

## COMMUNITY BASED TRANSPORT SYSTEM IN DHAKA: A STUDY ON SCHOOL VAN SERVICE OF AZIMPUR AREA

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### ABSTRACT

School van service is a widely used service in Dhaka city. In this study, the operation and maintenance process of van services for school going children in the selected community of Dhaka city has been found out by applying several PRA methods. The emergence of this service has occurred for fulfilling the transportation need of a great number of students from lower to upper-middle income families. Gradually, this service became familiar among various residential communities and neighbourhoods, where great chunks of school going children reside and travel to respective schools. As a result, this service has flourished in the residential communities of the city spontaneously. Hence, the operation process of van service in the study area depends on the number of school going children, location of schools and reliability of parents. There are numerous reasons behind using this service rather than using school transport or private vehicle. At the same time, there are some problems that occur due to irregular time schedule of van drivers, lack of safety while travelling on the roads and carry a large number of students in a minimum space. If these problems can be solved, it will enhance the community bonding and cohesion.

**KEYWORDS:** School Transport Service, Public Participation, Congestion, Mobility, Community Entrepreneurship

### Article History

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### INTRODUCTION

The transportation problem of Dhaka City has visibly been deteriorating steadily over the last few years. Citizens constantly complain about the unbearable twin problems of traffic congestion and air pollution. The skeleton, structure and lay-out of Dhaka City are not well-planned and well-directed. There is also lack of formulation and implementation of traffic policies, rules and programs. The need of public transport facility is also high as the traditional transport facilities fail to fulfil the present demand of travel. In today's world, the success of a city depends on its economy, which in turn is dependent on the infrastructure, among other things. The importance of the infrastructure can be particularly felt by the citizens of Dhaka in its traffic system, as its congestion reminds us of how important it is to have a good transport system. Introduction of community-based transport system can be a better solution of this problem. Community based service system is an effective and efficient technique of fulfilling the requirement of the community people. Among various services, community-based school transport system is very familiar and useful service in most of the countries. It is used to transport the school going children to their schools from the neighbourhoods. School transport service is also very cost

effective than private drive. As a densely populated country, the travel demand of people is increasing day by day to a great extent in Bangladesh. Among the total population, the school going children comprise a large number. To carry these children from home to school and bring them back home, school van service has evolved in our country during recent years. This service is getting popular and proved very useful for the parents especially who work outside of home and cannot manage time to take their children to school by themselves. Moreover, as majority of people in our country are of lower to middle income, they can't afford school bus or micro-bus for transporting their children, neither use private vehicle. As a result, school van service is widely used among them which can minimize their travel cost. In the busiest city like Dhaka, the service is greatly recognized. School vans travel through different communities in the city and collect students to carry them to the selected school locations. In this study, the operation and management procedure of school van service in the selected communities has been found out in detail through participatory planning approach. The problems and prospects of this service have also dragged out by the community participation and group discussion. Community based transport system has been successfully working in different countries of the world especially in Canada, England, Australia and USA for the last few decades (Wikipedia, 2015). For example, Alviso Community-Based Transportation Plan (2013) and Community-Based Transportation Plan Cherryland, Ashland and South Hayward (2004) have addressed transportation needs of low-income communities. So, the study on community based transport system can be an efficient one to address the problems and prospects of the system at Dhaka City as well as other cities of the country.

## **STUDY FRAMEWORK**

Azimpur area has been selected as the study area of this research. As a defined community has to be selected for the participation of the people, two adjacent government colonies along with one private area have been fixed as one community. Data collection procedure of the study has completely followed the participatory approach. There was no conventional data collection except some secondary data about the community, rather the information given by the participants have been taken as final and selected data on the basis of which different maps have been produced. For the collection of data and drawing the maps, 2 types of PRA methods have been used. These are 'space related PRA methods' and 'time related PRA methods'. Space related PRA methods are useful for exploring the spatial dimension of people's realities (Kumar, 2002). The Space related PRA methods used in this study are Social Mapping, Resource Mapping, Mobility Mapping, Route Mapping etc. Besides, the Time related PRA methods help exploring the temporal dimensions of people's realities. The uniqueness about these methods is that they allow people to use their own concept of time. The methods used in this research are- Timeline of the community, Timeline of van service in the community, Seasonal Diagram of both school going children and van driver, Daily Activity Scheduling of both school going children and van driver etc. With the produced map from space and time related methods, the operation process of the van service has been understood. For the problem diagnosis, several PRA relation methods have been used like Cause Effect Diagram, Network Diagram, Process Map, Pair-wise Ranking Method, Force Field Analysis etc.

For the possible solution of the major problems fixed out from the force field analysis has also been dragged from the community itself. From group discussion and participatory session with the parents, the solutions have been identified. Then the proposed solutions have been presented to the van driver, who has further modified the proposed solutions with his own accord. From this two way approach, some final solutions have been identified by the facilitators.

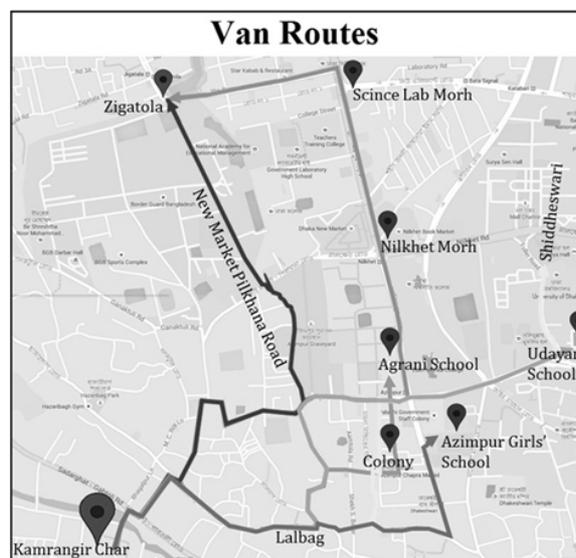
## OBSERVATIONS AND FINDINGS

### Operation and Management Process of Van Service

Guardians now-a-days are engaged in various works in and outside of home. As a result, they cannot take their children to school always. They know about van service from other guardians and guards of the schools. The van drivers maintain business cards so that people can easily contact with them. Guards of schools keep the drivers' card with them and when asked for, they provide guardian in need of van service with contact information of the drivers. Guardians are concerned about their children's safety. So, they collect information about van driver and his service. They check whether he has any valid license and they even sometimes, search and verify van drivers home and garage and trust him afterwards. Guardians and van driver signs contract agreement. Before signing, they agree on route and dropping and picking place of children. When guardians are satisfied with route and other things they agree on payment. At present, monthly payment is BDT 2000. Sometimes students go to coaching centers by van for which they have to pay some extra money. After location, route and monetary aspects are agreed on van drivers starts operating the service. They get help from traffic polices. Some road has no rickshaw allowed policy, but school vans can enter there.

### Routes of Van Service

The selection of the van route is done on the basis of school time schedule, distance and location of student's home. There are some routes, where rickshaw is banned and Micro Bus can't get entry into some narrow roads. In both of those routes, his van can get easy access. That is why some parents prefer to carry their children on van, rather than School Micro Bus or rickshaw. Van drivers cover a larger area. Sometimes one van covers more than one school. Van drivers pick and drop student inside the colony at some fixed locations, but outside the colony he provides door to door service.



**Table 1**

### Impact of Seasonal Variation on Van Service

The Seasonal Diagram of the school going children of the Azimpur community depicts a scenario of variation in van uses and expenditure on van use throughout the year. The variation in van use doesn't occur only for natural changes in the seasons but also for the classes and examination of the students. The use of van remains very high when the schools have regular classes. Students of different ages use the vans for their regular school schedule. In addition to that, students also

use vans to reach their coaching centers. That means, the parents prefer to use the vans for taking their children to coaching centers rather let them walk or ride on rickshaw alone. During the semester examinations, the number of van using children becomes less than regular class schedule. The reason behind that has been found by asking the parents of the participants. They informed that they like to take their children to the examination hall by themselves so that their children get special care and time. As a result, during the months of semester examinations the van remains quite vacant. Only a few numbers of students use them. Again, it has been found that during the school vacation time most of the students do not use school van. Only a few uses them for their travel purpose to coaching.

There is a flat rate of van usage throughout the year. Even, payment has to be given to the van drivers if there is no class. But extra charge on travel to coaching has to pay to the drivers. Thus during the regular class and coaching sessions, the parents have to pay more fees than the vacation time of school.

From the community discussion, it has been also found that both the students and the van pullers feel discomfort during hot summer season and rainy season due to great heat and rain. When the roads remain very busy, the students feel unsafe as their van has to compete with the fast moving vehicles. So, it is clearly found out that the usage of van is related with school and coaching schedule rather natural changes of the seasons.

### Identification of Problem

The problems regarding school van service in the Azimpur community has been identified through the participation of the parents of the community who are using the existing school van service for the movement of their children from home to school and coaching centers. The 'Force Field Analysis' tool has been used here to list out various driving forces and restraining forces of the van service. At first, they were asked to sort out respective reasons for using the school van to transport their children, then weight age was given to each reason according to their significance. Similarly, the problems and obstacles termed as 'restraining forces' which they feel were listed out and given weightage according to their intensity or significance. From the 'Force Field Analysis' the driving forces for the widespread use of van service are listed out-

**Table 1: Driving and Restraining Forces of the Van Service**

Driving Forces	Restraining Forces
Enthusiast parents of the community	Long route
Easily availability of the van service	Problem in van design
Save time and money of the parents	Breakdown in time schedule
Can get service for both school and coaching centers	Fixed monthly payment
Relatively low cost than school microbus or other vehicles	Discomfort of the students
Suitable solution for job holding parents	Slow moving vehicle
Interaction among the students of the community get boosted	Unsafe condition

Source: Community Discussion, 2015

The weight ages for the driving forces are relatively similar given by the parents. Most of them prefer this service because it saves their time, especially of the parents who work outside. Another most important driving force is the lower expense of van than private vehicle. As they get the service on both school and coaching purpose, they feel relaxed with this service.

On the other hand, there are variations among the significance of the restraining forces. A large portion of participants has told that there is problem with van route and schedule. As, only a few van serve a large area, the route of travel gets longer and indirect as well as breakdown in time schedule. Sometime the van comes too early to receive the children and drops them too late to home in the evening. Another group of participants has emphasized on safety and comfort issue of their children. As, the van is not spacious enough, children have to sit congested and get suffocated in the

small space. They have also mentioned that, the drivers often drive carelessly on the busy road; as a result the children get frightened and the parents remain anxious about their safety.

Among the listed problems, major three problems which the community deals with the van service has been identified through the 'Pair-wise Ranking' method of participatory approach. In this method, parents were asked to give rank to the problems from the number 1 to 7. The 7 listed problems have been ranked against each other in a pair wise ranking matrix. From the pair wise ranking method, the following three problems have been identified as major problems of the van service:

- Breakdown in Time Schedule
- Discomfort
- Unsafe Condition

As mentioned earlier, time schedule often hampers due to early and late arrival of the van drivers; it's the students who sometime arrive late from home also. If a student arrives late, the others have to suffer. They all get late in the school. Again, sometimes the school schedule gets irregular due to various occasions and then the students come out late from the school and thus arrive late to the home. The parents remain tensed when this irregularity occurs.

The second and third problems have been figured out by ranking matrix are discomfort and unsafe condition of the student in the van. It has also been mentioned above that, the space inside the van is very congested and lack of proper air circulation. The density of person inside the van is so high. As a result, children have to sit in a minimal place that they get suffocated in the hot weather, sweat a lot and feel very uneasy. They often become sick.

Again, the reckless driving of the driver in the busy road makes both the students and parents feel unsafe. Sometime minor accidents occur and the children get hurt.

Identification of causes and effects of the main problems has been listed out from the discussion with the parents. They were asked to find out the causes behind the problems they mentioned and also find out the effects. The tables and diagrams show the causes and effects of the listed out problems.

**Table 2: Causes and Effects of the Problems Regarding Van Service**

Problems	Causes	Effects
<b>Breakdown in Time Schedule</b>	Traffic Congestion	Late Arrival
	Large coverage service area	Punishment from teacher
	Fewer number of van	Unable to attend the class
	Late arrival of students	Negative Impact on study
	Fluctuation in time schedule of school	Anxiety
<b>Discomfort</b>	Uncomfortable sitting arrangement	Fatigue of the students and increased stress
	Large number of student accommodated in a school van	Reduced concentration on study
	Discomfort due to bad weather condition	Unwilling to go to school
<b>Unsafe Condition</b>	Careless driving of the van driver	Increased anxiety of the parents
	Busy road	Adverse impact on health of the students
	Mixed movement of motorized and non- motorized vehicles	Mental depression
	Damaged condition of the road	Negative impact on study

Source: Community Discussion, 2015

The root causes of the discomfort and safety problems are basically related with limitation of vans and improper van design, road conditions and characteristics of drivers. Whereas, problem of irregular arrival and departure time of van is caused by traffic congestion on road, large coverage area, lack of adequate van and lack of sincerity among the parents. The parents confess that they often fail to maintain the time schedule as their children wake up late in the morning and cannot reach the van on time.

According to the participants, the effects of the problems are quite similar. Almost each problem has negative impact on the study of the students. They remain mentally and physically stressed because of these. As, they have to rise up too early to travel in the van, they lack proper sleep and cannot be attentive in the class. Sometime, they miss the first class and get punished. As a result, they suffer from mental depression and sometimes refuse to attend the school. Presence of various types of students from different characteristics and family background is another reason of discomfort for both parents and students. The participants claimed that, their children often learn slang words and have moral degradation as they travel with the other students who already know the slang words.

### Identification of Solutions

Solutions of the problems has also suggested by the participants. They were asked to suggest some solutions of the problems they mentioned. The proposed and suggested solutions of the problems are listed below on the table:

**Table 3: Suggested Solutions of the Problems Regarding Van Service**

Problems	Solutions
<b>Breakdown in Time Schedule</b>	A designated van for a particular area Strictly follow the time schedule of both parents and drivers Information from the drivers about their early or late arrival
<b>Discomfort</b>	Improvement in Van Design including Spacious seating arrangement Proper arrangement of articulation and fan Increased number of van in order to avoid discomfort Lower the student occupancy rate of the van
<b>Unsafe Condition</b>	Improvement of road and traffic management including- Separate and designated lane for the school van Improved road condition Assistance from the traffic police Careful driving of the drivers and proper training

Source: Community Discussion, 2015

## PROPOSED SOLUTIONS

### School Van Service Welfare Organization

A welfare organization comprising of van drivers, van owner and guardians of students can be formed. There will be monthly meeting and fee collection for service development. Any kind of complaint regarding van service can be solved there through the organization.

### Area/School/Route Based Van Service

Same van serving same area/school or running on same route can have same color for easy identification. This will help traffic police and other vehicle drivers to treat them carefully.

### Improved Van Design

More spacious and comfortable van design can solve many problems of students. Van design should be such that is easily adaptable at different weather. Battery operated fan can be provided in the vans for air circulation as they are stuck in traffic jam for a long time regularly.

### Bi-Monthly Payment

In December and for other reason, schools remain closed for months. Guardians have to pay full month remuneration for only one or two days sometimes. Guardians and van drivers can agree on bi-monthly payment. This will reduce the amount of extra payment and save at least half of monthly payment.

### GPS Based Vehicle Tracking System

Guardians demand trace van's location, as sometimes van drivers become late and time schedule breaks down. Sometimes children return home late which make them tensed. To solve this problem, GPS based tracker system can be introduced. There will be a tracker and a microcontroller attached to the van at a safe and secret place. Whenever guardians need they will send a message requesting van's location. The GPS tracker will send the co-ordinates to a server and the server will convert the co-ordinate to a location and reply it to guardians. The whole process will cost 1650 Taka per van and 300 Taka yearly for renting hosting.

### FINAL NOTE AND CONCLUSIONS

From the detail study, some suggestions can be given for the improvement of the van service like designation of specific zones in the community with proper facilities for the students and the parents (for example sitting arrangement, upper-shade, drinking water etc.) for collecting and dropping the students. Vans can be brought under an authorized organization and the ward commissioner of the specific community will monitor and supervise the organization. Adequate incentives can be provided to the van owners in order to make improvement of the quality of service from the organization. There is enough scope for future expansion of community service not only of school van but also very other similar services like community transport for elderly persons, walking bus service, community based transport system for other purposes like office, shopping, recreation etc.

There should be proper guidelines and monitoring regarding various community services and welfare activities. If the individual neighbourhood can be strengthened with community cohesion and public participation, grater benefit can be achieved with self-sustained development. Finally, this study has further scope of expansion and research with participatory approaches of planning.

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