

# Sustainable Mobility in Tourism: Analyzing the Utilization of Waterway Transportation by Tourists in Kochi, Kerala

Havila Rose K, Dr.Supriya Vyas

<sup>1</sup>Student, Master of Planning, Maulana Azad National Institute of Technology, Bhopal

<sup>2</sup>Assistant Professor, Maulana Azad National Institute of Technology, Bhopal

\*\*\*

**Abstract** – Tourism has given a significant contribution to the growth of economies. Today, tourism is on the path of sustainability, and transportation for tourism is one integral part of it. Waterway transportation is one way of sustainable transportation for tourism as it is affordable, environmentally responsible, and energy-efficient. Kochi, known as the ‘Queen of Arabian Sea’ is one of the Major tourism destinations of Kerala. Among the major tourist destinations in Kochi, Fort Kochi which is located on an island is the top one. Kochi, made up of many small islands and the Ernakulam Mainland, has waterway transportation of Ferry to connect within. This ferry system is cheaper, faster, and more sustainable than road transportation. This paper tries to analyse the tourist perception in Fort Kochi in the utilization of waterway transportation for commuting from Ernakulam Mainland to Fort Kochi Island. Through the primary survey, it was observed that only 20% of the tourists in Kochi prefer to travel by the existing ferry systems. Interview with the selected people from the sample revealed that from the lack of door-to-door connectivity to the lack of infrastructural facilities, the reasons for this was vast. A few suggestions are given in order to bring a change in this.

**Key Words:** Tourism, waterway transportation, Sustainable mobility

## 1. INTRODUCTION

Tourism is defined as the “act of spending time away from home in pursuit of pleasure, relaxation, and leisure activities”. It has directly aided in the growth of numerous economies around the world by raising income, expanding employment, opening doors for cultural exchange and building infrastructure. Tourism accounts for 10% of the world's GDP, 7% of global exports, and 9.4% of global employment according to the 2016 report of World Tourism Organization.(Rahman and Halim 2021)

One of the integral parts of tourism is the ‘transportation for tourism’. When Thomas Cook in 1841 developed the first organized tour, steam-powered engine trains were employed for transportation. Since then, transportation and tourism have been closely connected. Currently, it is discovered that transportation modes have a significant impact on the environment. The concept of sustainable tourism takes into account environmental, economic and social impacts according to United Nations World Tourism Organization who is responsible for the promotion of sustainable, responsible, and universally accessible tourism. It is important to balance our environment by bringing eco-friendly systems. Sustainable Transportation is also important for bringing a high level of

tourist satisfaction and to ensure a new experience for them.(Hassan, Bellos, and Fawaz 2021). A waterway supports the growth of the tourism sector and offers sustainable mobility because it is an affordable, environmentally responsible, and energy-efficient method of transportation.(Bigith and Kumara 2019)

Kochi known as the ‘Queen of Arabian Sea’, is the commercial capital of Kerala. It has a history of 2000 years in which many historical settlements were made by British, Dutch, Portuguese etc. which bought a multi shaded culture in Kochi. Art and architecture bought by these settlements still stand tall in the land of Kochi in the form of markets, religious buildings, palaces, houses, bungalows etc.(Rahman and Halim 2021)

Including Fort Kochi, Mattancherry and Willington Island there are many tourist destinations in Kochi. Among them Fort Kochi is counted as the top tourist attraction. Below is a brief list of Fort Kochi's tourist attractions.

- Vasco Da Gama Square
- The Dutch Cemetery
- Fort Immanuel
- Princess Street
- St. Francis Church
- Chinese Fishing Nets
- Old Harbor House
- Vasco House
- Parade Ground
- David Hall
- Bastion Bungalow



**Fig -1:** Map of Fort Kochi showing tourist attractions (Source: www.keralatourism.org)

Kochi is abundantly blessed with waterways with over 1,100 km of waterways available and most significant tourist attractions in Kochi are connected by waterways. The Inland Waterways Authority of India (IWAI) regulations require a

minimum depth of 2 meters for motor boat operations, hence only forty kilometers of these are thought to be navigable. The waterways in Kochi likewise primarily follow a grid iron layout. By keeping these waterways in good condition, the city can create an alternative mass rapid transport system that would relieve some of the strain on its already-clogged highways by converting the bulk of its available land into waterway-accessible zones. (Joseph 2012)

#### Existing water transportation system in Kochi

The major water transportation mode to transport passengers from Ernakulam main land to Fort Kochi and other major places is the ferry system of State Water Transport Department.

There are two ferry stations in Ernakulam. The main Boat Jetty which is 1 km from the Ernakulam Junction Railway Station and the other is near the High Court. (District Tourism Promotion Council, 2023)

Ferry trip duration from Ernakulam main boat jetty

- Vypeen : Frequent services (1/2 hour journey)
- Mattancherry : Daily 6 ferries (1/2 hour journey)
- Fort Kochi : Daily 30 services (20 minute journey)
- Varapuzha : Daily 6 boats (2 hour journey)
- Willingdon Island : Frequent services (15 minute journey)



**Fig -2:** KSWTD ferry service routes currently in operation. Source:(Joseph 2012)

For a few tourist destinations in the Kochi City Region, in comparison of the distance, travel time, and costs between waterways and roads, it has been found that waterways are more affordable and efficient when compared with the road transportation. For example, it takes 32 minutes to cover the distance of 13.6 Km from Ernakulam mainland to Fort Kochi by roadways while it only takes 20 minutes to cover 3.2 Km by waterway. It is also to be noted that in this case, fare of bus is much more than the fare of ferry. (Bigith and Kumara 2019)

Route Ernakulam to	Waterways		Roadways	
	Distance (in Km)	Travel Time (in min)	Distance (in Km)	Travel Time (in min)
W.ISLAND	2.8	10	10.4	27
FORT KOCHI	3.2	20	13.6	32
MATTANCHERI	4.4	35	11	28
VYPIN	3.3	20	7	15

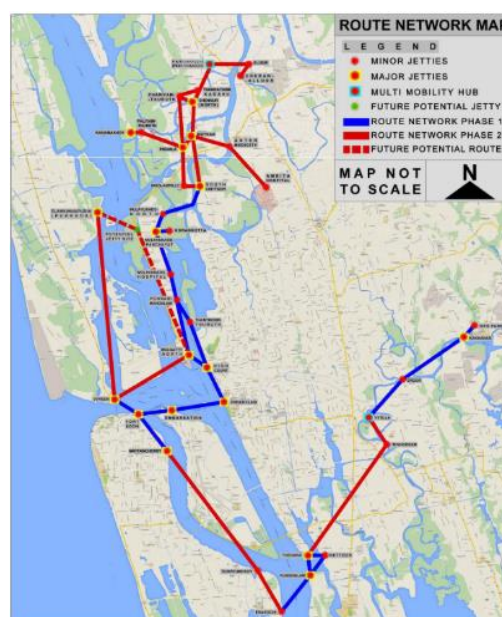
**Table -1:** Comparative analysis of waterways and road ways in selected tourist spots. Source:(Bigith and Kumara 2019)

Nonetheless, despite the fact that using the water is significantly more affordable than using the roads, very few people choose ferry services. The building of bridges, particularly the Goshree bridges that opened in the 2000s, which led to a preference for roadways over waterways, is one of the causes of this. In a region where rain is a constant threat, the residents appear to prefer door to door connectivity. The general public's expectations have not been met by the ferry system's levels of service delivery.(Joseph 2012)

Previous studies has also proven that lack of connectivity is one major issue of people not choosing ferry for transportation. Lack of toilets, waiting areas, low speed ferry, lack of parking areas etc are the other issues identified.(Bigith and Kumara 2019)

#### Integrated Water Transport System for Kochi

As the expectation of water transportation services is not met by the existing ferry system, Integrated Water Transport System routes were designed to provide connectivity and accessibility to various destinations within the city. 16 routes have been identified, and they will be implemented in a phased manner over a period of 4 years.(KMRL 2020)



**Fig -3:** Map of identified routes in integrated water transport system for Kochi City (Source: DPR- integrated water transport system for Kochi City)

Another waterway transportation in Kochi is the Ro-Ro Ferry service of Kerala Shipping and Inland Navigation Corporation.

## 2. NEED AND SIGNIFICANCE OF STUDY

The present article aims to find how the existing waterway transportation in Kochi is helping the tourist movement from Ernakulam Mainland to Fort Kochi which is one of the main Tourist destinations in Kerala. This will help in understanding the general trends of the tourists about the transportation mode through which significant improvements could be made in the existing ferry system which will be a step to sustainable tourism.

## 3. OBJECTIVES OF THE STUDY

Study aims to find how many tourists prefer to use the transportation ferry from Ernakulam Mainland to Fort Kochi. It also tries to find what are the difficulties they find in the ferry transportation.

- To review the system of Water Transportation in Kochi
- Understand how much Tourist prefer to use the Ferry
- To find what are their reasons for choosing or not choosing the ferry for transportation in Kochi
- To identify the factors that support their decision and thereby understand how sustainable mobility is practiced in the tourism of Fort Kochi.

## 4. SCOPE AND LIMITATION

Due to the limitation in time, only a sample of 100 people is taken for the primary survey. Primary survey and interviews are conducted on the weekends on December 2022 and January 2023 as it is the peak tourist season. It is assumed that these 100 tourists are the representatives of the whole tourists in Fort Kochi.

## 5. METHODOLOGY

This study begins with the literature review of the existing system of water transportation in Kochi. To find out the tourist's perception on this, a sample of 100 tourists both domestic and foreign is taken for the primary survey. Selected people were interviewed to get a better idea of their perception about the waterway transportation in Kochi. Based on the primary survey and interviews suggestions are made to improve the existing system of ferry transportation in Kochi.

## 6. ANALYSIS

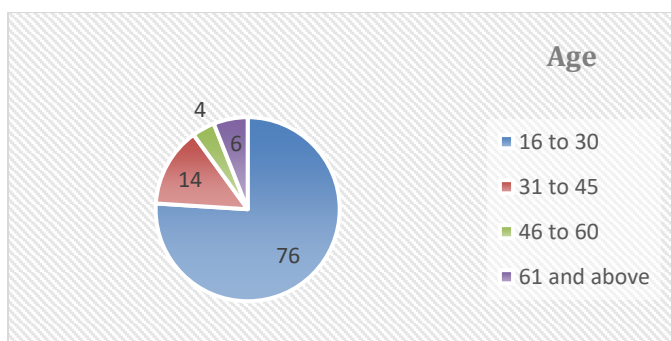


Fig -4: Age group percentage of sample selected

Diagrammatic representation of Figure 4 shows that among the sample selected for survey 76% of tourists belongs to the age category of 16 to 30, 14% belongs to the age group of 31 to 45, 4% belongs to the age group of 46 to 60 and remaining 6%

belongs to age 61 and above. Which means  $\frac{3}{4}$ <sup>th</sup> of the sample consist of young people and the further responses will be mainly a reflection of opinion of this age group.

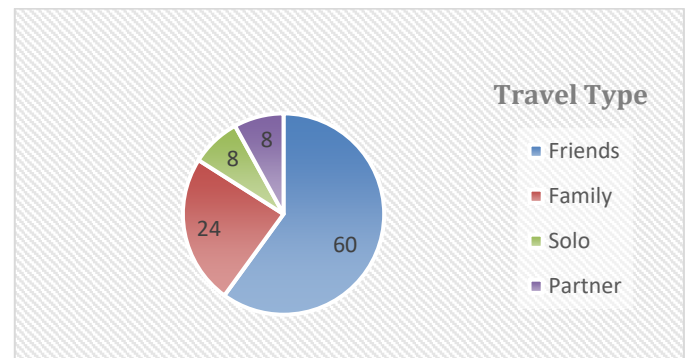


Fig -5: Travel Type percentage of sample selected

The diagrammatic representation of Figure 5 shows whom do they prefer to travel with. Among the people selected, 60% prefer to travel with friends, 24% with family, 8% prefer to travel alone and the remaining 8% prefer to travel with their partner. As mentioned above as a reflection of more young people in the sample, more than half of the people prefer to travel with friends.

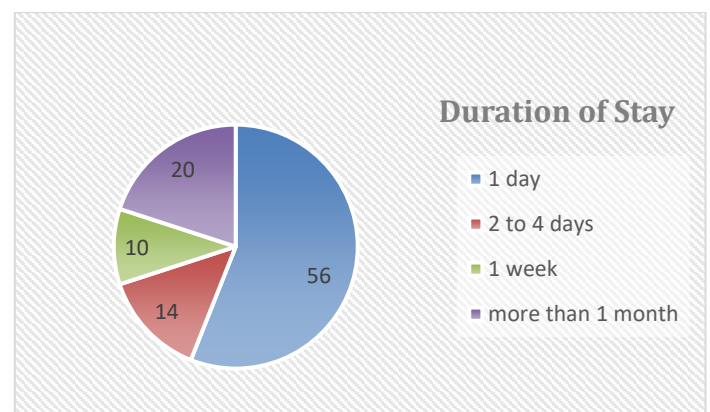


Fig -6: Duration of Stay in percentage of sample selected

Diagrammatic representation of Figure 6, shows the duration of stay of tourists from the sample selected. It was noted that, 56% of tourists only stay for one day. 14% stays for 2 to 4 days, 10% for one week and 20% for more than 1 month. This means, the major portion of the sample are visitors for a very short duration.

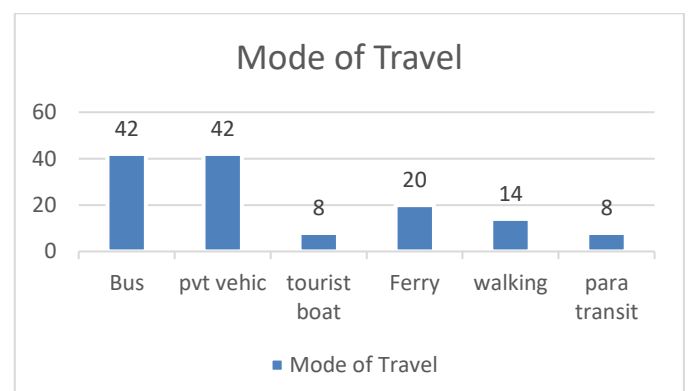
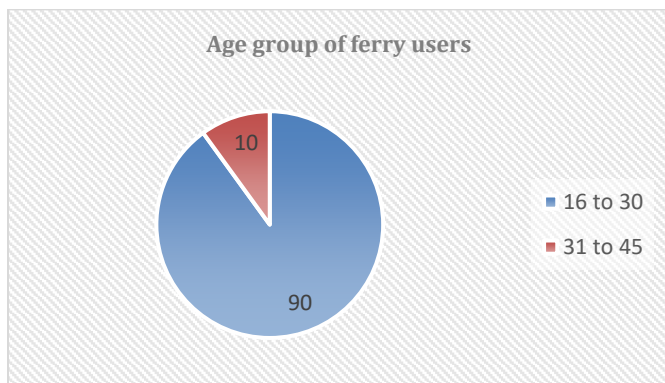


Fig -7: Mode of Travel preferred by the Tourists

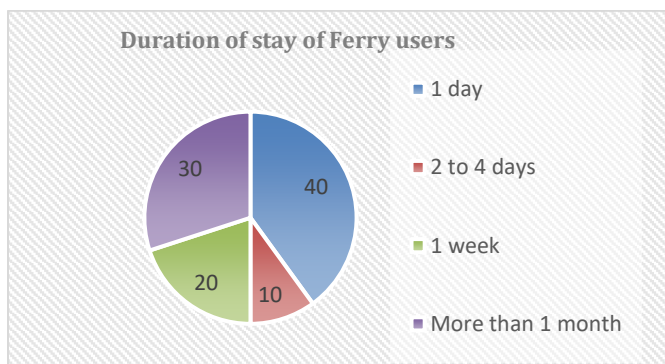


The diagrammatic representation above shows the number of people preferring different modes for travelling in Kochi especially from Ernakulam Mainland to Fort Kochi. It was observed that most of the people prefer Bus and private vehicle. Only 20% prefer ferry and 8% prefer tourist boat. 14% of tourists preferred to walk and 8% preferred para tansit modes such as autorickshaw.



**Fig -8:** Age group of Ferry Users

It was noted that, as shown in Figure 8, most of the tourists who prefer to travel by ferry falls under the age group of 16 to 30 and the remaining tourists were from the age group of 31 to 45. No tourist above the age of 45 showed an interest in the ferry transportation.



**Fig -9:** Duration of Stay of Ferry users

It was found that most of the tourists who preferred to travel in ferry were those who stayed in Kochi either for one day or for more than one month. From the interview it was understood that those people who stayed for one day are very much familiar with the place and the ferry system as they had visited the place many times before. In the case of people who stayed for more than one month, as the travel was a frequent need for them, they found the cheap prices of ferry above other means of comfort and convenience.

## 7. INFERENCES

Even though there is good waterway connectivity from Ernakulam Mainland to Fort Kochi, only 20% of people preferred ferry boats for reaching Fort Kochi. Among them 90% of tourists were from the age group of 16 to 30 and 10% of them were from 31 to 45 age group. Opinion of tourists revealed that there is a difficulty in accessibility when it comes to the age group of 46 and above. Among the 20% who preferred ferry, 40% were from the age group of 16 to 30 whose stay duration was only for one day, 10% were from the age

group of 16 to 30 who stayed for 2 to 4 days, 20% were from the age group of 16 to 30 and 31 to 45 and the last 30% were from the age group of 16 to 30 who stay for more than one month. Only 6% of people preferred tourist boat and all were from the age group of 16 to 30.



**Fig -10:** Map showing ferry station and tourist zone of Fort Kochi

One of the reasons for the smaller number of people preferring ferry service is because of the preferred door to door connectivity of people. Figure 10 shows the map of Fort Kochi with existing ferry station and tourism zone marked on it. Tourist activity zone is the area where there are mostly visited tourist spots and where there is more tourist movement. It could be seen that there is a walkable distance of 500 meters from ferry station to major tourist activity zone. This distance has to be walked or another vehicle is to be taken to reach tourism zone.

Also, from the figure 11, it could be seen that the way from ferry station to tourism zone doesn't have much activities to be done on the way. There are no tourist spots and view towards the beach is blocked by the buildings. The footpath is not of adequate width and has breaks always due to the entrance gate of buildings. There are less trees and shades and is difficult to walk as the place has a long monsoon season and a warm and humid season.

The lack of parking facilities near to the ferry station was also mentioned as one of the major issues. For most of the tourists using their private vehicle to reach Fort Kochi was found better than finding a parking space for their vehicle near the ferry station.

From the interview it was understood that for a small number of people the knowledge about the ferry and its cheap ticket rates were unknown.



**Fig -8:** Way from Ferry Station to Tourist Activity Zone

## 8. SUGGESTIONS

With respect to the above-mentioned results on the tourist opinion of Ferry service in Kochi, following interventions could be done in order to make the ferry system more convenient, so that more tourists will prefer that for commuting which will contribute to the efforts in making transportation more sustainable in City.

- The Fort Kochi Ferry station could be moved from existing site to a site near to the Tourism Zone. If not possible, then the roadway from Existing station to the core area should be made more attractive with art wall, seating spaces etc.

Along with that, small vehicles could be arranged from Ferry Station to tourism Zone for which the ticket could be taken along with the ferry ticket. Cycles could also be provided at Ferry Station even though it will not cater to a larger number of Tourists.

- The boats should be made accessible for the aged and disabled as the survey revealed that most of the tourists who preferred to use boats were from the younger age group.
- Parking facilities should be provided near to the ferry stations and way from parking area to the ferry station should be accessible for all.
- The Ferry station at Fort Kochi should be provided with more facilities such as waiting areas, toilets, drinking water etc.
- More awareness should be given to the tourists about the ferry focusing on its cheap rate and environmentally friendly mode. More tourist guides and agencies should be included in this.
- Infrastructural facilities inside the boat could be made in higher quality to please more tourists
- Feeder bus service from tourist location to ferry station can also be implemented.
- Hourly or daily circuit tourism through water could be planned connecting the islands of Kochi.
- Paintings, sculptors etc. can be made in ferry station to make the tourists more engaged.
- Facilities for safety should be provided in the ferry and in the tourist destinations.
- The street vendors at this location needed to be shifted to dedicated spaces nearby tourist spots.
- Tourist boats should be also allowed to have stop at the existing boat jetties. Construction of a new station for tourism can't be suggested in a place like Fort Kochi as it is a conservation zone and any new construction should be made with high
- Because to poor infrastructure and design at the Ro-Ro jetty node, there are traffic problems, conflicts between cars and pedestrians, and underused public spaces. This should be addressed.

## 9. CONCLUSIONS

It is concluded that even though only a smaller number of tourists prefer to travel by the existing ferry system, proper interventions in planning and managing can bring significant changes. This will help in making the tourist transportation more sustainable. Convenience in travel especially the connectivity is seen as a major issue in the study. If efforts are made to cater to this problem, more tourists will start to prefer the ferry system over other modes of travel. Integrated Water Transport System for Kochi can also bring a change in the current situation as the ferry station is proposed in the Tourist Zone of Fort Kochi.

## REFERENCES

- Bigith, V B, and H S Kumara. 2019. "Integrating Plan for Backwaters Transportation with Tourism Development : A Case Study of Kochi City Region Demography and Land Use of Kochi City." *J. Urban Manage Energy Sustainability* 2(1): 46–53.
- Hassan, Viana, Georges Bellos, and Ranine Fawaz. 2021. "Transportation towards Tourism Sustainability: Case Study of Lebanon." *Athens Journal of Tourism* 8(3): 177–92.
- Joseph, Yogi. 2012. "A Study on Inland Water Transportation in Kochi City Region." (September): 1–56.  
<http://www.cppr.in/study-on-inland-water-transportation-in-kochi-city-region/>.
- KMRL. 2020. 21 DPR: *Integrated Water Transport System for Kochi*. <http://journal.um-surabaya.ac.id/index.php/JKM/article/view/2203>.
- Rahman, Fazlur, and Norhazliza Halim. 2021. "Tourism-Related Urban Regeneration of Historic Cities: A Regeneration Strategies for Kochi, Kerala." *Journal of Tourism, Hospitality and Environment Management* 6(26): 130–42.