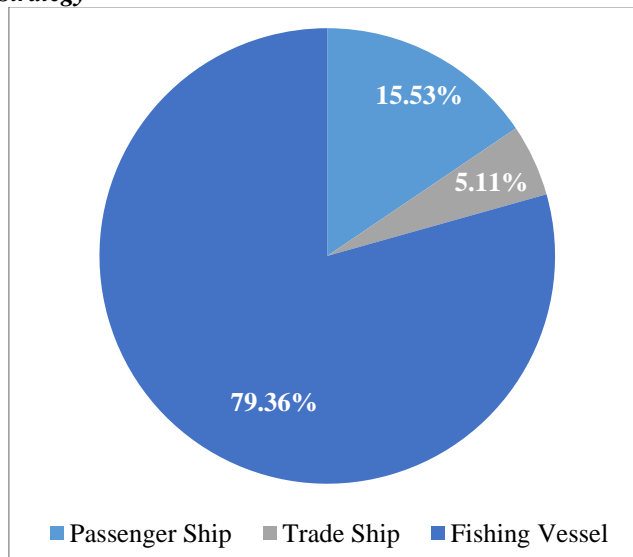


Fig. 4 Number of fleets of the islands community



The total fleet of the 8 islands of Sangkarrang sub-district is 470 vessels consisting of 73 passenger vessels, 24 merchant vessels, and 373 fishing vessels. The number of fleets is on the island of Kodingareng Lompo, and the islands that do not have a fleet are the islands of Lanjukang and Lae-Lae Kecil. Based on this data, it can be interpreted that the Makassar city government focuses on developing a fleet for islands that do not yet have and adding a fleet for islands that still lack the fleet.

- 1) Improving the quality of port and dock services in the Makassar city archipelago, the development of transportation infrastructure for the archipelago is to establish connectivity between islands, between cities, and between provinces with the aim of equitable development and minimizing inequality between archipelagic areas that lack maintenance and utilization of the island.
- 2) Distribution of logistics goods through Paotere Port (Makassar City), which interacts directly with the island communities. The types of goods transported through the dock by the island community include daily necessities, in addition to essential goods such as wood, cement, zinc, fertilizer, LPG, and so on.
- 3) Provide training on sailing safety for boat crews.
- 4) Increase the attractiveness of island tourism through planning and promoting marine tourism by the Makassar City government and the community to encourage the attraction of movement.
- 5) Utilizing the role of universities to be involved in research and technology development related to the effectiveness and efficiency of the operation of transportation facilities in accordance with the volume of transportation and terms of utilization and management of natural resources (Bochary, 2016).[2]

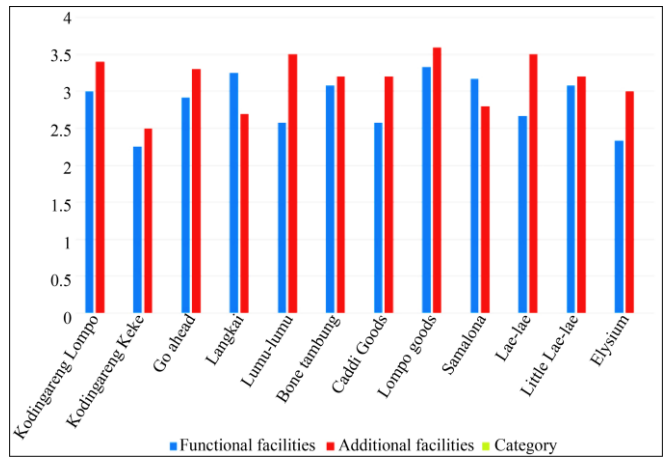
**3.7. Infrastructure Development**

The existence of the pier makes it easier for ships to dock and depart to tourist sites. It also serves as a boat parking lot and waiting room for passengers who want to use boat transportation to small islands as tourist destinations. The focus of development is to increase the capacity of sea transportation for residents, which has been small and less equipped with safety and security standards for sea travel. So far, the local government has been working on developing public facilities, functional facilities, and additional facilities.

**Table 2. Functional characteristics of docks**

No.	Sea Transportation Infrastructure Makassar Sangkarrang Islands Sub-district	
	Docks	Description
1.	Kayu Bangkoa Docks	
	- Address	Jl. Pasa Ikan, Makassar
	- Number of fleets	8 Ship fleet
	- Dock length	± 10 m
	- Dock destination	- Barrang Lompo Island - Barrang Cadii Island - Kodingareng Lompo Island
	- Dock entrance fee	<b>IDR 2000</b>
2.	Paotere Docks	
	- Address	Jln. Sabutung Baru, Ujung Tanah, Makassar City, South Sulawesi
	- Number of Fleet	<b>2 Ship fleet</b>
	- Dock length	± 52 m
	- Dock destination	Barrang Lompo Island
	- Dock entrance fee	IDR 6000

Source: Survey Results 2022



**Fig. 5 Functional and ancillary facilities in Makassar city islands**

Source: Survey Results, 2022

The community responses regarding the facilities that are available can be seen in Figure 5. Community responses to public facilities and additional facilities on the islands of Makassar City found that the islands with public facilities in the good category are the islands of Barang Lompo, Lae-Lae, and Lae-Lai Kecil. While the islands that are in the good enough category are Kodingareng Lompo Island, Kodingareng Keke, Lanjukang, Langkai, Lumu-Lumu, Bonetambung, Barang Caddi, Samalona and Kayangan Island and the islands that have additional facilities in the good category are Kodingareng Lompo, Lanjukang, Lumu-Lumu, Bonetambung, Barang Caddi, Barang Lompo, Lae-lae, Lae-lae Kecil and Kayangan. At the same time, the islands with additional facilities in the good enough category are Kodingareng Keke Island, Langkai, and Samalona Island. With the total average response of 2.78, it can be concluded that public facilities are good enough and need to be improved both in terms of maintenance and procurement of facilities that are lacking and with the total average value of 3.15, it can be concluded that additional facilities on the Makassar city islands are good and need to be maintained and maintained so that they can continue to be used for a long time.



**Fig. 6 Boat of the Makassar city islands community**

**3.8. Sea Transportation**

The local port available in the Makassar islands is Paotere port, functioning as a supporting node for marketing the surrounding cultivation area products to the local market, located in the city of Makassar in waters that have a depth of at least 1.5 (one and a half) meters; and can serve people's shipping.

The means of transportation that connects the Spermonde Islands community with the mainland communities of Pangkep, Makassar, Barru, and Takalar, as well as the means of transportation used by the community from the mainland to the islands in Spermonde vary from boats with outboard motorboat types, as well as motorboat type ships.

In the departure system, there are types of regular vessels that transport passengers and goods every day and charter boats with transportation activities only at certain times; the capacity of the available vessels also varies. The regular boats available have a large enough capacity to carry around 70 passengers, while the charter boats can only carry 8-10 passengers.

Regular boat rentals are quite cheap compared to rental boats; passengers only pay around 15 thousand rupiah per sailing, while the cost of rental boats can reach one million to two million rupiah per sailing, especially rentals that want to go to distant islands such as Lanjukang, Lankai, and Lumu Islands. The capacity and cost of boat rental indicate whether or not many visitors can visit the islands in Spermonde. The cost of boat rental is a consideration for visitors. The cost difference between regular boats and rental boats is quite high due to the limited route of regular boats and only sails once a month, in contrast to rental boats, which can be used according to the wishes of the boat renter. Of the 12 islands included in the Spermonde Islands in Makassar City, not all can be accessed by regular ships. Only four islands serve and provide regular boats, namely Barrang Lompo, Barrang Caddi, Kodingareng Lompo, and Lae-lae Islands. Rental boats are quite a lot compared to regular boats and can be accessed to all islands except islands that are quite far away, such as Lanjukang, Lankai, Lumu-lumu, and Bonetambung islands, so rental boats cannot serve visitors and commuters from these islands. For visits to Bonetambung, Lumu-lumu, Langkai, and Lanjukang islands, passengers usually travel by regular boat to Barrang Lompo Island, then charter a boat to the islands.[18]

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## 4. Conclusion

The results showed that (1) the trade and fishing tourism sector has the potential for economic development of the Makassar city islands. Tourism potential can be developed, such as typical island food, tourist attractions, and community cultural traditions. The trade sector still requires an increase in the fleet and docks on each island, making the distribution channels more efficient and effective. The potential of natural resources through the development of mangrove forests and the results of marine resources caught by fishermen; (2) Economic activities of the island community are partly fishermen, and the rest become traders and government employees or State-Owned Enterprises; (3) The development strategy is to provide training for ship crews related to sailing safety, increasing the attractiveness of island tourism through planning and promotion of marine and community tourism to encourage the attraction of movement to conduct research and technological development related to the effectiveness and efficiency of the operation of transportation facilities.

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