Transportation Management for Metropolitan Dhaka— Engineering and Planning perspective.

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ABSTRACT:

The transportation problems of metropolitan Dhaka are in a neglected and mismanaged state. Here people are dependent on a complex system of transportation that is nearly everywhere in trouble. Obsolete facilities and growing demands have created seemingly insoluble difficulties, and present method of dealing with these difficulties in an unplanned fashion offer little prospect of relief.

In this article the authors have tried to unveil some of the drawbacks of Dhaka city transportation system that have creeped into the aforementioned system due to lack of engineering judgement, planning approach and above all management.

In conclusion, the authors have recommended for a mass integrated planning approach aided by proper management to overcome the difficulties of the transportation system of metropolitan Dhaka.

1. INTRODUCTION

Owen(6) once wrote, "American cities have become increasingly difficult to live in and to work in largely because they are difficult to move around in. Inability to overcome congestion and to remove obstacles of mobility threaten to make the big city an economic liability rather than an asset". Dhaka, though a metropolitan city, its comparison with big American cities may look ridiculous, because it is a city of a less developed country and not of a developed country. However, they have one thing in common—street congestion and poor circulation. This is due partly to the extreme heterogeneous nature of the transport and the large numbers of erratic and slow moving units plying in the metropolis.

Dhaka—the metropolitan capital of Bangladesh is one of the fastest growing cities of Asia with a present population of 34,58,602(1). The growth rate of Dhaka city during the period 1961—74 was about 9·4 per cent annually. Again Dhaka city including Narayanganj contained about 31 per cent(2) of total urban population of Bangladesh in 1974. According to estimates by Shankland Cox Partnership(9) by the year 2000, the population of Dhaka will be around 9 million which is about 3 times the size of its present population. However, transport facilities have not increased at parallel rate. It has been found(8) that in the period 1969—80, the total number of private cars became 4·09 times, taxi car 1·87 times, bus 3·22 times, truck 2·95 times, auto-rickshaw 2·33 times, jeep 4·04 times, microbus and pickup 4·2 times, motor cycle 5·78 times and other transports 2·08 times in Dhaka city. It is significant to note that the number of buses has only multiplied by three times during the last decade. Moreover, a large number of these buses ply in the inter-district routes. The

increase in the number of cars, jeeps, motor cycles etc. help only a class of people who are either very well-off or government employees. Thus the growing number of transports except bus in the city has no positive contribution towards the overall city transportation system. Its only contribution is in the increase of road traffic density as the influx has come about so rapidly that there has been neither time nor opportunity to make preparation to face it. There is very little scope for widening the roads due to inadequate width of right of way (r.o.w.) of the existing roads. This indicates that the planners of the Master Plan of Dhaka city in 1958 could not forecast the traffic volume of Dhaka city for 25 years from that period. So it is the proper time to plan once again for the present and future metropolitan Dhaka. It is notable that in planning and designing a new city the architects, planners and engineers have a delightfully simple task as in that they can arrange for all the latest traffic designs and innovations to be incorporated; but they have to face the basic difficulty of forecasting what the various demands on the system will be (4). In replanning an old city there will be much less liberty of action; but in compensation there are definite ascertainable facts concerning traffic flows and volume at different times of day, which can be made to provide a relatively firm foundation for forecasting.

2. SOME EVIDENCES OF MISMANAGEMENT IN DHAKA CITY TRANSPORTATION SYSTEM.

2.1. The administration and maintenance of the roads of Dhaka city are dependent upon a number of organisations. Dhaka Municipal Corporation had 440 miles of road under its supervision prior to the inclusion of Gulshan and Mirpur municipalities into its jurisdiction(5). Roads of Tongi fall under the administration of Tongi Municipality. Roads and Highways Department holds the charge of 18 miles of road, Dhaka Improvement Trust maintains about 40 miles of road. Housing and Settlement Department also controls a few miles of Dhaka city roads. Due to lack of co-operation and co-ordination among these departments the overall planning of Dhaka city roads and highways is seriously affected. It is further notable that though the departments mentioned earlier are officially responsible for the roads under their control, some other organisations like Titas Gas Transmission and Distribution, Dhaka Water and Sewerage Authority, Power Development Board are empowered in the dissection and reconstruction. As a result roads once dug remain unuseful for a long time due to their inefficiency in repair works.

The aforementioned paragraph shows clearly that the overall road network of Metropolitan Dhaka is under multiple administration. As a result the whole system remains mismanaged. Here human efforts remain unco-ordinated towards the common goal of organising the transportation system in a formal fashion. As there is no single administration, no single manager is present to bring about the coordination of group action. That is the concept of management is absent totally in Dhaka Metropolitan road network in its truest sense.

2.2. The decisions relating to the transportation situation in Dhaka city seem to be always in controversy and confusion. In this connection the road division techniques being taken in the Dhaka city roads from time to time is worth mentioning.

Prior to its removal in 1980, the Airport Road was channelized with median islands. But in 1980 a decision was taken to remove these islands along with trees from the Airport Road and soon the decision was implemented with the

huge expenditure of money, labour and time. After the removal the above road was provided with painted dividing lines. As a result the following disadvantages originated in the system,

(i) less speed
(ii) less capacity
(iii) economic loss and
(iv) increased possibility of hazards.

It is notable that the servicibility index of Airport Road compared to other city-roads is very high and the two basic criteria of transportation engineering i.e. (i) effective traffic management and (ii) least freedom to the drivers, are being overlooked. Most of our city roads including the section under consideration experience interrupted flow i.e. intersectional flow interferes with continuous traffic movement, as all the intersections meet in the same plane. As such, channelization is very much needed in Metropolitan Dhaka. One of the channelization techniques is to provide central reservation (median island) which effectively separates opposing traffic. So, what we have to say is that the aforementioned decision of removing the island was an improper one.

Later on, the Airport Road was provided with 'Cat's eyes' in addition to the road dividing lines to help the motorists at night. The cost of import and installation of these 'Cat's eyes' incurred huge cost to the authorities at the expense of tax-payers. Actually 'cat's eye' has its application in motorways to keep the motorists informed about the position of the shoulder of the road and turning direction. It is not designed for use in the middle of a road because it detaches from the pavement due to constant loading, unloading and abrassion of the traffic.

The most fascinating chapter in the history of the Airport Road starts in 1983 when once again a physical barrier—a guard rail which is detached from the pavement is introduced. This guardrail is unsuitable for Dhaka city from the stand point of utility, economy and applicability. This has less utility than median island as it cannot remove the glare problem caused by the head light of an opposing traffic at night where the bushes and trees over the islands can take care of that. Moreover, emergency mounting is not possible in the case of guardrail. The guardrails are uneconomic both in construction and maintenance. On collision the changes of damage of the guardrails is extensive. Therefore maintenance cost will be higher. Again the applicability of guardrails in road division is questionable. It is mostly used as a safety measure at the outer extremity of a highway or motorway particularly at turnings. For the kind information of the public, it is recommended that even construction of a nine inch high, five inch brick wall could do the work of guardrails much more economically and effectively.

From the foregoing discussion it is obvious that the decisions of road improvements in Dhaka city are erratic, unscientific, unplanned and disorganised.

2.3. Roads are not designed and constructed after proper planning and engineering survey. As for example it can be stated that Manik Mia Avenue has been made unusually wide. This road remains underutilized throughout the day.

2.4. Encroachment of right of way by adjacent structures is often seen in Dhaka city road network. For example, the Mirpur Road have been

encroached by a mosque-cum-residence near Sobhanbagh. It causes inconvenience to both pedestrians and vehicles as effective road width has been reduced. This situation expresses that the appropriate authority does not possess the required right of aquisition and compensation.

2.5. Parking as a problem has contributed to the city transport problem, particularly in the busy areas of the city. Consequently, city roads are indiscriminately used as parking places by different types of vehicles. As such, road width is decreased causing sufferings to the traffic and pedestrians. The case of Science Road (New Elephant Road) is worth mentioning. Proper and timely zoning decisions and land use planning could have eliminated this problem. Acute parking problem is confronted in Motijheel commercial area, the central Business District of Dhaka city. This problem would have been absent if the concerned authorities could enact and enforce appropriate building regulations at an early stage of development.

2.6. Presence of temporary market in the footpath or along the road sides hinders normal traffic movement. This type of unauthorized shops are present mostly in the Farmgate, Baitul Mukarram, Mouchak, Kamalapur Rail Station and Gulistan bus terminal area. Hawkers are found sitting on the overbridges at New Market and Farmgate causing artificial congestion over the bridges. This shows the ineffectiveness of the law enforcing agencies.

2.7. Drainage facilities in almost all the roads of the city have been ignored. During rains situation goes out of control. This is due to unplanned land development without paying attention to the natural drainage system and physiographic condition of the city.

2.8. Due to disproportionate traffic police-population ratio and the distressed condition of Dhaka Metropolitan Police(8), a void is left in the traffic control system of Dhaka city. As a result traffic laws are inadequately enforced. Overloading of vehicles, speed limit violation, movement of road-unworthy vehicles, road hazards are natural consequences. The traffic regulations at different road junctions are frequently changed which is confusing to the vehicle drivers.

2.9. The central bus terminal is at present situated at the heart of the city. Therefore, inter-district buses ply through the city roads. It causes congestion in both the terminal area and the city roads. But the government has recently decided to decentralize the central terminal into 3 terminals. These terminals will be located at the outskirts of the city. This will reduce the stated problems.

2.10. The overcrowding at Farmgate intersection during peak hours is next to unmanageable. One of the main reasons for this overcrowding of traffic is due to the situation of an important girls' college near the busy intersection. In the afternoon the situation is further aggravated when the cinema show in the nearby cinema halls end. It can be commented that the location of the cinema hall from town planning point of view was a non-ideal one.

3. CONCLUSION AND RECOMMENDATION

The transportation problem in Dhaka city is already acute in comparison to the present level of city development. If the process continues things will

be far worse in the years to come. Appropriate transportation system for future years should be planned and designed well in advance.

The role of transport in the development of the economy has been highlighted by events which have occurred during the past years. Transport requirements have been observed to grow faster than industrial and agricultural outputs. It takes time to build up transport capacity and in the short period, shortages in transport capacities become a serious impediment to the smooth functioning of the economy and maintenance of production. The significance of the transport sector is not only in the specific services it renders, but even more in the unifying and integrating influence it exerts upon the economy, enhancing productivity, widening the market, introducing new stimuli to economic activity and bringing village and town and the remotest and the more developed regions closer to one another(1). It is notable that for the survival of Bangladesh, its capital must be well connected with its 68000 villages. The present government is trying for the same.

According to Bruton(2), ".....the transportation planning process has developed using a series of models-namely trip generation, trip distribution, modal split, traffic assignment and network evaluation and it is only by considering each of these models individually in some detail that a satisfactory understanding of the whole process can be best achieved..... the transportation planning process is a system, made up of a range of different models which are in fact sub-system within the main system. The transportation planning process is an expensive and time consuming operation.....regular comparisons should be made between actual and predicted land-use and traffic developments. Any significant divergence between the actual and the forecasted developments should be analysed carefully to establish the reasons for the divergence and if necessary the original assumptions modified or amended to bring about a balance between the two values"

It is therefore understood that for planning the transportation system of Dhaka city lot of basic data on travel pattern, model choice etc. will be required. Socio-economic information about city dwellers as well as data on land use planning will be equally necessary. These data should be collected on a regular basis in order to determine different co-efficients for future traffic forecast and prediction of future land use. But unfortunately at present there is no such arrangements for the collection and preservation of these traffic data. The Roads and Highways Department sometimes conduct traffic count operation and other traffic survey for their present interest. But these are very much inadequate in comparison to the actual need.

Before early fifties problems of movement were seen largely in terms of road traffic. But after that fundamental changes occurred in the study and understanding of movement. It shifted the emphasis from the study of road traffic flows to the study of the land uses that give rise to the flows. The transport and land use planners now agree that transport and land use planning cannot be done separately. The modern urban transportation process is based on two fundamental assumptions(2), (i) travel patterns are tangible, stable and predictable, (ii) movement demands are directly related to the distribution and intensity of land uses. It can be stated that Dhaka is expanding in linear fashion. It will require expensive transport network.

In every sense Dhaka city is the growing point in the economy of Bangladesh. The Dhaka city dwellers tend to acquire a higher level of civilization and income than the rest of the country, where real income may be stationary or declining. This phenomenon is referred to as 'Duel Economics'. The wide spread range of income poses problems of transport and circulation to the less developed countries like Bangladesh (4).

Again cogestion, which is a common problem in the capital, is not only reducing the efficiency of economic activities but is creating a heavy backlog of capital investments for transport and social overheads. These requirements are a serious burden in countries like Bangladesh where capital is scarce (4).

The planned development of new or expanded Dhaka metropolis will make it possible to attack the transport problem effectively. The necessary transport routes and terminals should be set aside to meet projected traffic needs, and land uses should be planned to avoid over-concentration; to preserve open space and recreational areas, and to relate employment opportunities and housing in ways that will minimize home-to-work travel. The reservation of land for anticipated public purposes will be of key importance.

However, it is notable that it will be quite impossible to avoid further increments of growth in Dhaka city. The task of coping with traffic congestion in Dhaka city will continue to intensify, especially since further economic growth is bound to increase reliance on motorized transport. The situation calls for a master plan for urban growth, for the capital city, and for the transportation systems that will be needed in the long run to provide for the movement of people and goods. In this connection it will be worth mentioning that the present step of the government to decentralize power to the upgraded Upazillas will probably reduce some burden from Dhaka city.

A major step towards planning and financing a satisfactory urban transportation system for Dhaka city will be to establish the appropriate government organization. Transportation system of Metropolitan Dhaka must be free from the administrative vacuum that has kept it from playing a full role in the development of the city. The division of responsibility among political jurisdictions and among different agencies or departments within a single unit of government is the most obvious defect of Dhaka city transportation policy.

In the light of the previous statement it can be recommended that a high powered planning cell should be established. This body would be responsible for the well integrated transport and land-use planning. This cell should be constituted by planners, engineers, architects, geographers, economists, management and administrative experts, and representatives from all the concerned organizations. This will lead to the integration of transportation function with metropolitan planning.

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