

Impact of Toto Vehicles upon the Socio-Economic Condition of Van, Rickshaw Pullers & Auto Drivers: A Case Study on Chakdah Municipality of Nadia District, West Bengal

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Abstract: Now a day the most important public transport mode is battery operated E-Rickshaw locally called as Toto. In the present scenario of urban transport development, the significance of Toto services gradually increased because it is eco-friendly, soundless, pollution free, easy driving mode of transport. So, battery auto rickshaw is the most quick and comfortable transport system for short distance movement. In this point of view, it may be pointed out that number of battery auto rickshaw, Toto are increasing day by day in every urban area as well as rural areas in West Bengal. Due to emergence of this vehicle demand of fuel as well as degree of air and sound pollutions may be decreased. But after entering Toto to the modern transport system some problems are arisen such as occupational structure of the Vans and Rickshaw pullers are hampered, number of accidents are increasing day by day. With the help of this study it has also been tried to discuss the comparative analysis of transport system in respect to Toto and other paratransit system at Chakdah Municipality. Generally, two Railway Stations Chakdah and Palpara are present in the Municipality area and a Bus Stand also. In Chakdah Municipality there are Nine Toto Stands at this time. By this study the impact of Toto Vehicles upon the Socio-Economic Conditions of Rickshaw pullers, Vans & Auto drivers in Chakdah Municipality have been tried to discuss.

Key Words: E-Rickshaw, Eco-Friendly, Municipality, Paratransit, Toto, Transport.

I. INTRODUCTION

The E-rickshaw appears in first decade of 20th century in India and spreads all over the country. Now it is one of the most popular paratransit mode of transport in urban and rural areas of West Bengal due to its accessibility, flexibility, reliability and affordability (Roy, A. 2016). Battery operated auto rickshaw locally known as Toto is an Eco-friendly transport vehicle (Thomas, 2009). Due to their low cost and high efficiency they are accepted on the Indian streets. "The concerned model of E-rickshaw must be duly approved in accordance with the provisions of section 126 of Motor Vehicles Act, 1988, notification no.GSR.709 (E) dated 8th October 2014 and S.O. 2590 (E) dated 8th October 2014 of Ministry of Road Transport and Highways, Govt. of India" (E-rickshaw Sewa Scheme, 2014). Now a days Auto, Van, Rickshaw and Toto are the most important Para transport vehicles for moving one place to another place in different urban unit. In Chakdah Municipality the most important inter transport vehicles are Toto, Van, Rickshaw and Auto. There are nine Toto stands in Chakdah Municipality; two of them are close to Palpara Station and rest of the stands are nearby Chakdah Railway Station (City Development Plan, 2014 - 2019). The local people mostly prefer Toto as their transportation vehicle to

Van or Rickshaw because it can move faster than Van and Rickshaw and the fair is cheaper than other Para transport vehicles (Mitra, 2015). As a result, the income of the Van and Rickshaw drivers decrease day by day for entering Toto vehicles in modern transport system. So many Rickshaw and Van driver change their occupation from Van driving to Toto driving for better income and life style. But there are some problems of driving Toto Vehicles such as they do not get their license, insurance, Government aids after accident and the occupational structure of different paratransit vehicles are hampered.

II. OBJECTIVES

The main objectives of this study are-

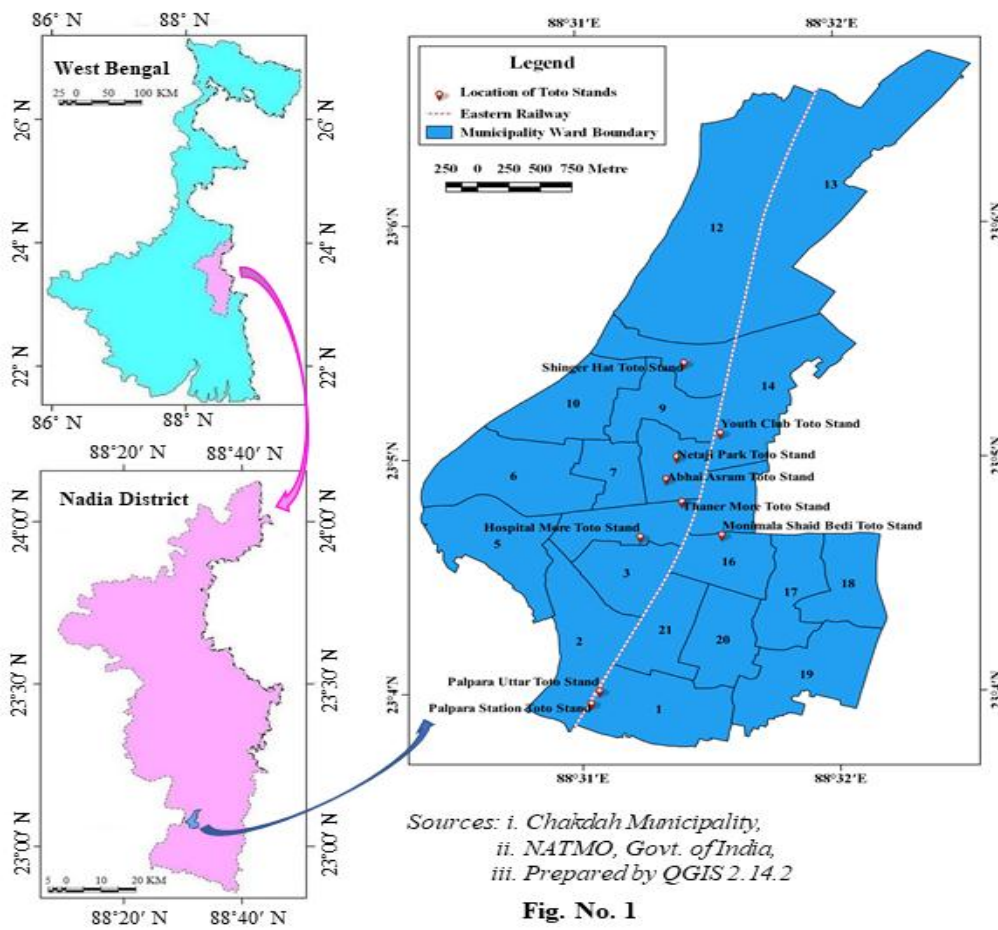
- i. To find out the impact of Toto vehicles upon the Socio-Economic condition of Van, Rickshaw puller and Auto drivers of Chakdah Municipalities in Nadia District, West Bengal.
- ii. To study the changing scenario of occupation after emergence of Toto vehicles.
- iii. To analyse the role of Toto Vehicles in Urban Transport system of Chakdah Municipality, Nadia District, West Bengal.
- iv. To identify the causes behind choosing Toto driving as their occupation.

III. LOCATION OF THE STUDY

Chakdah Municipality has been selected as the study area to investigate the Impact of Toto Vehicles upon the Socio-Economic Condition of Van, Rickshaw Pullers & Auto Drivers. Geographical location of Chakdah Municipality is between 23°03'18" N to 23°06'54" N Latitude and 88°30'26" E to 88°33'02" E Longitude (Fig. 1). The Municipality is encircled by Gangaprasadpur in the north, National High way - 34 in the east Chanaduria and Rauturi Panchyat in the south. Ganga flows as the western boundary of the Chakdah Municipality. The Chakdah Municipality is under Kalyani Subdivision in Nadia district,

West Bengal. The nearest village Panchayats are Chanduria-I and II, Dewli, Dubra, Ghetugachhi, Hingara, Kanchrapara, Madanpur-I and II, Saguna, Sarati, Silinda-I and II, Simurali, Talatala-I and II, and Tautari. Once upon a time Chakdah is known as Panchayat area under the British rule with only 5000 populations in 1885, it became a municipality on May Day 1886 (Table No. 1). John Beglar, a British Architectural Engineer took the initiative to establish Chakdah as a Municipality with Kazi Mirza Itteshamuddin as its first Chairman (CDP, 2015).

Location Map of the Study area (Chakdah Municipality)



Sources: i. Chakdah Municipality,
 ii. NATMO, Govt. of India,
 iii. Prepared by QGIS 2.14.2

Fig. No. 1

Table No. 1: General information of Chakdah Municipality, Nadia, West Bengal.

| Sl. No. | General Information of Chakdah Municipality | |
|---------|---|----------------------------|
| 1 | Name of the District | Nadia |
| 2 | Latitudinal Extensions | 23°03'18" N to 23°06'54" N |
| 3 | longitudinal Extensions | 88°30'26" E to 88°33'02" E |
| 4 | Year of Establishment | 1886 (01.05.1886) |
| 5 | Area (in sq. Km) | 15.36 |
| 6 | No. of Wards (Census 2011) | 21 |
| 7 | No. of Households (Census 2011) | 23167 |
| 8 | Male Population (Census 2011) | 48047 |
| 9 | Female Population (Census 2011) | 47156 |
| 10 | Density of Population (Per sq. Km.) | 6198 |

| | | |
|----|--------------------------------|---------------------|
| 11 | Literacy Rate (Census 2011) | 90.79 |
| 12 | Total No of Slum | 74 |
| 13 | Total length of Road (in Km.) | 206 |
| 14 | Total length of Drain (in Km.) | 90 |
| 15 | Railway Stations | Palpara and Chakdah |
| 16 | Bus Stand | Chakdah Bus Stand |
| 17 | Toto Stands | 9 |

Source: i. Chakdah Municipality, ii. Census of India 2011, iii. Field survey, 2018

IV. SAMPLE OF THE STUDY

According to Census of India 2011 in Chakdah Municipality, 23167 Households have been recorded, out of them 518 and 268 families are depended as occupation of Van and Toto vehicles respectively. As my study is based on the problem of the Toto Transport System in urban area and the impact of Toto Vehicles upon the Socio-economic condition of van, rickshaw puller and auto drivers. So, 92 Toto Drivers Family out of 268 households and 120 Van, Rickshaw puller and Auto driver have also been Surveyed out of 724 families. As a result the sample size of this study is 212 i.e. 21.37% of the total households in Chakdah Municipality.

V. DATABASE, METHODOLOGY & TECHNIQUES

5.1. Database

Database is one of the most important parts of any article. Generally, we may divide the total database into two part i.e. Primary & Secondary data. The present study is mainly based on Primary data.

5.1.1. Primary Data

This field study is generally based on primary survey because the Eco-friendly Toto vehicles is a new concept in urban transport so, small size of secondary data are available for the study. Primary data has been collected from different Toto stands and some Bus, Rickshaw, Auto and Van stands of Chakdah Municipality for getting further information about this topic. Basically, the data has been collected by Observation, Traffic Survey, Toto Stands Survey and also Household Survey through proper structured questionnaire, group discussions and personal interviews.

5.1.2. Secondary Data

Different type of secondary data has been collected from the different Governmental and Non-Governmental sources such as Census data 2001 and 2011 from Census of India. Nadia District Census handbook 2007 and 2010 have also been collected for this study. The base map of the Chakdah Municipality has been collected from Urban Planner of Chakdah Municipality. Various Magazines, Journals and Articles have been collected on related this topic for literature reviews and further improvement.

5.2. Methods & Techniques

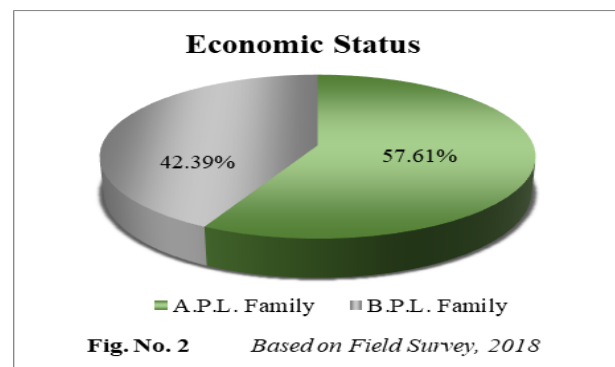
To satisfy the objectives of this study, mainly descriptive statistics have been incorporated. Several Techniques, Methods and Software have been used here i.e.

- i. A Stratified Sample Survey technique have been used for collecting information from the Toto, Van, Rickshaw pullers and Auto drivers.
- ii. Satisfaction Index (SI) introduced here for understanding the satisfaction level of local people.
- iii. Weighted Composite Score techniques applied here for identifying the causes behind choosing Toto driving as an occupation and also for indicates the problem of Transport system.
- iv. TNT mips 2015 and QGIS 2.14.2 Geographical Information System Software have been used to prepare relevant maps and diagrams.
- v. GPS and Google Earth pro also used for location analysis and further information.

VI. RESULTS & DISCUSSION

6.1. Economic Status of the Van, Rickshaw Puller, Auto & Toto drivers

It is known to all that urban poverty is an important problem today. For better job opportunity, life style, education, as well as to fulfil the basis needs the common people migrate from rural to urban and increased urban poverty tremendously. According to the field survey it has been observed that most of the Van, Rickshaw puller, Auto and Toto drivers of Chakdah Municipality area belongs to A.P.L. community (57.61%) and 42.39% are B.P.L. community. With the help of this diagram (Fig. 2) it is clear that maximum drivers comes in this occupation for better

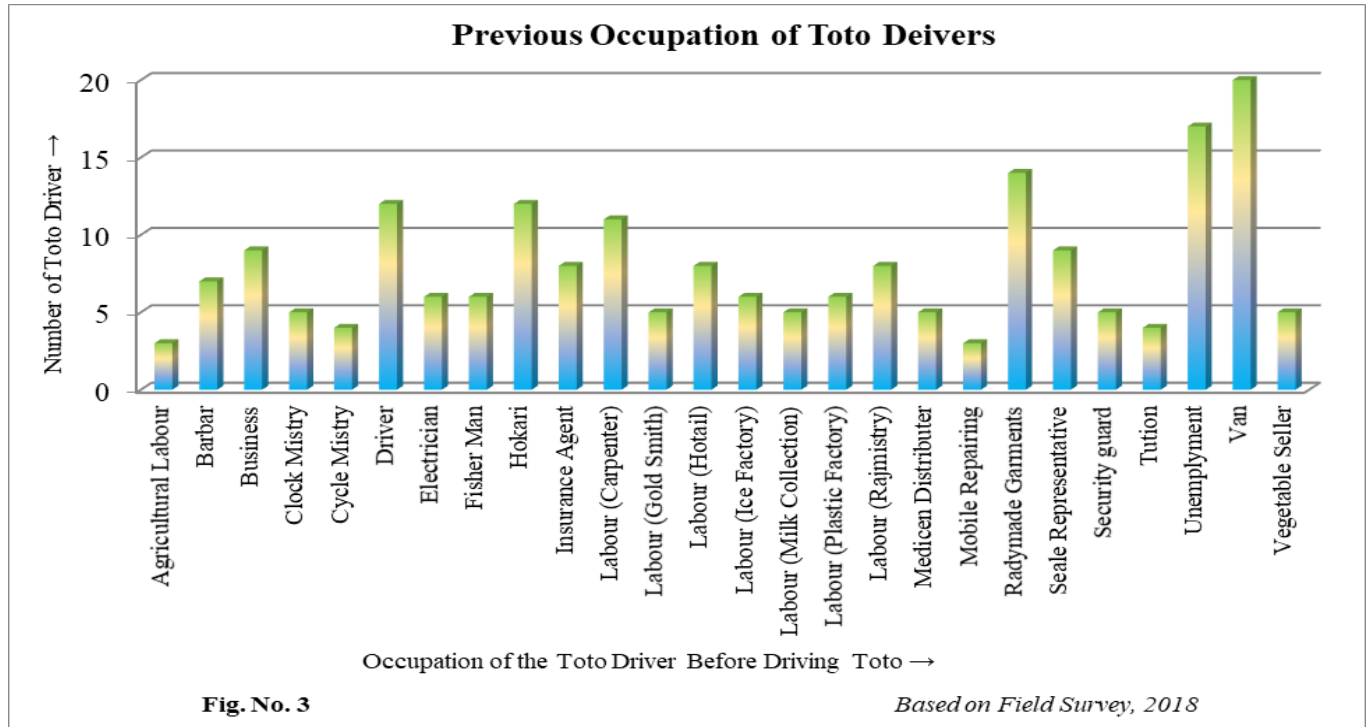


income and better life style than any other occupation.

6.2. Previous Occupational Structure of Toto Drivers

Basically, it is important to us to identify the previous occupation of every Toto drivers. Based on primary survey previous occupations have been classified of the Toto drivers into 26 categories (Fig. 3). Based on this classification the highest numbers (20 persons) of Toto

driver select Toto driving as his occupation whose previous occupation was Van driving. On the other hand, 17 persons driving Toto vehicles, was unemployment. Another previous occupation was Rajmistry, Labour on Carpenter, Hokari and Driving etc.



6.3. Reasons behind Choosing Toto driving as an Occupation

On the basis of Primary survey 26.6% of the total respondent stated that they wanted to earn more money that was the main reason for select this occupation. 12.8% respondent has stated that they ware labours of any mills or factories but now those mills or factories have been closed. Other important reasons for selecting Toto driving as his occupation, not available other suitable job (17.7% of the total respondent). 19.2% respondent driving Toto for self-employment (Sarkar, 2016). On the basis of these reasons a pie diagram has been drawn (Fig. 4).

6.4. Toto Stands on the basis of Road Network

The total length of roads according to Municipal records is 206 Kilometres (CDP, 2015-19) having widths varying from 12 feet to 60 feet. Out of 206 Km, 181 Km. are Metalled Road and 25 Km. are Non-Metalled Road. The Municipal area is connected by a Black Topped Road Network. Different types of vehicular traffic including heavy vehicles like buses and trucks ply on them on the other hand Toto, Van, Rickshaw and Auto also ply the entire Municipality. In Chakdah Municipality there are total Nine Toto stands. A road network map indicating Toto Stands has been drawn here for identify the road easily and also Toto stand respectively (Fig. 5 & Table No. 2).

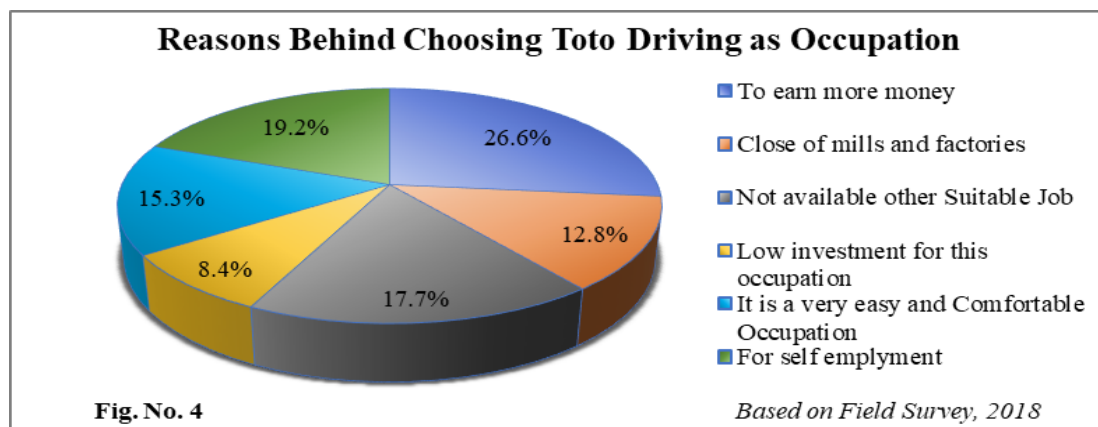


Table No. 2: Name of Toto Stands in Chakdah Municipality, Nadia, West Bengal.

| Sl. No. | Name of the Toto Stands | No. of Toto Vehicles | Address |
|---------|---------------------------------|----------------------|------------------------------|
| 1 | Shinger Hat Toto Stand | 34 | Near Shinger Hat |
| 2 | Youth Club Toto Stand | 19 | Near Uttar Lalpur Youth Club |
| 3 | Netaji Park Toto Stand | 28 | Near Netaji Park |
| 4 | Abhay Asram Toto stand | 26 | Near Abhay Asram |
| 5 | Thaner More Toto Stand | 53 | Near Chakdah Police Station |
| 6 | Hospital More Toto Stand | 17 | Near Chakdah Hospital |
| 7 | Monimala Shaid Bedhi Toto Stand | 61 | Near Monimala Shaid Bedhi |
| 8 | Palpara Utter Toto Stand | 16 | Near Palpara Station (North) |
| 9 | Palpara Station Road Toto Stand | 14 | Near Palpara Station (South) |

Source: Field Survey, 2018

Toto Stands & Road Network Map of Chakdah Municipality

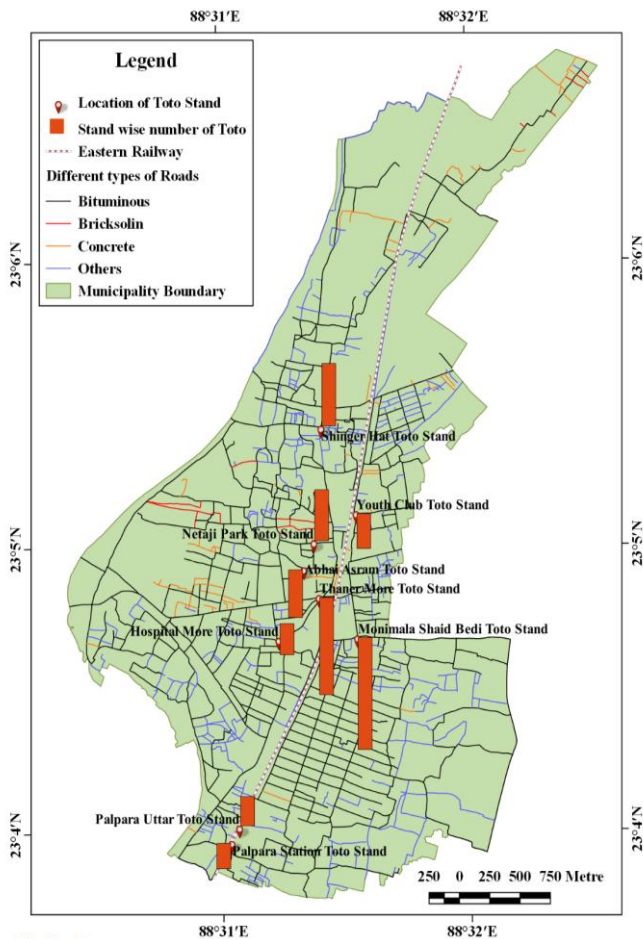


Fig. No. 5 Sources: i. Chakdah Municipality; ii. Field Survey, 2018; iii. Prepared by QGIS 2.14.2

6.5. Distribution of Para Transport Vehicles

According to the Municipality record, the most important Para Transport vehicles of Chakdah Municipality are Bus, Auto, Rickshaw, Van and Toto. In Chakdah Municipality there are total 518 Van, 154 Rickshaw, 52 Auto and 268 Toto (Field survey, 2018). The numbers of Toto vehicles and Auto are increasing day by day, but the numbers of Van and Rickshaws are decreasing day by day because of

insufficient passenger. Year wise different types of Para Transport Vehicles are representing on Figure 6.

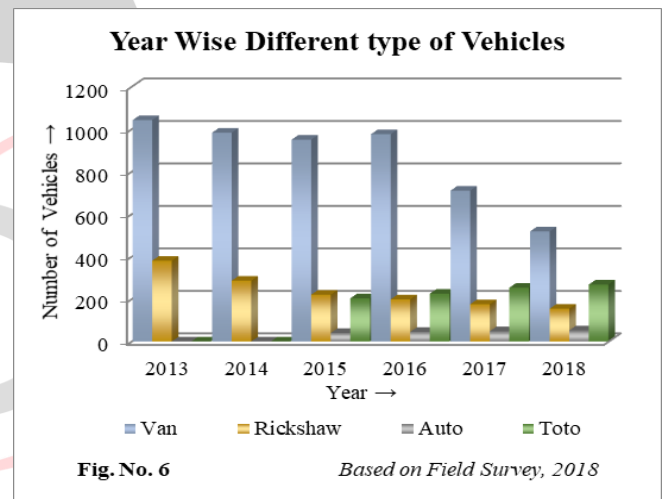


Fig. No. 6 Based on Field Survey, 2018

6.6. Comparative analysis of Fares

According to the primary survey it is seen that the fares of the different vehicles varies for the same distance, so the local people select the vehicles which demand low fares between and among the other transport vehicles. A comparative line graphs has been drawn on this different fare (Fig. No. 7). Here it is clear that for short distance travel people choose the Toto and for long distance, a person selects Bus to reach their destinations. So, Van and Rickshaw puller's income decreased day by day.

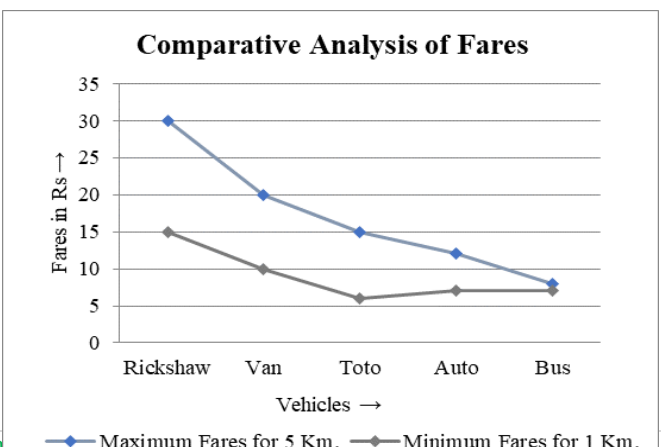
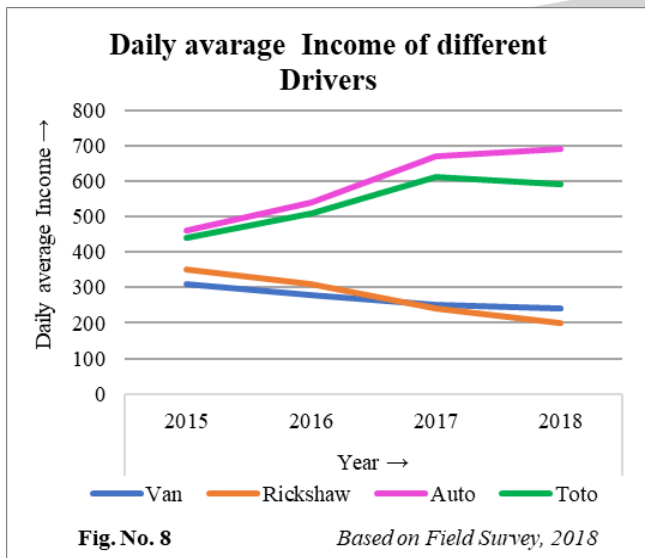


Fig. No. 7 Based on Field Survey, 2018

6.7 Income Structure of the Drivers engaged in different Para-transit system

On the basis of this income levels, economic status of the selected study area can be understanding properly. The income levels of the drivers engaged in different paratransit system indicates the variation of their monthly income due to emergence new Eco-friendly transport system. The highest daily average income earned by Auto drivers then Toto, Van and Rickshaw pullers respectively. By the study it is clear that the family income of Toto drivers is increasing after choosing Toto as their occupation, but the income level of Van and Rickshaw puller are decreasing day by day due to emergence of Toto transport system (Fig. 8). So, Toto vehicles hampered the Van and Rickshaw puller occupation gradually.



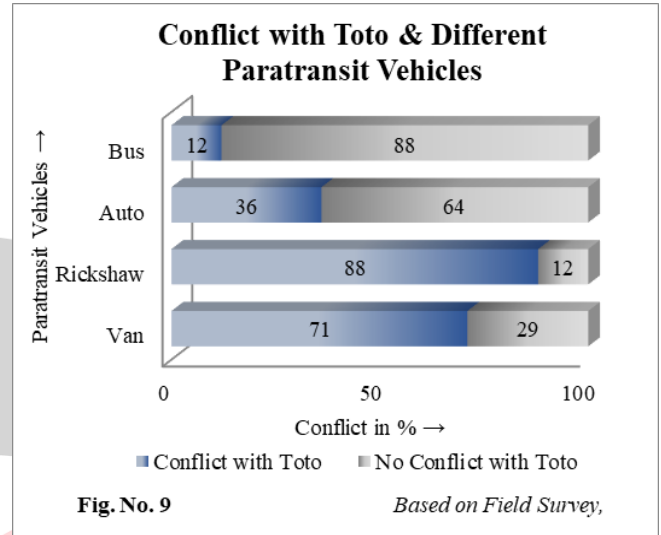
6.8. Impact of Toto Vehicles on another Transport Vehicles

To indicate the problems of Toto driving and its impact on Van, Auto and Rickshaw Puller occupation researcher has been collected the information from each sectors of paratransit system. For this study, the local peoples, Toto drivers, Van drivers, Rickshaw Pullers and Auto drivers are also individually observed to understand and find out the major problems of the study. After completing the field survey, it has been assumed that the Toto drivers have some individual problem on the other side the different paratransit vehicles have also some problem for emergence this new eco-friendly Toto vehicles. So, for better understanding about this vehicle and also transport system, a category wise discussion has been introduced.

6.8.1. Problems with Toto & other Paratransit Vehicles

Eco-friendly Toto vehicles is a new concept in urban transport system as it is very comfortable and comparatively fast-moving vehicles so, common people mostly choose Toto for their daily moving purpose. As a

result, other vehicles such as Rickshaw, Van & Auto lost their passenger so sometimes they started conflict with this Toto vehicles. Those problems have been recorded and calculated them for interpretation and construct a diagram for better understanding. In this diagram (Fig. No. 9) it is clear that maximum conflict occurs between Rickshaw and Toto (88 %) and minimum conflict occurs between Bus and Toto (12 %).

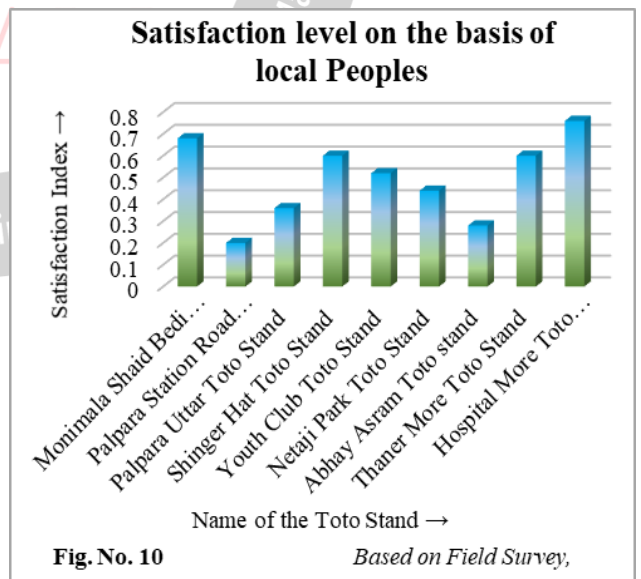


6.8.2. Another Major Problems

Another major problem of Toto Transport Systems is

• According to Urban Citizens or Passengers

To identify the satisfaction level by local peoples about Toto, a survey has also been done (Fig. No. 10 & Table No. 3). Most of the local are satisfied with Toto but some people indicates some problems of Toto transportation i.e.



- As Toto operates by Battery so driving licence is not essential for Toto driving, so anyone started to drive Toto as a result accident are increasing day by day.
- After accident no benefit or insurance are available.

- iii. Number of Toto increased tremendously so, traffic conjunction is increasing rapidly.
- iv. Sometime Toto driver create conflict with the passenger for fares.
- v. It is a slow-moving transport vehicle as its highest speed 20 Km. / Hours.

Table No. 3: Name of Toto Stands in Chakdah Municipality, Nadia, West Bengal.

| Name of the Toto Stands | Satisfied | Dissatisfied | Satisfaction Index |
|---------------------------------|-----------|--------------|--------------------|
| Monimala Shaid Bedi Toto Stand | 21 | 4 | 0.68 |
| Palpara Station Road Toto Stand | 15 | 10 | 0.2 |
| Palpara Uttar Toto Stand | 17 | 8 | 0.36 |
| Shinger Hat Toto Stand | 20 | 5 | 0.6 |
| Youth Club Toto Stand | 19 | 6 | 0.52 |
| Netaji Park Toto Stand | 18 | 7 | 0.44 |
| Abhay Asram Toto stand | 16 | 9 | 0.28 |
| Thaner More Toto Stand | 20 | 5 | 0.6 |
| Hospital More Toto Stand | 22 | 3 | 0.76 |

Source: based on Field Survey, 2018

• According to Van and Rickshaw Puller

- i. Conflict for the passenger is a common problem now a day.
- ii. It hampered Rickshaw puller and Van driver’s occupation mostly.
- iii. Income decrease day by day due to low passenger.

• According to Toto driver

- i. Expenditure that means maintains expenditure increased day by day.
- ii. No proper stands nearby Station, Bus stand and populated area already occupied by Van and Rickshaw pullers.
- iii. They could not get their insurance policy.

VII. RECOMMENDATIONS OR SUGGESTIONS

In Chakdah Municipality Toto Vehicles play an important role for urban transport but it has been seen that there are several problems between Toto vehicles and another Paratransit vehicles. So, some suggestions for further development in urban transport with the respect to paratransit are

- i. In Chakdah Municipality there are so many School, Collage, Hospital and Parks but there are no

Specific Toto Stands so, if some Stands can be established in future on that places a better transport system can be grow up in Chakdah Municipality.

- ii. For remove the conflict between other Para transport vehicles, the areas must select for each vehicle so that the relation with the other vehicle’s driver can be stay good.
- iii. Road Network must develop because Toto do not ply properly in rough road. The narrow roads or lane should be repaired and properly maintained for a safe and comfortable service.
- iv. A route chart should be specified by the Municipality. The free movement of e-rickshaws in the town area must be restricted. Colour-coding of e-rickshaws according to the route may be adopted for maintaining the system.
- v. The fares should be specified by the Municipality according to the distance, location of the battery auto-rickshaws. The driver’s attitude towards the passengers should be gentle and vice-versa.
- vi. Uncontrolled growth of non-registered e-rickshaws should be strictly controlled in the town. Proper and limited registration of e-rickshaws may be an effective tool to restrict such growth.
- vii. The movement of e-rickshaws should be controlled strictly along NH-34, the main roadway of the town to avoid unnecessary traffic congestion.

VIII. CONCLUSION

In developing countries most of the cities are very congested with narrow road. For such roads, non-polluting vehicles like Toto, solar auto rickshaw can provide a very attractive transport system. With the help of Government policies of allowing only such vehicles in the towns of West Bengal, become a pollution free area. It also attracts people from various occupations into this mode driving. This mode brings a huge change in economic structure of local urban areas. In this aspect battery operated auto-rickshaw increases their income, social status, comfort and decreases unemployment problems in Chakdah Municipality, West Bengal. So, after overall discussion it has been seen that most of the Toto drivers are well educated due to unemployment they select this occupation.

This eco-friendly Toto is more comfortable than Van and Rickshaw, but it is a slow-moving vehicle so some time it cannot fulfill satisfaction level. Most of the local peoples like Toto as their travelling vehicles for inter urban transport. So, this Toto has an important role for urban transport as it cannot pollute the air and also sound. It creates a new occupational opportunity for urban economy, but Toto has some negative impact also i.e. after emergence of this vehicle the occupational structure of other paratransit vehicles are hampered mostly.

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