6. CONCLUSIONS & RECOMMENDATIONS

Three wheelers have already become a key part of Sri Lanka's public transport network. They have become important in city sector for short hauls and in urban and rural areas they transport a significant number of people to places where other forms of public transportation, such as buses or trains do not run. More importantly, they provide employment opportunities for thousands of drivers, and livelihood opportunities to even more people. It has also evolved as an attractive occupation for youth with a certain level of education and solution to the unemployment problem.

passengers are more likely to use three-wheeler service for short distance travel, in most cases for about 1k.m. travel. It is the mode readily available for emergency situations as well.

When considering the vision of public and private transport services, public transport would want to provide services that are economically sound for the public. In contrary the private transport services would want to maximize profit. This conflict of interest display in three wheeler market as well. For the three wheeler drivers it is a mode of living while for the public transport sector it an essential service that a government should provide. In reality, coordination of these two structures is needed since at the end of the day it is commuters who rely on either of these service providers for a reasonable price.

In this research efforts are made to identify salient cost components of operating cost of the three wheeler service, based on a sample survey undertaken covering 30 three-wheeler operators and 10 experienced mechanics and spare parts dealers. It is found from the analysis that Current operating cost (2016) of three wheeler is Rs. 25.03/km.

When the operational cost and the existing fares structure were compared against Benefit Cost Ratio and it was observed that presently, there are varying BCR values between the different distances. First kilometre has a equal benefit and cost for one way trip and henceforth each kilometre cannot recover costs for one way trip, while all range of distances in two way trips have a higher than required cost recovery.

It can be concluded that longer distance (more than 1 km) in one way trips are operated at an expense while short distance (within 1 km) trips are tied with cost

recovery with profit. However, present situation is in favour of operator as three wheeler is a mode used mainly for short distance services.

It can be concluded that Three wheelers need to be promoted as the transport mode providing the "last mile connectivity" in the urban transport system.Last mile connectivity is movement of people and goods from a transportation hub to a final destination in the home.

That service can be provided with the rate of kilometer is 50 rupees and it will be optimum value for both operator and user.Longer trip should be discoraged since longer distance (more than 1 km) are operated at an expense to operator. If three wheelers can be promoted for last mile connectivity Traffic congestion is not escalated due to low number of three-wheelers in the urban areas. Further, two way trips can be considered as one way trips since two way trips are very less in trip distribution. Fare structure should be displayed in the three wheeler so that it is clearly visible and In fact, the operator enjoys excessive income which should be distributed between owner and operator when one way distance operated exceeding 34km per day.

Then Three wheel service will be more benifical to all related stakeholders.

Furteher current van/taxi rate is equal to the proposed three wheeler rate (Rs. 50/km).But cost per head for three wheeler users is four times of the same for users of twelve seating vans as the capacity of the three wheeler is three.

Vans are unavailable for shorter distances eventhough cost per head is lower than three wheelers.But three wheelers are readily available for shorter distances.

Therefore three wheeler is best for shorter distances (last mile connectivity) and not efficient for longer distances. Hence, three wheelers should not be encouraged for longer distances travel as and the van service and public bus transport are more efficient for longer distances.

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APPENDIX A : DISTRIBUTION OF BASIC PARAMETERS OF THREE WHEELERS

Fuel efficiencies of Three wheelers

No.of Three wheeler	**Fuel efficiency km/l**		
	2-stroke	**4-stroke**	**Diesel**
1	25	28	34
2	24	30	35
3	25	30	35
4	25	30	35
5	26	32	35
6	25	30	36
7	25	30	35
8	25	30	35
9	25	30	35
10	25	30	35
Average	**25**	**30**	**35**

Share of Three wheelers

Station	**No of Three wheelers**			**Total**
	2-stroke	**4-stroke**	**Diesel**	
Station 1	3	31	1	35
Station 2	9	29	2	40
Station 3	3	7	0	10
Station 4	4	11	0	15
Station 5	3	17	0	20
Station 6	1	18	1	20
Station 7	4	15	1	20
Station 8	2	17	1	20
Station 9	3	16	1	20
Station 10	3	15	2	20
% of share	**16**	**80**	**4**	**220**

Variables of Three wheeler operation

Three wheeler No.	Days operated per year	km operated per day
1	324	70
2	336	80
3	336	60
4	324	60
5	312	60
6	312	65
7	324	60
8	324	60
9	324	60
10	324	80
11	312	75
12	312	60
13	336	80
14	336	75
15	312	60
16	312	60
17	324	80
18	336	80
19	336	80
20	324	60
21	312	60
22	312	65
23	324	70
24	324	80
25	324	60
26	324	70
27	324	70
28	324	70
29	336	60
30	336	70
Average	**324**	**68**

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APPENDIX B : QUESTIONNAIRE PREPARED FOR THREE WHEELER OPERATORS

RESEARCH ON THREE WHEELER OPERATING SERVICE

This questionnaire is presented for Master research conducted by myself of University of Moratuwa and we do not expect any personnel details. Further we request accurate answers as much as possible.

Date :…….

Name Of the Stand :……..

Town :……

1. Basic Information

1.1 Type of fuel used in the vehicle : Petrol ☐ Diesel ☐

1.2 Model of the Vehicle : 2 Stroke ☐ 4 Stroke ☐

1.3 Year of Registration :……..

1.4 Are you owner of the vehicle…….

1.5 If not how much paid for you ……

1.6 If not how much you paid for owner to vehicle per day…….

2. Cost items

2.1 State the Information regarding mode of acquisition

Type of Acquisition	Amount You Spent	Year of purchase
Brand New		
Second Hand		

2.2 If you are the owner of the vehicle please specify the method of acquisition below.

I. Savings ☐

II. Borrowings ☐

III. Installments ☐

Iv. On leasing ☐

Other……

2.3 State the information regarding the above method of payment

Down Payment (Rs.)	Monthly Instalment (Rs.)	No. Of Instalments

2.4 Amount you have spent yesterday

Petrol :Rs……

2T :Rs……

Diesel :Rs……..

Other Rs……(Please specify)

2.5 (a) what is the average distance travelled before servicing? …….. km

(b) Amount you spent for the service? Rs…….

2.6 What is the type of insurance of the vehicle and cost for insurance? (Put a " √" and cost in the appropriate box)

Insurance Company	Type of Insurance	Amount
Sri Lanka Insurance		
Janashakthi Insurance		

2.7 How much you spent for recently for major repair and state the type of repair ……

2.8 a) Spare parts used for the Vehicle

Genuine ☐ Duplicate Parts ☐

b) What is the Frequency of changing such frequently changed spare parts and cost for such items?

Spare parts	Frequency of change	Cost at once

2.9 (a) what is the brand of tire that you use?

I. CEAT ☐

II. MRF ☐

III. DSI ☐

IV. Other ☐

State if 'Other' ……..

(b) How many kms do you travel before you change the tires?.....

2.10 (a) How many times did you changed the tubes within last year ……

(b) Amount of money you spent for above change of tubes. Rs……

(c)Amount you spent for patches in tubes within last 3 months Rs.....

2.11 Apart from the fuel cost the net amount of money that you spent for the maintenance of the vehicle Rs……..

2.12 (a) Have you registered in any three wheeler stand or association?

Yes ☐ No ☐

(b) If yes the annual fee that you pay:
Rs…….

3. Revenue

3.1 The net revenue that you earned yesterday : Rs……

3.2 Distance and No of trips travel yesterday Rs……..

3.2 (a) what is the minimum fee that you charge? :Rs……..

(b) For what distance do you charge the above mentioned fee?
……..km

3.3 Have you install taxi meter?

Yes ☐ No ☐

3.4 State the fee for the followings

Trip Distance(km)	**Charge(Rs)**
First kilometre (Up)	
First kilometre (Up & Down)	
Additional kilometre (Up)-Rs /km	
Additional kilometre (Up& Down)-Rs/km	
For waiting time (Rs for 15min)	

4. Other

4.1 The amount of kms that could travel with one litter of petrol/Diesel
……..

4.2 Amount of kms travelled during yesterday
……..

4.3 Daily average working time, from …….hours to ……..hours

4.4 Which of the following days are off days for you?

Saturday	☐	Poya days	☐
Sunday	☐	Public holidays	☐

4.5 How many days did you have to spend for service and maintenance within last 3 months?