

## **RESULTS OF SURVEYS AMONG DRIVERS AND CUSTOMERS OF FOR-HIRE THREE-WHEELERS IN FIVE SMALL TOWNS IN SRI LANKA**

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*Ownership of three-wheelers, a mode of paratransit, is rapidly increasing in Sri Lanka. Results of a survey among drivers and customers of for-hire three-wheelers are analysed in the present paper, which has direct policy relevance for policymakers and urban planners in Asian developing countries.*

*Two sets of questionnaires were employed to examine the characteristics and perceptions of for-hire three-wheeler drivers and customers. Ability to own (affordability) and flexible employment conditions emerged as the top reasons for the rapid increase. The emergence of three-wheeler services is largely attributable to inadequate public transport services in small towns. Users report that a three-wheeler reduces travel time, increases comfort, makes it easy to reach the destination, facilitates day-to-day activities, and serves well in an emergency situation.*

*However, the results reveal, among other things, that about 35.8 per cent of the drivers had had an accident in the 12-month period prior to the survey, 56 per cent had less than two years of driving experience, and 92.8 per cent had driven under the influence of alcohol. During the day, the most serious problems are the non-allocation of a stand or a lack of parking in crowded areas, and frequent attacks by gangsters. At night, problems include inadequate street lights and being called on for use in unlawful activities. Nevertheless, considering the employment it generates and the valuable services it provides, this industry continues to grow and operate in Sri Lanka, especially in small towns.*

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## I. INTRODUCTION

A variety of paratransit modes are in operation in South Asian countries. In Sri Lanka, the “three-wheeler” is one of the key paratransit modes; similar modes are used in Bangkok (the tuk-tuk) and in India (the Bajaj). The emergence of these paratransit modes in rural areas and small towns in the developing world is largely attributable to the lack of conventional public transportation facilities.

Until the late 1970s, non-motorized vehicles (such as carts) and small cars (such as the Morris Minor) were the popular paratransit modes in Sri Lanka. In 1977, the Government began allowing the import of second-hand vehicles. As a result, second-hand and reconditioned vehicles were imported, mostly from Japan, and second-hand cars and dual-purpose vehicles (for example, the Toyota HiAce) took the place of former modes. However, the prices of those vehicles were well above the limit of the majority of households in small towns. There, three-wheelers, which were introduced to the market in 1978, slowly began to capture a larger portion of public transport demand.

In recent years, ownership of three-wheelers has been increasing rapidly in Sri Lanka. According to the Department of Motor Traffic, at the end of 2005 three-wheelers accounted for 254,193 of the total 2,527,380 vehicles; motorcycles accounted for half of all vehicles (1,265,514) (Sri Lanka 2006). In 2004, 213,108 three-wheelers were in operation, meaning there were 41,085 new registrations in 2005. Of the 300,522 new registrations of vehicles in 2006, 156,626 were motorcycles and 64,466 were three-wheelers. It is interesting to note that, as in other Asian developing countries, motorcycle ownership is also increasing. However, motorcycle transport is not yet used as a for-hire mode in Sri Lanka.

At the time of writing, the price of a new three-wheeler was about \$2,500,<sup>1</sup> and the waiting time to receive a new three-wheeler after full payment was about four weeks. Because three-wheelers have been available in Sri Lanka for 30 years, various price options exist. According to informal consultations with drivers, used or repaired three-wheelers are available at prices as low as one sixth of the cost of a new one. This broader range of affordability is a factor in their popularity.

The three-wheeler’s physical characteristics, such as its smaller size, which makes it possible to fit into smaller parking spaces, are also factors in the decision of many households or individuals to invest in such a vehicle. One survey shows that 14.4 per cent of the households in the towns considered in the present study own at least one three-wheeler (table 1). Ownership of a three-wheeler at the

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<sup>1</sup> \$1 = 108 Sri Lanka rupees in June, 2008.

household level not only creates an employment opportunity for a member of the family, it increases the family status. As a result, even households with limited or reasonable capital in small towns tap the opportunity of owning a three-wheeler. The vast majority of these three-wheelers are available for passenger hire. A few are used for personal use or by companies to transport goods; those usually display a “Not for Hire” sign.

**Table 1. Structure of vehicle ownership in small towns, by town**  
(Percentage of households)

Vehicle	All	Galle	Ambalangoda	Embilipitiya	Wellawaya	Polonnaruwa
Bicycle	69.2	70	88	66	65	57
Motorcycle	61.2	57	50	67	54	78
Three-wheeler	14.4	25	10	12	9	16
Van	13.4	28	16	7	6	10
Car	10.6	18	17	9	6	3
Other	18.2	22	23	8	5	33

Source: Kumari, Rupasinghe and Siriwardana (2005).

As shown in table 1, the vehicles available at the household level in this study are categorized as bicycles, motorcycles, three-wheelers, vans, cars or other. The “other” category includes tractors, lorries, buses, land masters (vehicles used for farming activities, but seldom used for transporting people except for during harvest or festival seasons) and similar motorized vehicles.

The figures given in table 1 on the availability of various modes of travel indicate that in small towns and rural areas, passengers have few options in terms of hiring transport. Three-wheelers have been meeting more and more of the market demand formerly satisfied by other modes of complementary transportation. During the past three decades, there have been a number of different travel options, but none has been able to completely satisfy demand. Three-wheeler transportation, however, has demonstrated a capacity to handle increased demand.

With the major expansion of the three-wheeler transport industry, in 2002 an organization for drivers was formed in Colombo, namely, the All Island Three Wheeler Drivers Welfare Association. This association has branches in a few districts. According to its website ([www.3wheellanka.com](http://www.3wheellanka.com)), one of the association’s tasks is to help improve the social status of the three-wheeler drivers, many of whom feel socially oppressed. This perception affects their morale and work. The short-term objectives of the association include: (a) providing a standard uniform; (b) arranging insurance cover for drivers; (c) introducing identification stickers for

the three-wheelers; (d) and addressing similar matters which may improve the welfare of the drivers and build the general public's confidence in such transport. Despite the issues faced, the three-wheeler industry is rapidly growing. Therefore, the main objective of the present paper is simply to provide a snapshot of driver and user characteristics that could be used for future policy development.

## II. LITERATURE REVIEW

Fouracre and Maunder (1979) and Jacobs, Maunder and Fouracre (1986) conducted similar studies on public transport sectors in developing countries, and cited several important reasons for the existence of paratransit systems in these countries. The top three reasons were: (a) high growth rate of demand; (b) demand diversity; and (c) low budget allocation by the Government to the conventional public transport sector. As stated by Jacobs, Maunder and Fouracre (1986), conventional public transport services, which move large numbers of travellers in most cities in developing countries, are unable to meet demand. This has given rise to paratransit or intermediate public transport modes, such as minibuses, rickshaws, shared taxis and even horse-drawn vehicles.

A study by de Silva, Nellihala and Fernando (2001) on the pattern of accidents and injuries involving three-wheelers in Sri Lanka revealed that 30 per cent of the accidents involving three-wheelers were due to the vehicle toppling over after making a sudden turn. A handle lock limits the turning radius of a three-wheeler to a minimum of 576 cm. However, among the drivers, the practice of breaking the handle lock to increase the turning angle of the vehicle was common. By removing this device, the driver of a three-wheeler could easily sneak out from the traffic as needed, but at the cost of vehicle stability. Silva, Nellihala and Fernando (2001) further concluded that alcohol consumption was also a contributing factor in accidents, particularly at night.

The media also frequently explores the public view on three-wheelers,<sup>2</sup> and businesses in the Sri Lanka tourism industry often provide visitors with brief descriptions of travel by three-wheeler.<sup>3</sup>

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<sup>2</sup> See, for example, "Police should discipline three-wheeler drivers", *Daily News*, 21 May 2008.

<sup>3</sup> See, for example, [www.travelsrilanka.com/index.cfm?PAGE=902](http://www.travelsrilanka.com/index.cfm?PAGE=902), accessed on 21 June 2008.

### **III. RESEARCH METHODOLOGY**

Insufficient public transport services, combined with a high, diverse demand for public transport, have led to service gaps, filled by the development of paratransit services in developing countries. For this reason, several towns and cities in Sri Lanka are flooded with three-wheelers. It is important to understand the vital contributions made by three-wheeler services and the place they have in society, because future transport policies clearly need to take the availability of transport modes into account. Such an understanding will assist policymakers and help them avoid long-term problems.

In the present study, two sets of questionnaires were designed to gather information from three-wheeler drivers and users. The questionnaire was deemed to be the most suitable method to gather the information needed and the best way to include a representative situation. In the questionnaire for drivers, respondents were asked about age, marital status, dependent family members, means of vehicle ownership, license status, driving experience, typical working conditions, number of trips per day, average trip distance, level of job satisfaction, daily income and expenditures, problems faced during the day and at night, and other related issues. The questionnaire for commuters included questions on age, reason for their three-wheeler usage, trip characteristics and the type of mode used in an emergency situation; respondents were also asked for comments and observations about three-wheeler service and drivers.

Nearly ten cities in Sri Lanka have a population of more than 100,000, and nearly 70 towns have a population of between 5,000 and 100,000. Five towns were selected for data collection: Galle, Ambalangoda, Embilipitiya, Wellawaya and Polonnaruwa. The selection of these towns was based on the cross-section of the population, the cost of the survey and the feasibility of the survey team to commute from an engineering faculty in the Southern Province of Sri Lanka.

A face-to-face survey was conducted with a sample of 500 professional three-wheeler drivers—100 in each of the five towns selected. Another survey was carried out among 500 randomly selected commuters, again, 100 from each town. It should be noted that some sample data collected on commuters may include responses from customers of drivers who were interviewed. The interviews for the present study were conducted between April and August of 2004 by final-year undergraduate engineering students of the University of Ruhuna in Sri Lanka, under the supervision of their lecturers. Although a conscious effort has been made to ensure that the sample data is as representative as possible, there is no simple and feasible way to check for potential sampling biases. Therefore, the study

should be considered as exploratory; however, it may provide insight and useful information for policymakers.

#### IV. SURVEY RESULTS: DRIVERS

In Sri Lanka, the thriving three-wheeler industry generates employment for, among others, drivers, mechanics, service personnel and spare parts dealers. As shown in table 2, about 43.6 per cent of the three-wheelers were purchased with savings, 49.0 per cent were acquired through a loan or leasing, and 7.4 per cent were received as a gift from the new owner's relatives or friends. There are three driver categories (table 2). Results from the selected five cities show that about 71.2 per cent of the owners do their own driving, 21.4 per cent of the owners rent their three-wheeler to a driver on daily or monthly basis and 7.4 per cent of owners hire a driver.

**Table 2. Means of ownership and categories of drivers, by town**  
(Percentage of respondents)

	All	Galle	Ambalangoda	Embilipitiya	Wellawaya	Polonnaruwa
<b>Means of three-wheeler ownership</b>						
By cash	43.6	50	34	44	53	37
By lease	33.6	34	46	22	37	29
By loan	15.4	13	11	24	6	23
By gift	7.4	3	9	10	4	11
<b>Driver</b>						
Owner	71.2	64	74	68	70	80
Renter	21.4	26	21	20	27	13
Hired driver	7.4	10	5	12	3	7

Analyses revealed that literacy level among drivers was high; most have earned their General Certificate of Education–Ordinary Level (O-level) (table 3). It is interesting to note that a few three-wheeler drivers in Galle and Ambalangoda held post-secondary degrees: 2 per cent in Galle and 6 per cent in Ambalangoda. Results also show that, for between 26 and 29 per cent of the drivers, employment as a three-wheeler driver was their first job opportunity after leaving their formal education (table 3).

**Table 3. Driver's education and employment experience, by town**  
(Percentage of respondents)

	All	Galle	Ambalangoda	Embilipitiya	Wellawaya	Polonnaruwa
<b>Driver's education level</b>						
< Grade 5	2.2	3	1	3	0	4
Up to O-Level	33.0	33	12	54	22	44
Pass O-Level	42.4	34	56	25	59	38
Up to A-Level	20.8	28	25	18	19	14
Post-secondary degree	1.6	2	6	0	0	0
<b>Employment experience</b>						
First job	27.2	29	26	26	27	28

**Table 4. Daily income and expenses and the number of family members dependent on drivers in 2004, by town**  
(Percentage of respondents)

	All	Galle	Ambalangoda	Embilipitiya	Wellawaya	Polonnaruwa
<b>Daily income of a driver</b>						
< 300 (SL Rs)	0.8	0	0	0	0	4
300-500 (SL Rs)	34.0	28	35	35	39	33
500-700 (SL Rs)	56	68	47	57	57	51
> 700 (SL Rs)	7.8	4	18	3	2	12
Did not report	1.4	0	0	5	2	0
<b>Daily vehicle-related expenses for a driver (other than rent)</b>						
< 100 (SL Rs)	25.0	31	6	26	48	14
100-200 (SL Rs)	66.8	61	82	72	47	72
> 200 (SL Rs)	8.2	8	12	2	5	14
<b>Dependent family members per driver</b>						
1	12.8	9	8	14	8	25
2-4	75.2	78	75	70	88	65
> 4	12.0	13	17	16	4	10

Abbreviations: SL Rs Sri Lanka rupees

Based on the figures in table 4, it appears that the daily income of drivers is reasonably high when compared with the wages of an average skilled labourer, such as a mason or carpenter, in the study areas. The results for average daily income and expenses show that in 2004, when the price of petrol was SL Rs 80 per litre, more than half of the drivers earned a daily income in the range of SL Rs 500 to SL Rs 700. In 2004, rent for a three-wheeler ranged from SL Rs 150 to SL Rs 250 per day. This rent is decided upon together by the owner and the driver who is hiring the vehicle, depending on the vehicle condition and other related issues, such as the portion of costs (for example, fuel) shared by the owner. In general, the minor expenses, such as air and repairing tyres, are borne by the driver. Major expenses, such as monthly servicing and new tyres, are usually borne by the owner.

About 75.2 per cent of the drivers support at least two or more family members; 12 per cent support four or more family members. A rough calculation shows that over 1.1 million people in Sri Lanka are supported by the three-wheeler industry, out of a total population of about 19.4 million (estimated for 2004) (Sri Lanka 2001). In the present random sample of 500, 211 drivers are unmarried; of those, 174 are under 30 years of age (table 5). Unless they drive a three-wheeler, unmarried males in this age group are more likely to be unemployed, make lower wages and work less desirable jobs. Many have never held any other kind of job, and will remain drivers until they find a better job or career.

**Table 5. Marital status and age distribution of drivers, by town**

	All	Galle	Ambalangoda	Embilipitiya	Wellawaya	Polonnaruwa
<b>Number of married drivers, by age</b>						
< 21 years	8	2	1	3	0	2
21-30 years	96	14	18	23	24	17
31-45 years	104	24	22	17	23	18
46-55 years	65	13	18	14	8	12
> 55 years	16	6	2	1	5	2
Subtotal	289	59	61	58	60	51
<b>Number of unmarried drivers, by age</b>						
< 21 years	66	16	10	13	12	15
21-30 years	108	19	21	23	21	24
31-45 years	30	5	6	5	7	7
46-55 years	7	1	2	1	0	3
> 55 years	0	0	0	0	0	0
Subtotal	211	41	39	42	40	49



Given their numbers, it would seem that unmarried young drivers in the transport sector are involved in many of the safety and socially related issues addressed in table 6. Strikingly, about 92.8 per cent of the surveyed drivers admit to having driven under the influence of alcohol.

**Table 6. Safety and social issues, by town**

	<i>All</i>	<i>Galle</i>	<i>Ambalangoda</i>	<i>Embilipitiya</i>	<i>Wellawaya</i>	<i>Polonnaruwa</i>
<b>Drive while under the influence of alcohol (percentage)</b>						
Always	1.2	3	3	0	0	0
Sometimes	36.6	23	56	29	31	44
Rarely	55.0	70	38	55	57	55
Never	7.2	4	3	16	12	1
<b>Drove without valid license when they started out as a driver</b>						
Yes ( <i>percentage</i> )	24.4	13.0	28.0	34.0	15.0	32.0
Average period ( <i>weeks</i> )	4.53	4.50	6.64	5.03	1.47	3.59
Standard deviation ( <i>weeks</i> )	4.65	2.62	6.60	5.35	1.06	1.93
<b>Number of respondents who had had at least one accident in one year (2003-2004)</b>						
Fatal	9	0	5	0	3	1
Serious	46	13	6	14	3	10
Slight	64	11	17	15	3	18
Damage only	60	16	6	20	11	7
Total	179	40	34	49	20	36

Drivers in Sri Lanka must hold a valid license, although some low-powered farm vehicles can be driven without a license. Although police officers frequently check licenses, a sizeable portion of the younger population continues to drive a three-wheeler without one. According to our results, all drivers consulted held a valid license on the survey date. However, it was revealed that nearly 24.4 per cent began working as drivers without a valid license and had driven without a license for an average of 4.5 weeks, as indicated in table 6. When considering safety, about 35.8 per cent of the drivers noted that they had had at least one accident within the year prior to the survey date. Nine accidents involved fatalities: five in Ambalangoda, three in Wellawaya and one in Polonnaruwa.

One need only watch daily traffic in any city in Sri Lanka to observe the actual road behaviour of three-wheeler drivers, including violations of traffic rules

and regulations. Similar bad practices are also common among other drivers, but less so than among three-wheeler drivers. It has been reported that when three-wheeler drivers have an accident they insist upon huge compensation, even if they are at fault, and that they never admit to any kind of irresponsible driving (Wickramasinghe, "Police should discipline three-wheeler drivers", *Daily News*, May 21, 2008). Because of such attitudes, drivers are on the verge of losing—if they have not already lost—their reputation. Many of them dislike their job. In this connection, the experience and job satisfaction of drivers were examined; results are reported in table 7.

Many of the three-wheeler drivers come from either a middle- or lower-income household. Most enter this line of work once they complete school, or switch to it from a different job background. Many have very limited three-wheeler

**Table 7. Experience and job satisfaction of drivers of three-wheelers, by town**  
(Percentage)

	All	Galle	Ambalangoda	Embilipitiya	Wellawaya	Polonnaruwa
<b>Experience as a driver of a three-wheeler</b>						
1 year	23.0	33	21	17	13	31
2 years	33.0	35	35	30	33	32
3 years	18.4	5	18	26	31	12
+ 4 years	25.6	27	26	27	23	25
<b>Would like to continue the job</b>						
Yes	86.2	100	82	82	85	82
No	13.8	0	18	18	15	18
If yes, length of time driver would be willing to continue						
1 year	3.4	2	7	7	1	0
2 years	5.4	1	7	9	9	1
3 years	4.2	9	8	1	1	2
4 years	52.6	58	48	39	52	66
5 years	20.6	30	12	26	22	13
6 years	0	0	0	0	0	0
<b>Job satisfaction</b>						
Very good	0	0	0	0	0	0
Good	26.6	28	30	37	12	26
Moderate	55.2	47	47	52	74	56
Bad	18.0	25	23	11	13	18
Very bad	0.2	0	0	0	1	0

driving experience. The survey of drivers in the selected five towns shows that a few drivers have four or more years of experience, but none want to continue the job for more than five years. The job satisfaction among drivers is poor; almost 18 per cent evaluate their job as bad or very bad. From these comments it is clear that most of these three-wheeler drivers are looking forward to a better job.

About 73.1 per cent of the drivers said they had no problems when working during the day, while 69.9 per cent said they had no problems at night. However, the job presents a number of challenges and threats. Some drivers noted a lack of parking, passengers who do not pay, and muggings as the top daytime problems. At night, parking is not a problem, but not receiving payment, being hired for unlawful activities and kidnapping by gangsters were reported as major problems; a lack of street lights was also mentioned (table 8).

**Table 8. Problems reported by drivers**

<i>Problem</i>	<i>Percentage of drivers</i>	
	<i>Day</i>	<i>Night</i>
None	73.1	69.9
Parking	16.2	0.0
Passengers fail to pay	5.5	11.5
Being mugged	3.0	4.2
Being hired for unlawful activities	1.4	9.1
Being kidnapped by gangsters	0.2	4.2
Being arrested by police	0.6	0.6
Not enough street lights	–	0.6

Vehicle robberies and the use of three-wheelers for illegal activities increased during the last few years; killings and injuries to drivers were also reported by the media. These problems have led drivers to restrict their working areas, reduce their working hours, especially during the night, and, in some cases, have led them to switch their occupation. The drivers fear travelling with an unknown person, which may lead to more limitations on three-wheeler operation.

## **VI. SURVEY RESULTS: CUSTOMERS**

The transportation services in suburban and rural areas are poor compared to those in urban areas; the focus in the present paper is on the contributions of three-wheeler services to neglected areas.

A three-wheeler can be hired to reach any place—even the most difficult areas, where access is narrow or limited—at any distance. Fares are negotiable, and are determined according to the distance, the route, the driver's mind-set and the user's three-wheeler hiring experience. With the fuel hikes in June 2008 (the price of gas went up to SL Rs 157 per litre), the hiring charges of a three-wheeler increased. In small towns, the minimum charge (flag drop charge, or initial distance charge) varies from SL Rs 50 to SL Rs 60. The subsequent charge per kilometre is usually about SL Rs 40. According to the All Island Three Wheeler Drivers Welfare Association website, some three-wheelers have meters, and, at the time of writing, could be hired for SL Rs 28 per kilometre in Colombo, the largest city in Sri Lanka. Fuel price is not the sole reason for such high fares in small towns; according to the survey results, more than 20 per cent of drivers are forced to pay high rents for a three-wheeler.

Under normal conditions (not an emergency), many commuters take a three-wheeler for distances ranging from 1 to 5 km (table 9). About 60.6 per cent of the trips were made by customers aged between 31 and 45 years. This indicates that the working population in small towns relies on three-wheelers for day-to-day transport.

The purposes of a three-wheeler trip also vary. They include, among others: travelling to school, the market, the nearest bus stop, railway station or hospital; shopping; visiting relatives; and transporting goods, including certain construction

**Table 9. Three-wheeler trip length and age distribution of users, by town**

	<i>All (Percentage)</i>	<i>Galle</i>	<i>Ambalangoda</i>	<i>Embilipitiya</i>	<i>Wellawaya</i>	<i>Polonnaruwa</i>
<b>Length of the most recent three-wheeler trip</b>						
< 1 km	15.4	18	19	18	18	4
1-2 km	36.6	19	31	42	44	47
2-5 km	37.4	40	36	34	34	43
5-10 km	6.6	17	7	4	2	3
< 10 km	4.0	6	7	2	2	3
<b>User age distribution</b>						
< 15 years	5.2	8	8	3	2	5
15-30 years	10.0	3	16	15	8	8
31-45 years	60.6	70	56	63	42	72
46-60 years	20.6	15	18	17	40	13
> 60 years	3.6	4	2	2	8	2

materials. The top reason for choosing a three-wheeler (cited by 96 percent of respondents) is availability: a three-wheeler can be found at any time and at any place, providing an effective response to demand (table 10). About 86.2 per cent of the users reported that using three-wheelers reduced their travel time; 68.0 per cent said three-wheeler transport supported their daily activities well and made life easier; 61.6 per cent said it helped them to reach their destination easily; 54.4 per cent commented that it was more comfortable than other available options; and 53.8 per cent stated that the fare was affordable.

**Table 10. Commuter perception of the service of three-wheelers, by town**  
(Percentage)

<i>Advantage</i>	<i>All</i>	<i>Galle</i>	<i>Ambalangoda</i>	<i>Embilipitiya</i>	<i>Wellawaya</i>	<i>Polonnaruwa</i>
Availability	96.0	100	100	95	91	84
Easy to use in emergency	89.2	100	74	96	96	80
Reduces travel time	86.2	82	85	97	97	70
Supports daily needs well	68.0	28	72	95	95	50
Easy to reach destination	61.6	28	67	78	78	57
More comfortable	54.4	82	45	46	46	53
Affordable fare	53.8	71	63	51	45	39

About 89.2 per cent of the customers said that three-wheelers were easy to hire and use during an emergency. In the survey, passengers were also asked which transport mode they considered most effective in an emergency situation (any event which normally requires an ambulance). As shown in table 11, bicycles and three-wheelers topped the list as the most useful modes for managing such situations, but the preference for bicycles was clearly larger in less populated towns (no respondents chose the bicycle in Galle or Ambalangoda). Although motorbikes account for more than half of the vehicles in Sri Lanka, their use in an emergency is limited. A for-hire three-wheeler is the only vehicle available 24 hours a day everywhere, even in the rural areas. Most three-wheeler drivers have mobile phones, and they willingly give their phone numbers to known customers. Therefore it becomes quite easy for customers to hire a three-wheeler for an urgent trip, even from their residence. Considering the merits and positive contributions

listed by users, three-wheelers can be said to be the most important mode of for-hire transportation in small towns.

**Table 11. Transport cited by respondents as most useful in an emergency, by town**  
(Percentage of respondents)

	<i>All</i>	<i>Galle</i>	<i>Ambalangoda</i>	<i>Embilipitiya</i>	<i>Wellawaya</i>	<i>Polonnaruwa</i>
Bicycle	29.4	0	0	40	54	53
Three-wheeler	29.2	45	44	34	11	12
Van	17.6	25	16	4	22	21
Car	12.2	18	16	6	9	12
Motorcycle	6.8	0	23	11	0	0
Others	4.8	12	1	5	4	2

Despite the advantages of three-wheeler transport, the public tends to have a negative view of drivers. As shown in table 12, about 25.7 per cent of the customers believe that it is always dangerous to travel with an unknown three-wheeler driver during the day; this figure rises to 54.6 per cent for night travel. About 99.8 per cent of users believe that three-wheeler driver contribute to at least some accidents, 97.2 per cent believe that drivers violate traffic rules and regulations at some point, 87.8 per cent believe that drivers, at least occasionally, are involved in unlawful activities, 82.8 per cent believe that drivers have drinking and driving habits and 90.0 per cent of the commuters said they believed that vehicles were used for illegal activities.

**Table 12. User perceptions of for-hire three-wheeler drivers**  
(Percentage)

<i>Perception</i>	<i>Always</i>	<i>Sometimes</i>	<i>Rarely</i>	<i>Never</i>
Travel with drivers is dangerous during the day	25.7	33.7	23.1	17.5
Travel with drivers is dangerous at night	54.6	34.8	10.6	0
Drivers are more likely to contribute to accidents	35.0	50.4	14.4	0.2
Drivers violate traffic rules and regulations	29.8	42.6	24.8	2.8
Drivers are involved in unlawful activities	12.4	34.6	40.8	12.2
Drivers drink and drive	5.8	29.4	47.6	17.2
Drivers use vehicle for illegal activities	5.0	48.8	36.2	10.0

## **VI. INTERPRETATION**

Three-wheeler operations began in Sri Lanka in 1978, when the Government allowed private companies to provide transport services; currently such services are found throughout the country. Even in small towns, a three-wheeler can be seen at least every few hundred metres. Hence, it is understandable that a broad segment of society considers the three-wheeler to be an essential short-haul transport option. As a result, the number of three-wheelers in Sri Lanka is rapidly increasing.

The three-wheeler transport industry provides many jobs. It is a viable employment option for many people, because renting or owning a three-wheeler is affordable, and because the service adapts easily to diverse demands. In this way, this industry helps to reduce the unemployment problem, especially for school graduates, and subsequently improves income levels and living standards of the general public. A rough computation indicates that about 12 per cent of the total population in Sri Lanka is totally dependent on this paratransit mode for their livelihoods.

Three-wheelers provide a continuous source of passenger transport during the day and at night, and fill the gaps left by the traditional means of public transport. In small towns and rural areas, purposes for the trips vary widely; among others, they include taking care of an emergency, getting to the hospital or to school, transporting materials or goods, returning home, visiting someone and getting to the bus stand or railway station. The majority of users are over 30 years old, which implies that the service is relied on most by the working population. Passengers reported that three-wheelers reduced travel time, were more comfortable than other forms of transit, and were easy to call during the day and at night. Many users reported that three-wheelers were a reliable mode of transit for an emergency situation that normally required the services of an ambulance. Therefore, it is clear that the services of three-wheelers are perceived as highly useful by many and are strongly integrated in small towns.

Despite their perceived advantages, three-wheelers and their drivers are still not respected by the public who actually use the services or by others, such as drivers of other motorized vehicles. Most of the general public seems to believe that travelling with an unknown driver can be dangerous, and that three-wheeler drivers contribute to accidents, violate rules and regulations, drink and drive, and are involved in illegal activities. If the user perceptions in the present study are true and the prevailing negative image of the three-wheeler driver reflects reality, steps must be taken at the appropriate level to rectify the situation. Drivers of three-wheelers also face difficulties, and tend not to want to continue their job for

long. The survey results showed that many have no option other than to drive a three-wheeler until they find better employment. Therefore, the difficult conditions of this industry need to be improved.

Despite these challenges, and the lack of efforts to address them, three-wheelers are still a main source of transport. In most places, drivers are likely to be seen idling in their vehicles at the unofficial stands found throughout the small towns and larger cities. However, the Government has not yet formulated a code for the three-wheeler industry or set up an appropriate regulatory institution.

## **I. POLICY RECOMMENDATIONS AND CONCLUSIONS**

Studies have shown that there tends to be a broad correlation between certain characteristics of a city and the type of transport system developed in it. A similar correlation could be expected in Sri Lanka in the near future, due to the existence of the three-wheeler industry. The present paper highlighted a few insights related to the existence of the three-wheeler paratransit mode.

Major issues have arisen within the three-wheeler industry since it began 30 years ago. While authorities have, on several occasions, given thought to ways and means of initiating measures, so far, no concrete action has been taken. Therefore, the Government; governmental, non-governmental and research organizations; universities; the All Island Three Wheeler Drivers Welfare Association; and other stakeholders should help conduct awareness programmes to improve the status of the three-wheeler industry in the society, and subsequently to improve the social welfare of three-wheeler drivers and the general public.

In terms of addressing the current situation, some possible measures include: (a) developing legislation to prevent unauthorized alterations to the turning angle of three-wheelers; (b) arranging appropriate three-wheeler stands in small towns; (c) allocating adequate funds for improving awareness of three-wheeler drivers and their status in the society; and (d) providing educational resources and a special licensing scheme for three-wheeler drivers.

Looking ahead to the future of the three-wheeler industry in Sri Lanka, there should be actions to restrict three-wheeler operations within busy city limits, as is being done in Mumbai, India and Singapore. Therefore, it is recommended that indices as well as limits for restricting three-wheeler services in the central business district area be identified in future studies. However, considering the value three-wheeler services seem to hold, as indicated in the survey, it is likely that such transport will continue to be needed in small towns and rural areas.



## REFERENCES

- de Silva, M., L.P. Nellihala and D. Fernando (2001). "Pattern of accidents and injuries involving three-wheelers", *Ceylon Medical Journal*, vol. 46, No. 1, pp. 15-16.
- Fouracre, P.R. and D.A.C Maunder (1979). "A review of intermediate public transport in third world cities", paper presented at the Planning and Transport, Research and Computation (PTRC) Summer Annual Meeting, University of Warwick, England, 9-12 July.
- Jacobs, G.D., D.A.C. Maunder and P.R. Fouracre (1986). "Characteristics of conventional public transport services in Third World cities", *Traffic Engineering & Control*, vol. 27, No. 12, pp. 6-11.
- Japan International Corporation Agency (JICA) (1984). "The Metro Manila Transportation Planning Study", (Manila, Ministry of Transportation and Communications of the Philippines).
- Kumari M.B.I.T., Rupasinghe R.A.U.S. and Siriwardana D.H.S.D.A (2005). "Evaluation of three-wheelers' operational characteristics in small cities in Sri Lanka", project report, Department of Civil and Environmental Engineering, Faculty of Engineering, University of Ruhuna, Sri Lanka.
- Maunder, D.A.C., P.R. Fouracre, M.G Pathak and C.H. Rao (1981). *Characteristics of Public Transport Demand in Indian Cities*, Supplementary Report 709, (Crowthorne, England, Transport and Road Research Laboratory).
- Ocampo, R.B. (1982). "Low-cost transport in Asia: a comparative report on five cities", (Ottawa, International Development Research Centre).
- Sri Lanka (2001). "Estimated Mid-year Population by Sex and District", table, Department of Census and Statistics, available at [www.statistics.gov.lk/PopHouSat/PDF/p20%20Mid-Year%20estimates.pdf](http://www.statistics.gov.lk/PopHouSat/PDF/p20%20Mid-Year%20estimates.pdf).
- Sri Lanka (2006). "Number of motor vehicles on registers as at 31<sup>st</sup> December of each year, 2002-2006 (Table 7.2), Department of Motor Traffic, available at [www.statistics.gov.lk/Abstract\\_2006/abstract2006/table%202007/CHAP%207/AB7-01.pdf](http://www.statistics.gov.lk/Abstract_2006/abstract2006/table%202007/CHAP%207/AB7-01.pdf).