

Socio Economic Condition of Tuk-Tuk Drivers and Problem Related to Tuk-Tuk Driving:A Case Study on Berhampore Municipality in Murshidabad District, West Bengal

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Abstract: Nowadays, E-Rickshaw is new the most popular short-distance mode of transport in the urban transport system, locally called Tuk-Tuk. This has made it possible to transport people and goods from one place in the city to other. It is an eco-friendly transportation system. Many people from different wards of Berhampore Municipality have found a new way to earn a living through it. But, unplanned urbanization, lack of road space, and such rapid growth of Tuk-Tuk became a burden on the existing transport realm. This is creating traffic congestion in the city. At present women are making a living from it. Although Tuk-Tuk has significantly reduced the number of the van, rickshaw pullers. It is quick transport mode, easy to driving. It also focuses on urban environmental problems and the prospect of the Tuk-Tuk in the urban area.

Key-words: Eco-friendly, Municipality, Transport system, Tuk-Tuk, Urbanization.

I-INTRODUCTION

The government of India is seeking a way to increase public transport services that are eco-friendly as well as economy efficient (backed up by the renewable source of energy). In urban cities like Delhi, there exists public transport like Metro (Mass Transit System) which are somehow reducing traffic congestion problems but lacks first & last-mile connectivity. The economic growth in India has been marked by the preference for privatized and para-transit modes of transport by the passengers, the mobility share of which increased from 16.2% in 1990-1991 to 21.2% in 2000-2001, respectively, whereas the share of both buses and railways declined during this period. Technological interventions create a new consumer base that is not just socially and economically diverse but also provides for a diverse market to be created. For innovation to occur, one must be able to connect the existing unconnected dots of technology, market, and social need. -Rickshaw, also known as Tuk-Tuk has been becoming more popular in Berhampore Municipality. Since 2008 as an alternative to the auto-rickshaw and pulled rickshaw. At present urban transport development, the significance of the Tuk-Tuk service gradually increased because it is an eco-friendly, soundless, pollution-free, and easy driving mode of transport. It is quickest and most comfortable transport system for short distance

movement. Battery run rickshaw could be a low emitter complimentary transport for low income people, who suffer most from a lack of transport facilities if introduced systematically. In addition, it has provided opportunities for many unemployed people to make a living. The local people mostly prefer the Tuk-Tuk to the rickshaw. The financial behavior of the rickshaw pullers strategies and choice in saving as well as to address. There is nine Tuk-Tuk stand in this municipality. Three of six major Tuk-Tuk stands are nearby respectively Kassimbazar and Berhampore railway station and the other nearby Mohona Bus stand.

II-OBJECTIVES

The main objectives of the study are:

- i. To find out whether Tuk-Tuk has been affected by cycle rickshaw pullers.
- ii. The purpose of the study is to know what steps are being taken to solve the problem in the future.
- iii. To find out the local people's opinion on Tuk-Tuk as a para transport mode.
- iv. To find out why women are taking up Tuk-Tuk as a profession.
- v. To find out the major problems of Tuk-Tuk driving.

III-LOCATION OF THE STUDY AREA

Berhampore Municipality is the oldest municipality in West Bengal. Many eminent and respectable personalities including Maharaja Manindra Chandra Nandi chaired this municipality at different times which made this institute a heritage one. The area boundary of Berhampore Municipality was specified in the year 1869 and 1876. Berhampore Municipality was established. This trend continued up to 1884. In the year 1884, according to “Bengal Municipality Act 1876”, finally the administration and management of Berhampore Municipality were handed to 14 elected and 5 govt. nominated members. At that time the area of Berhampore Municipality was divided into 6 wards i.e. Gorabazar, Cantonment, Berhampore, Khagra, Saidabad, and Kassimbazar. It is the headquarter of the Murshidabad district. The Berhampore Municipality area has been

selected to study area to know the socio-economic condition of Tuk-Tuk drivers and their problems related to Tuk-Tuk driving. The general information is given below (Table No.1). The area is situated on the right side of the Bhagirathi river. The position of Berhampore Municipality is 24°5’N-24°7’N latitude and 88°15’E-88°16’E longitude (Fig.1). The total population of this municipality is 195223 (Census of India, 2011) and the density of the total population is 6213.3354 per sq. km. The Berhampore Municipality is on the north side of Kassimbazar, on the south of Ajodha Nagar and the Bhagirathi river flows on the western side. The study area has 25 wards, the total area of Berhampore Municipality is 31.42 sq. km and the nearest mouza of the area are Chaltia, Natungram, Gar Berhampur, Haridasmati and Manindranagar, etc.

LOCATION MAP OF THE STUDY AREA (BERHAMPORE MUNICIPALITY)

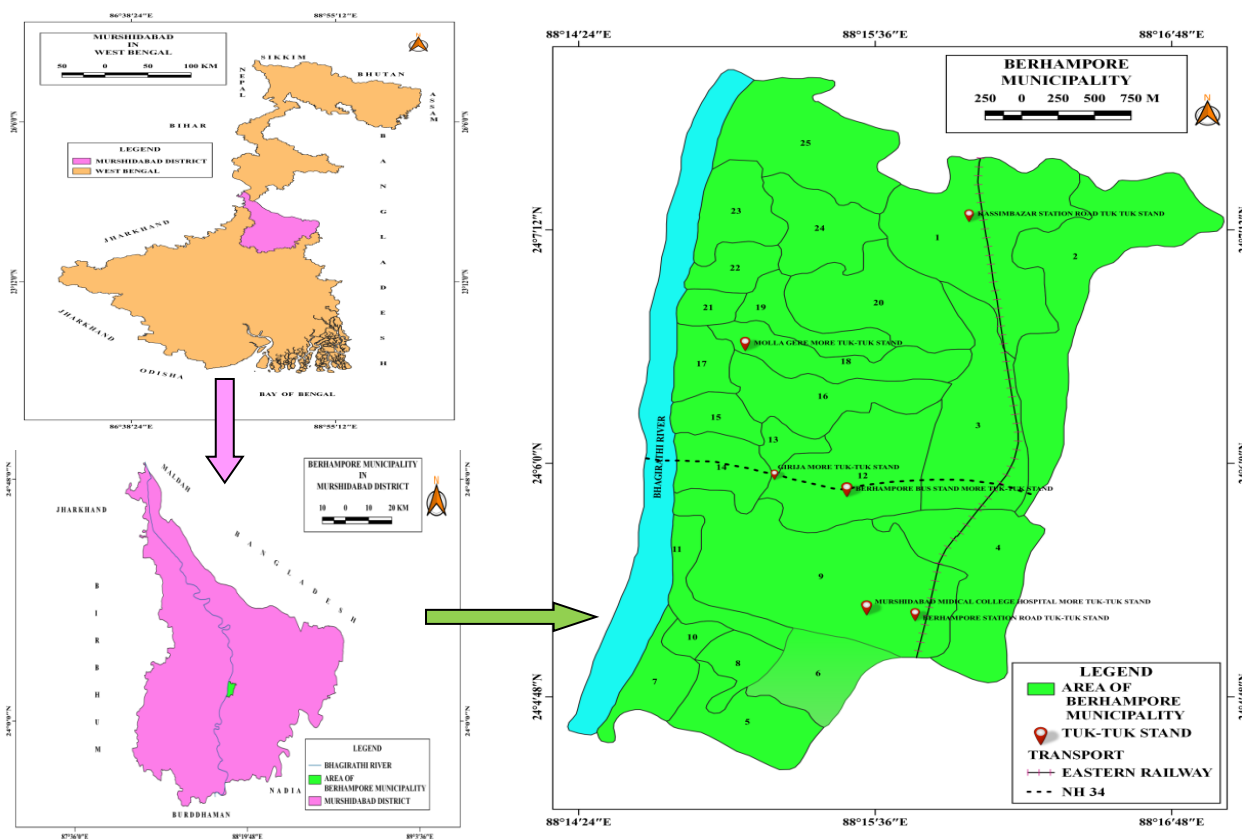


Fig. No.1

Source: i) Berhampore Municipality
ii) Prepared by DIVA GIS & Q-GIS 3.16.4

Base Map of 2018

Table No. 1: General information about Berhampore Municipality

SL. NO.	GENERAL INFORMATION		SL. NO.	GENERAL INFORMATION	
1	Name of district	Murshidabad	9	Female population	94976
2	Latitude	24°5’N-24°7’N	10	Density of population	6213.3354
3	Longitude	88°15’E-88°16’E	11	Literacy rate	90.06%
4	Year of est.	1876	12	Tuk-Tuk stand	6
5	Area	31.42 sq.km	13	Length of road	1000.75 km
6	No. of wards	25	14	Length of drainage	2275 km
7	No. of household	43075	15	Railway	Eastern railway
8	Male population	100247	16	National highway	NH-34

Census of India, 2011 & Field Survey, 2022

IV-DATABASE & METHODOLOGY

4.1. Source of Data:-To study any area in detail data collection must be required. Data help to represent the basic characteristics related to the study area in a more accurate form. Here data is collected from two sources, they are:

4.1.1. Primary Data: This field study is based on a primary survey. Primary data has been collected from different Tuk-Tuk stands of Berhampore Municipality for getting information about this topic. The data has been collected by questionnaire, observation, personal interview, etc.

4.1.2. Secondary Data: Different types of secondary data have been collected from govt. and non-govt. sources such as Census of India 2011, a base map of Berhampore Municipality, this information collected from Municipality Office and different websites, various journals, articles, newspapers, etc.

4.2. Methods & Techniques:-Several techniques, methods, and software have been used here, that is:

1. A stratified sampling technique has been used for data collection from Tuk-Tuk drivers.
2. MS EXCEL 2007 was used for the analysis of statistical data and preparing various types of diagrams.
3. Q1GIS 3.16.4, and DIVA-GIS software have been used to prepare relevant maps.
4. Google Earth software is also used for location identification.
5. Some formulas are also used for calculating and analyzing data. They are below:
 - i. Weighted Composite Index=Rank on problem by the surveyor*Rank of problem by the respondent
 - ii. Child Dependency Ratio=(Number of people aged between 65 years and above/Number of people aged between 15-65 years)*100
 - iii. Aged Dependency Ratio==(Number of people aged between 0-14 years/Number of people aged between 15-65 years)*100
 - iv. Total Literacy Rate={Total literate perso(Excluding 0-6 years)/Total population(Excluding 0-6 years)}*100

V-SAMPLE DESIGN

According to Berhampore Municipality,1109(registered) Tuk-Tuks are available in the municipality.Among them, 219 Tuk-Tuk drivers have been taken for a sample survey.The selection of a number of Tuk-Tuks was based on the sampling method. The formula of find out the sample size is:

$$\text{Sample Size} = \frac{\{(Z)^2 * P(1-P) - m^2\}}{\{1 + (Z)^2 * P(1-P) / m^2 * N\}}$$

[Where,Z=z-score
P=population proportion
m=margin of error
N=population size]

VI-RESULT & DISCUSSION

6.1. Population Composition: In Berhampore Municipality there are a total of 43075 numbers of household among them some families are linked with Tuk-Tuk transport. Out of a total family of Tuk-Tuk transport,52 households of Tuk-Tuk drivers family have been surveyed. The total population of the samplesurvey are 260 people out of 120 males and 140 females;the percentage of females of 54% and males are 46%(Fig. No. 2).So, this diagram shows that the female population rate is too high than the male in Tuk-Tuk driver's families.

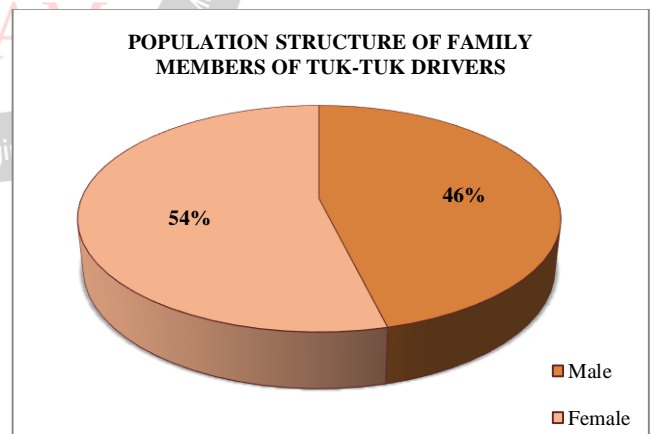


Fig.2 Based on Field survey,2022

6.2. Caste Structure: According to the sample survey total populations are 260, out of 12 persons belonging to the general caste,21 persons are SC,7numbers of the population are OBC, 3 belong to EWS caste and 9 Tuk-Tuk drivers belong to the ST category. (Fig. No.3)

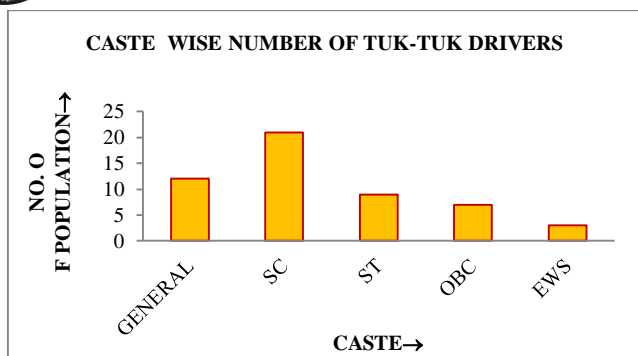


Fig.3 Based on Field survey,2022

6.3. Age-Sex Structure:The age sex pyramid shows the age -sex-wise population distribution. Here, in this diagram(Fig. No.4)are group has been shown the male and female population, highest old age population has been shown the age of 65-80. In this study area, maximum males are presenting in a working age group. Above 80 years the diagram is shown the population being reduce. This diagram shows the dependency ratio of the working population. The child dependency ratio is increased more than the old age ratio. In this figure, the age group between 65-80 female number is too good.

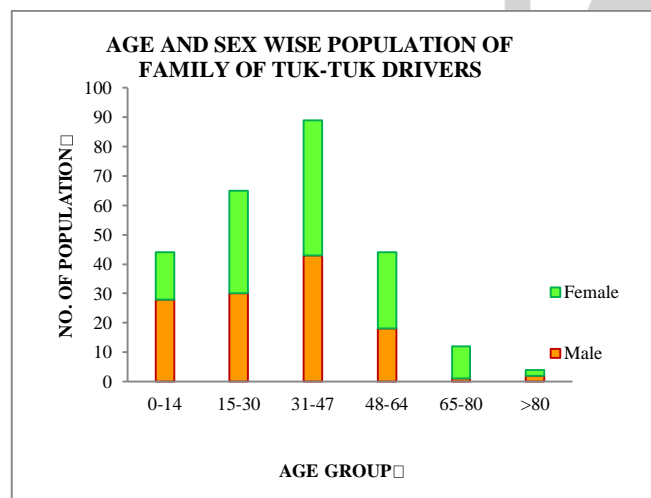


Fig.4 Based on Field survey,2022

6.4. Economic status of Tuk-Tuk drivers: Total population(surveyed)of Tuk-Tuk drivers in Berhampore Municipality, economic status divided into 3 categories. There are APL,BPL, and Antadaya. Most of the belong to the APL group(Fig. No. 5).

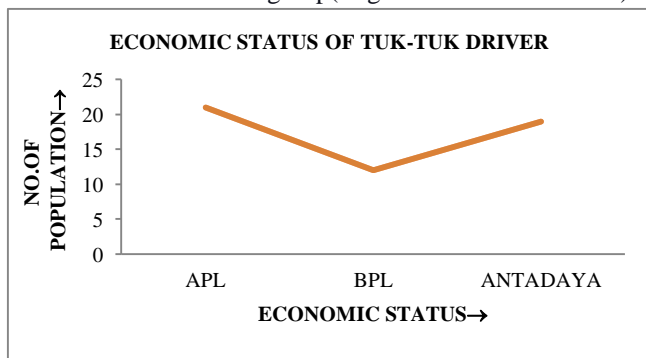


Fig.5 Based on Field survey,2022

6.5. Literay Rate:According to a sample survey the total literay rate of Tuk-Tuk drivers' families is 94%(Fig.6 & 7).From this point of view it may be pointed out the literay rate of Tuk-Tuk drivers is better than family members.So,the Tuk-Tuk drivers are generally more educate than other occupations such as a van, rickshaw pullers, etc.Muniipality is in an urban area so most of driversliterate.

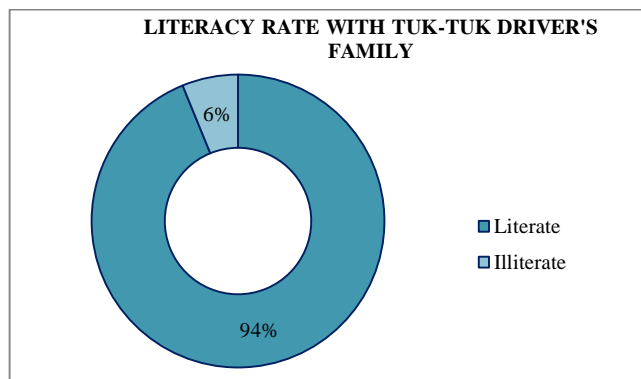


Fig.6 Based on Field survey,2022

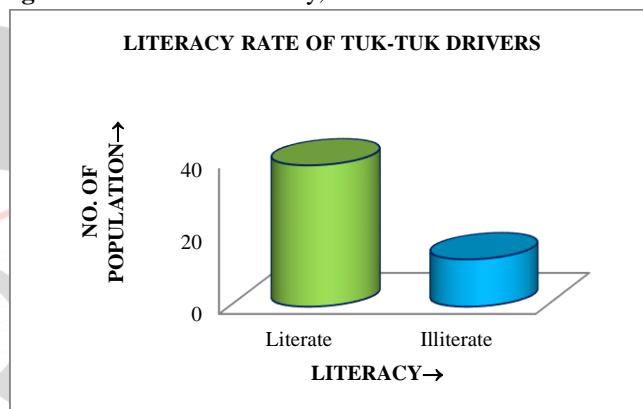


Fig.7 Based on Field survey,2022

6.6. Educational Qualification: Educational qualification is the most important part of economic development. According to the sample survey total of 260 population out of the 120 persons are male and 140 are females.36 male persons belong to below Class-IX, on the other hand, higher studies is the lowest population linked with the Tuk-Tuk transport system. Education qualification of Tuk-Tuk drivers are described here, total population out of 17 persons are illiterate, where 5 persons of male and 10 persons of female. (Fig. No. 8)

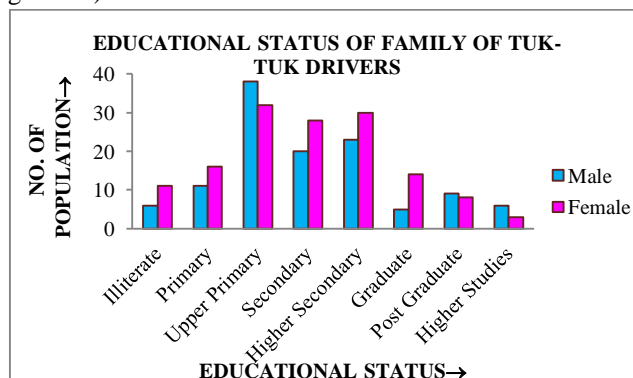


Fig.8 Based on Field survey,2022

6.7. Dependency Ratio:The dependency ratio has been calculated by sample data. According to sample survey 2022, the child dependency ratio, and aged dependency ratio of Tuk-Tuk drivers' families have been calculated as 22.2222 and 30.330. (Fig. No. 9,Table No.3)Tuk-Tuk drivers live in an urban area so they are more educated than rural people that's why the dependency rate is low in this municipality. So, the aged dependency ratio is more than the child dependency ratio.

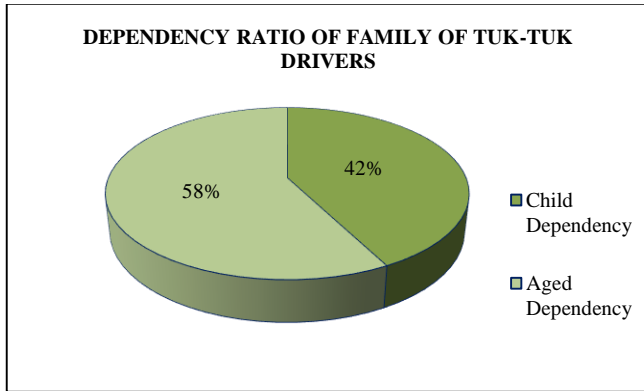


Fig.9 Based on Field survey,2022

6.8. Previous occupation structure: It is shown based on a sample survey. Here, the previous occupation structure has been shown into 10 categories. (Fig. No.10)Based on this classification the highest numbers of Tuk-Tuk drivers select Tuk-Tuk driving as their occupation whose previous occupation was unemployment. On the other hand 10 persons of Tuk-Tuk drivers whose previous occupation was the security guard.

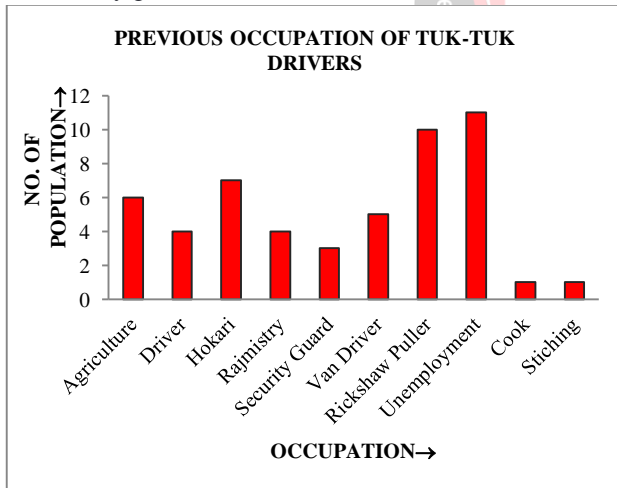


Fig.10 Based on Field survey,2022

6.9. Reason behind choosing Tuk-Tuk driving as an occupation: Based on a primary survey 25 people out of the total respondent said that they wanted to earn money which was the main reason for choosing driving. (Fig. No. 11) Tuk-Tuk driving is a low investment job, that's why most of the people in this municipality choose Tuk-Tuk driving. There are also two women with Tuk-Tuk by this occupation they run their family, educate their child and it becomes their hobby.

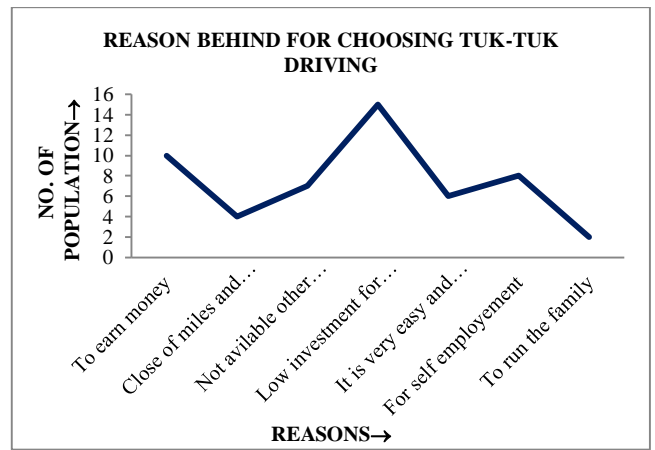


Fig.11 Based on Field survey,2022

Opinion of Female Tuk-Tuk Driver-1

According to Mrs. Das, she is an illiterate married woman. She started her journey with tuk-tuk driving in April 2020 during the pandemic. She was a cook before driving tuk-tuk, but she lost her job in the pandemic for Covid-19. At that time, she didn't get any economic facilities from others that's why she decided that she would become a tuk-tuk driver. She also said that tuk-tuk driving was her hobby also. She has no union. She suffer problems from male tuk-tuk driver when she drove started a conflict with them. She got no. of vehicles but didn't get any license from Berhampore Municipality for her no sufficient money. She couldn't say any recommendations for solving this problem.

Opinion of Female Tuk-Tuk Driver-2

According to Mrs. Jana(Mondal), she is an HS pass women tuk-tuk driver who started tuk-tuk driving in March 2018. She was doing stitching before tuk-tuk driving. Firstly she brought tuk-tuk for her husband but after that some dispute between them she left with her son and her mother. She has a 1,00,000 amount of loan, Of payment for this loan she started driving. She has a union(RTO).In her opinion, she pays motor vehicle tax Per month.The number of van,rickshaws have been reduced for transport short distance at present time.

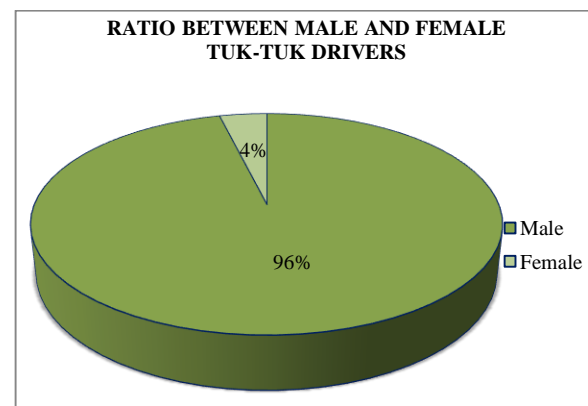


Fig.12 Based on Field survey,2022

6.10. Income Level: based on this income level, the economic status of the selected study is can be understood properly. The income level of the selected area has been classified into 6 classes. .(Fig. No. 13)

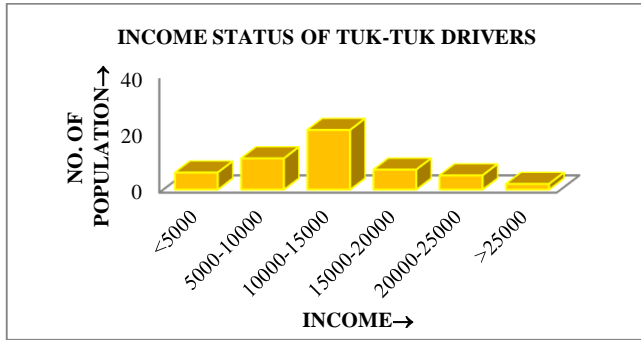


Fig.13 Based on Field survey,2022

6.11. Standwise Tuk-Tuk distribution & Road : In Berhampore Municipality have 6 major Tuk-Tuk stands. The maximum number of Tuk-Tuks is shown at Berhampore station road. Stand wise Tuk-Tuk distribution is representing (Fig No. 14 & 15).

ROAD NETWORK MAP WITH TUK-TUK STAND (BERHAMPORE MUNICIPALITY)

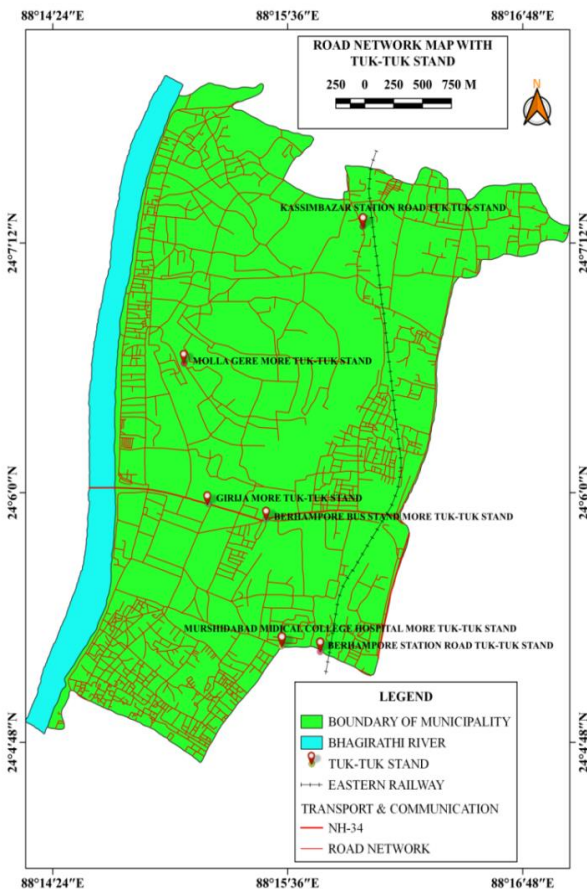


Fig.14 Based on Field survey,2022
Source: i) Berhampore Municipality
ii) Prepared by DIVA GIS & Q-GIS 3.16

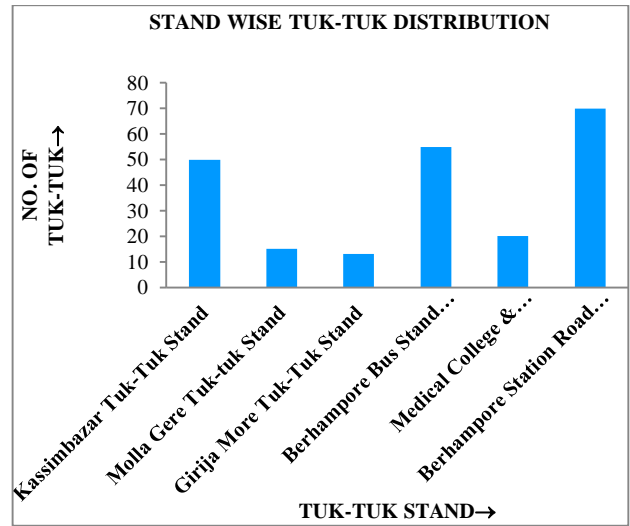


Fig. No.15 Based on Field Survey,2022

6.12. Location of Tuk-Tuk stand on the basis of road network: The total length of the road is 100.75 km. Most of the roads are pucca. Different types of vehicle traffic including heavy vehicles like buses, on the other side Tuk-Tuk, play the entire municipality area. In Berhampore municipality, there are 6 Tuk-Tuk stands. The name of the Tuk-Tuk stand and its address are below . ,(Table No.2)

Table No. 2:Location of Tuk-Tuk Stand with address

SL. NO.	NAME OF THE TUK-TUK STAND	ADDRESS
1.	Kassimbazar Station Tuk-Tuk Stand	Near Kassimbazar Station
2.	Molla Gere Tuk-Tuk Stand	Near J.N.Academy School
3.	Girija More Tuk-Tuk Stand	Near Kasiswari School
4.	Berhampore Bus Stand Tuk-Tuk Stand	Near Mohona Bus Stop
5.	Murshidabad Medical College Hospital Tuk-Tuk Stand	Near Swarnamoyee Road
6.	Berhampore Station Road Tuk-Tuk Stand	Near Berhampore Station

Source:Field Survey, 2022

6.13. Distribution of Para transport vehicles: According to the Municipality record, there are 1109 registered Tuk-Tuks by the municipality. The most important para transport vehicles of the municipality are auto, rickshaw, van, and Tuk-Tuk. The number of Tuk-Tuk vehicles is increasing day by day. Years(2016-2018,2020-22) different types of para transport vehicles are shown below.(Fig No. 16 & 17,Table No.4)

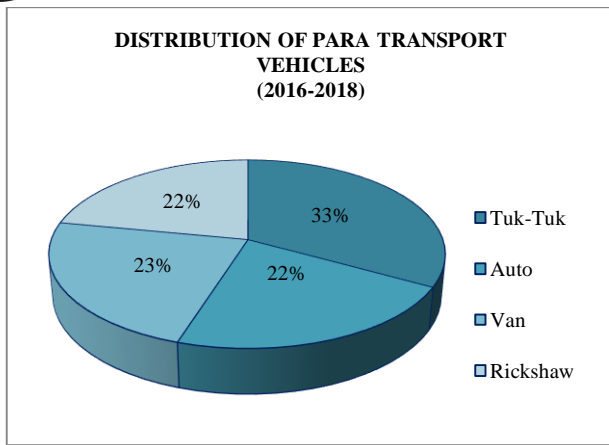


Fig. No.16 Based on Field Survey,2022

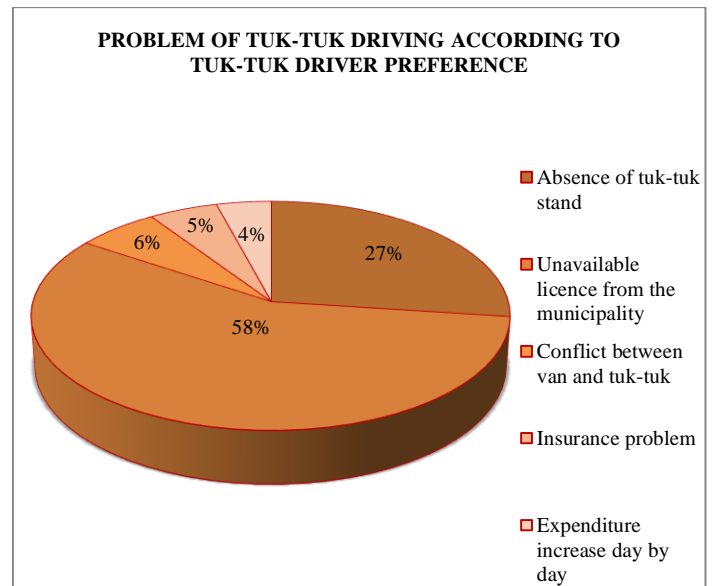


Fig. No.18 Based on Field Survey,2022

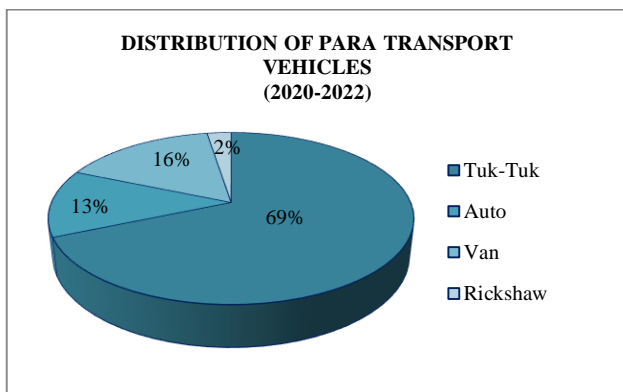


Fig. No.17 Based on Field Survey,2022

6.14. Nature of Problems:The main aims of every educational study are to find out the main problem of the study area in the selected topic. According to my aims the problem of a Tuk-Tuk in the urban transport system. Tuk-Tuk and van rickshaw pullers are also individually surveyed to understand and find out the problem of the study area related to the Tuk-Tuk transport system. So, for better known about the vehicles and also transport system.

6.15. Problems of Tuk-Tuk driving according Tuk-Tuk drivers preference: The different Tuk-Tuk drivers indicate the different types of problems. According to Tuk-Tuk drivers' preferences, five major problems have been selected and scoring them by the techniques of the weighted composite index.(Fig. No. 18,Table No.4) .Based on the location of the Tuk-Tuk stand it has also been assumed that sufficient Tuk-Tuk stands are absent in the municipality area. Most of the van and rickshaw pullers capture important places like schools, colleges, parks, etc. Berhampore Municipality These did not provide the license of the drivers.

6.16. Problems with other vehicles: Eco-friendly Tuk-Tuk vehicles are a new concept in the urban transport system as it is very comfortable and comparatively fast-moving vehicles. So, common people mostly choose Tuk-Tuk for their moving purpose. As a result, other vehicles such rickshaw,vans,and auto lost their passengers, so sometimes they started the conflict with Tuk-Tuk drivers.These problems are surveyed and calculated for better understanding(Fig. No.19)

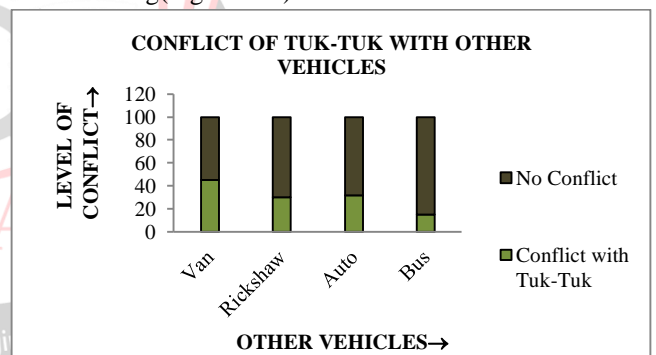


Fig. No.19

APPENDIX

Table No.3: dependency ratio

DEPENDENCY RATIO	
Child Dependency	Aged Dependency
22.2222	30.3030

Source:Field Survey,2022

Table No.4:Weighted Composite Index

PROBLEMS	WEIGHTED COMPOSITE SCORE
Absence of Tuk-Tuk stand	52
Unavailable licence from the municipality	110
Conflict between van and Tuk-Tuk	12
Insurance problem	10
Expenditure increase day by day	8

Source: Field Survey,2022

VII-SUGGESTION FOR FARTHER DEVELOPMENT OF TUK-TUK TRANSPORT SYSTEM

The suggestion for reducing the problem of the Tuk-Tuk transport system, are:-

- i. The Tuk-Tuk service in Berhampore should be considered an integral part of the urban transport system. The city planner must consider the Tuk-Tuk as an effective para transport mode.
- ii. The narrow roads or land should be repaired and properly maintained to secure a safe and comfortable service.
- iii. Fixed stands needs to be selected for e-rickshaw, to restrain their unwanted gathering on the street.
- iv. Uncontrolled growth of non-registered e-rickshaw or Tuk-Tuks should be strictly in the town.

VIII-CONCLUSION

In developing countries, most of the cities are very congested with narrow roads. For such road non-polluting vehicles like battery auto, rickshaw. It can provide a very alternative transport system. With the help of the govt. policies of allowing only such vehicles in the town of the West Bengal, it can become a pollution-free area. The rickshaw has been a socio-economic impact on a large number of people in the city and its also role in income. For environmental issues, battery-operated auto-rickshaw more makes the land polluted and also the air. This dissertation recommends the formation of strong policies which ensure a safe design of the rickshaw and efficient functioning within the city.

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