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AGENDA FOR URBAN CONCERN

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Costly futile exercise

DR NIZAMUDDIN AHMED

THE two fatal accidents involving concrete over bridges at Baridhara and Science Laboratory in the city have made the urbanites look up. As my brother was saying the other day, while travelling on the street Dhakaites are perhaps the only people in the world who have to look up as well as following the childhood tutoring of 'look right and left and then right again'. And, not to forget the DWASA contribution of manholes, which have made it obligatory for the experienced to tell the naive, 'Always look down'. That is not to say that women have not fallen victims to the civic traps.

The two most unfortunate accidents, if you can call them that for they looked almost deliberate, were caused by sheer ignorance and incapability of the designer, constructor and supervisor.

Our paper today by Architect Tarek Haider does not address the issues relating to the accidents but is timely because of the general interest in the subject matter. Moreover, it was possible to prevent both the accidents, and that is one of the most regrettable aspects, by measures that do not require the involvement of the public. Mr Haider focuses on the success and failures of the over bridges in respect of the users, and to some extent questions the wisdom of the proponents of commissioning the projects.

The Dhaka City Corporation and the R&H Department have constructed several over bridges at several busy nodes of the city with the objective of keeping the vehicular traffic separate from the crossroad pedestrians.

From the very beginning - that is the first over bridge at New Market in the 1970s - hawkers have considered the facility as yet another area to encroach. Latter designs have also failed to take passive architectural measures to do away with this menace.

As a result of unbridled encroachment by hawkers and added to this the reluctance of users to use them because ground level crossing options were always open, the over bridges have turned into at best gateways, and now death traps.

It appears that neither the DCC nor the R&H cared to carry out any survey seeking public opinion on the location and design of the over bridges, something that could perhaps have resulted into decisions that could have passively discouraged hawkers and encouraged users. At present, unfortunately, the reverse is the order of the day.

Besides ignoring the users, recognised technical experts from among architects and engineers have also been left in the lurch. Ignoring these two professionals groups has been one of the major flaws of both the DCC and the R&H. This point becomes that much pertinent in view of the technology used to keep the traffic flow as normal as possible in busy roads and thus having to import heavy concrete elements from an out-of-site distant location for some of the over bridges.

Lesson learnt: Each and every public service organisation will do well in the future if they plan their projects as part of a comprehensive, all-inclusive whole, by taking into consideration the opinions of all parties with a stake in the matter. People can very rarely be compelled; they have to be find the situation encouraging and to their ultimate benefit if a decision is to last the test of time. And, in this day and time, only fools can afford to ignore expertise. Furthermore, mere provision of a singular item, and that too by poor design and high-handed attitude that whatever provided will work, is not the solution to any problem; often it can be the beginning of a chain of undesired events.

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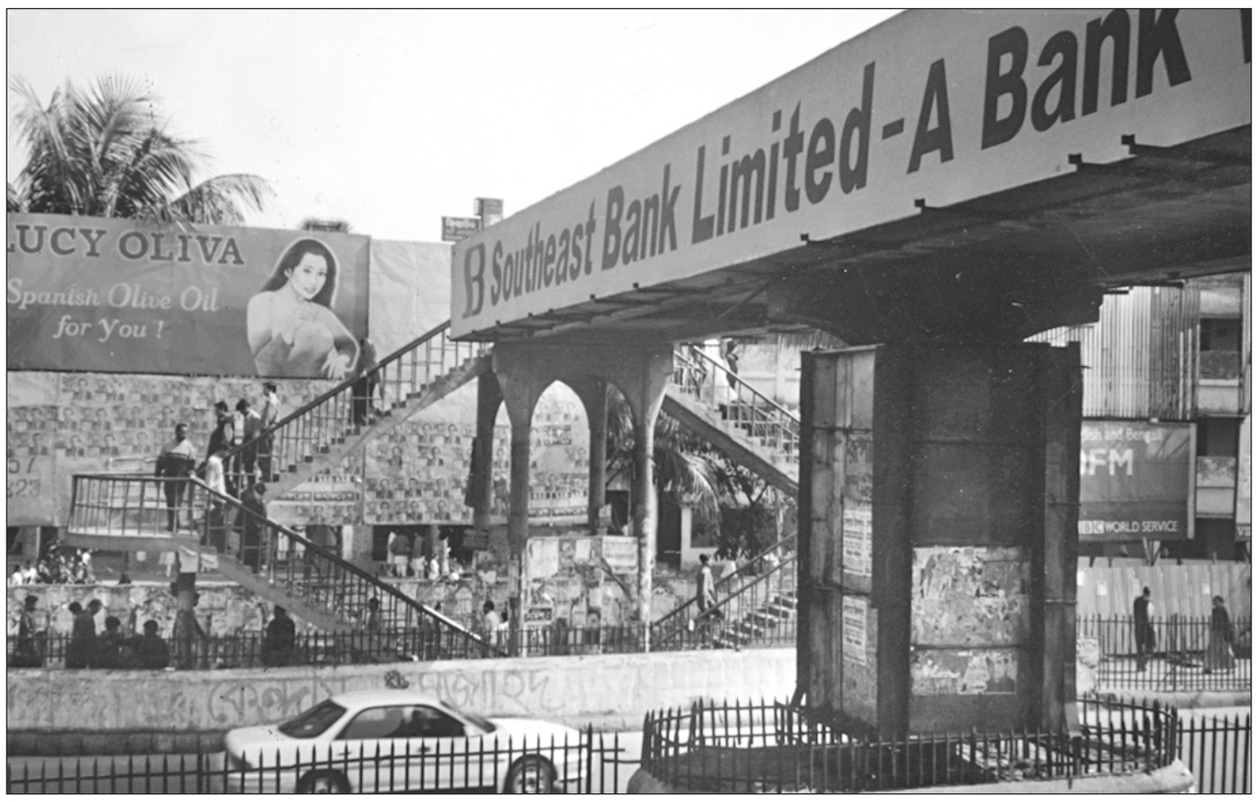


Barriers create discipline.

Pedestrian overpasses in Dhaka city: A study

TAREK HAIDER

FOR the past decade or so, to a great degree due to rapid and unprecedented rural-urban migration over the past thirty years, and to some extent because of poor planning measures and erratic traffic behaviour, the capital has found its facilities inadequate for the ever increasing vehicular and pedestrian traffics. As a result, frequent traffic jams and road accidents while pedestrians are crossing busy roads are all too common. As a means of easing the problem the Dhaka City Corporation (DCC) constructed several overpasses at several important points of the city's road network to enable pedestrians to cross the road safely and for the vehicular traffic to pass unhindered.

However, it is a common observation that these foot overpasses are not being properly used and therefore the purpose of solving the pedestrian road-crossing problem has not been served. In this context these foot overpasses have become a symbol of wastage of time and money.

According to a study conducted at the Bangladesh University of Engineering and Technology (BUET), most of the existing overpasses do not have a suitable location and are not all appealing to the users. Pedestrians are not encouraged to use them. Added to this is their inherent lack of respect for and awareness about traffic rules and regulations. Therefore, the study recommends that steps should be taken to create better road-users by giving road safety education and simultaneously making the pedestrian overpass system safe, attractive and convenient.

On the other hand it is evident from various surveys done by the government and several non-government organisations that accidents involving pedestrians constitute the largest category of accident type, accounting for about 17% of the total.

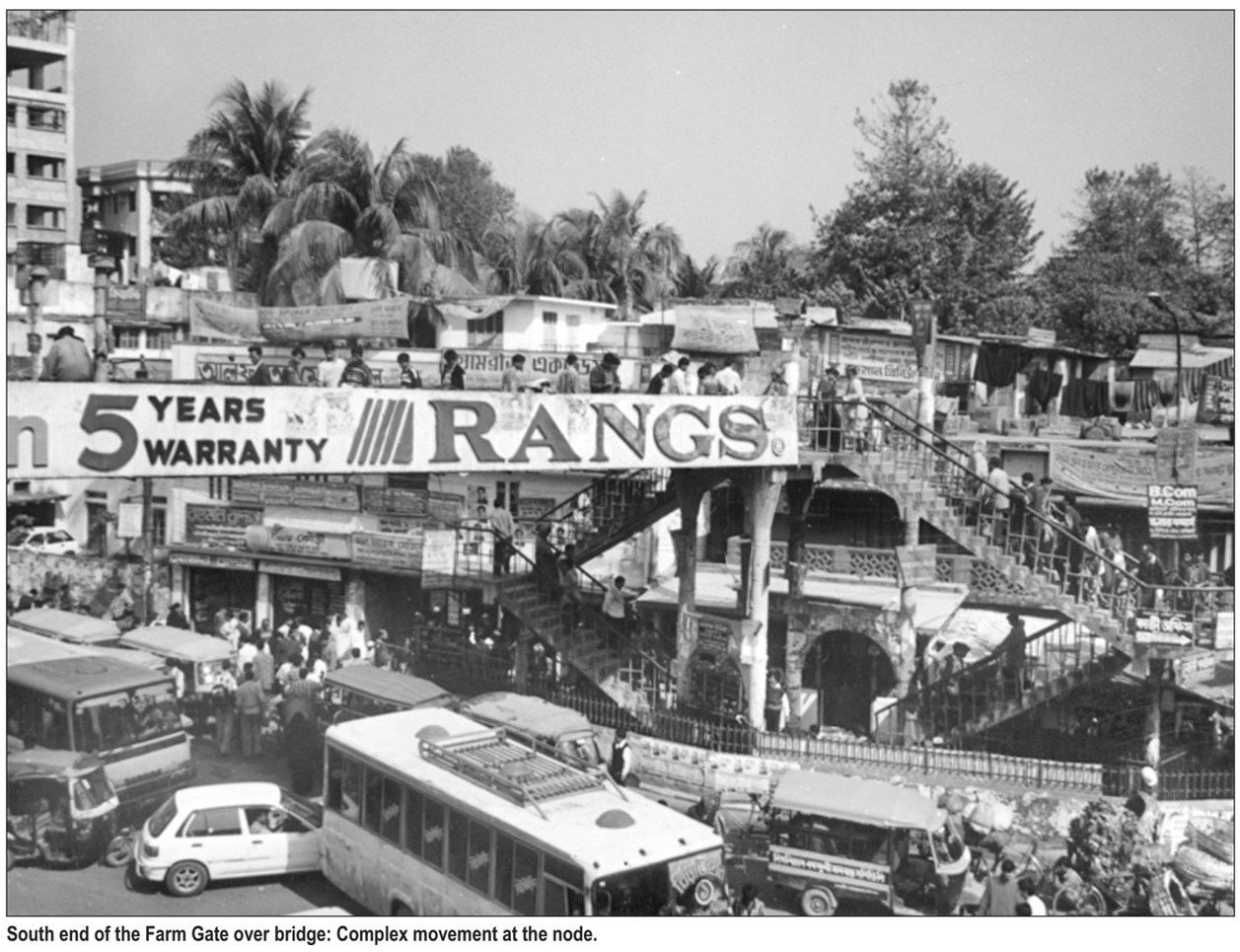
Walking is almost an economic necessity for the low-income group but even the moderate and the higher income groups walk to a large extent as shown by the findings of Dhaka Integrated Transport Study (DITS). In fact, 59 per cent of pedestrian accidents occur while crossing the road.

Pedestrian travel pattern and attitudes

The DITS confirms that children largely (85 per cent) walk, followed by the elderly over 59 years (65 per cent). 0nly women between 15 to 59 years walk for less than half of their trips

It is therefore necessary to study pedestrian travel patterns and attitudes, and consider the findings in the design of pedestrian facilities. According to experts, some of the features of pedestrian travel are as below:

- Pedestrian travel is localised and is highly concentrated in industrial and commercial areas.
- Pedestrian trip purposes vary by location and time of day.
- Pedestrians tend to keep walking distance as short as possible.
- The number of people walking for recreation and pleasure in major activity centres is less than those for other purposes.
- Pedestrian speeds on level ground vary considerably from 0.8 m/sec. to 2.5 m/sec. in cross walks and to about 1.3m/sec. on sidewalks.



South end of the Farm Gate over bridge: Complex movement at the node.

In the context of Bangladesh, pedestrians form the largest single road user group. This is primarily because of lack of sufficient transportation facilities and poor economic condition of the people. The increasing trend of urbanisation, due largely to lack of employment opportunities in rural areas, have generated additional pedestrian volume in the cities and hence the pedestrian problems associated with their movement.

In an uncontrolled traffic area, as observed, pedestrians try to cross the road rather haphazardly. This sort of movement can be reduced to some extent with the provision of pedestrian facilities such as *zebra crossing*, *pedestrian overpasses and subways* in tandem with a system of education for the road users. The regulation and control of pedestrian is an important factor that must be considered in the context of overall urban transportation planning and management process.

Out of these different pedestrian facilities that are available in our country, pedestrian overpasses are important because they provide clear separation of pedestrians confronted with vehicular traffic.

The primary aims of an overpass are to separate pedestrian movement from vehicular traffic, reduce accidents by minimising conflict between the two, and lessen delays and hazards in both vehicular and pedestrian movements.

Being physically unprotected, pedestrians are a very vulnerable group. Foot overpasses in Dhaka City were installed to help pedestrians cross safely busy roads and wide nodes in the city centres. But these foot over-bridges turned out to be a failure in serving the purpose, apparently because the target group of the city population are reluctant to use them.

- Pedestrian speeds decrease as grade rise, from about 1.4 m/sec on level ground to about 1.0 m/sec.
- Pedestrian capacities and space requirements depend on the acceptable degree of crowding.

An understanding of the various purposes of trips can facilitate the effective design of the pedestrian facilities.

Existing foot overpasses

There are about twenty-two pedestrian bridges located at different important points of the city. Among them 18 belong to the Dhaka City Corporation (DCC) and the remaining belong to the Roads and Highways Department (RHD). Locations of the pedestrian over bridges are as follows:

A. Concrete bridges at (a) Farm Gate crossing, (b) Farm gate (near Ananda Cinema Hall), (c) Shyamoli Cinema Hall, (d) Gausia market, (e) Mouchak market, (f) Sadarghat, (g) Chief Metropolitan Magistrate (CMM) court, (h) Ramna (near Enginers' Institute), (i) Baitul Mukkaram north, (j) Zia International Airport*, (k) Azampur bus stand, Uttara, * (l) Khilkhet*

* belongs to RHD

B. Steel Bridges at (a) Malibagh, (b) Shahbagh, (c) Banani, (d) Secretariat (near GPO), (e) Mugda para, (f) Fulbaria, (g) Dainik Bangla, (h) Hotel Ilyseum, (i) Jatrabari, (j) Shaheen School

Proposed/Incomplete Bridges

The DCC had undertaken a scheme to build nine more footbridges by December 2000 at a cost of about Tk 84 million. But the proposed bridges are yet to be completed. They are: (a) Badda Pragoti Sharani, (b) Sayedabad, (c) Bashabo node, (d) Paribagh-T&T office, (e) Science Laboratory, (f) Mirpur Section 1, (g) Mirpur Section 10, (h) Joar Shahara Nikunjo crossing and (i) Uttara Raj Lakshmi complex.

Causes of pedestrian accidents

Non-motorised transport is highly exposed to accidents caused by fast moving motor vehicles. Pedestrians are the most vulnerable group in Dhaka, accounting for more than half of all road deaths within the city area, i.e. more than 450 in 1996.

The reasons behind pedestrian accidents are as follows:

- Poor understanding of urban traffic and its rules and regulations.
- Reckless driving and undisciplined behaviour of motorised traffic.
- Severe shortage of pedestrian facilities, such as side walks.

Some observations on the footbridges of Dhaka:

- The foot over bridges at Farm Gate and Gausia are used not only by pedestrians but also by hawkers. A good number of beggars can be seen on the Farm Gate over bridge. The otherwise broad stairs have been narrowed by encroachment of hawkers and beggars.
- It is difficult to find the entry point at the Chadni Chawk end of the Gausia over bridge due to the hawkers. Due to crossroad barrier under the bridge the usage of these two bridges are higher in comparison to other bridges in the city. In fact, the Farm Gate over bridge has successfully decreased the serious traffic problem of that area.
- Some over bridges seem never to be used. People often use them for toilet purposes. Human waste can be seen lying everywhere, transforming the situation highly unhygienic.
- Some over bridges are home to drug addicts. The bridges at Dainik Bangla, Sadarghat, GPO, CMM court and Malibagh fall in this category.
- Some over bridges have dustbins for garbage disposal near the entry point; Shahbagh is a good example.
- The primary objective of Shahbagh over bridge was to connect two important city hospitals. It is severely underused. Some on the ground use the overhead cover as shelter from sun and rain while crossing the road.
- The bridge at Ramna is of a different nature. The cost of construction is much higher than any other pedestrian over bridges in Dhaka. Approach to the bridge is via a ramp. The spacious and visually pleasant bridge is much less used than expected. For fear of antisocial elements like hijackers and prostitutes, people are disinclined to use this bridge after nightfall.
- Hawkers on the bridge near Ananda cinema hall have narrowed the effective width of the passage. It was also found that the steps of the bridge are of uneven tread-width and angle, which can cause serious accidents. Here too steel fence along the footpath and barrier under the bridge have been constructed to compel pedestrians on to the bridge.
- Drainage system of some bridges is inappropriate. As a result, during the rainy season it is very difficult to use the bridges; Shyamoli over bridge is a glaring example
- To compel pedestrians to use over bridges to cross busy roads, barricades were erected on road islands. However, some over bridges are without barricades, making the whole exercise ineffective. The bridges at Shaheen School, Sadarghat, CMM court, Dainik Bangla, Malibagh, Secretariat (GPO), Shahbagh and Fullbaria are without barricade. Pedestrian generally choose to cross the roads by running across; thus endangering themselves and the fast moving traffic.
- Use of Jatrabari over bridge is satisfactory as it is located at the junction of five main roads. Movement by the heavy and fast moving vehicles compel pedestrians to use the bridge. The same is also true in the case of Azampur over bridge at Uttara.
- Use of Zia International Airport over bridge is very low, as it is located far from the main stream of pedestrian movement. Furthermore, the circular roundabout and a crowded bus stand just ahead of the bridge decrease the speed of traffic, encouraging pedestrians to cross on level ground.
- Use of the Shaheen School over bridge is also very low. As no barrier is provided, students as well as passers-by are not bothered to walk some distance to reach the over bridge to cross the road.

Pedestrian compliance

Pedestrian overpasses in urban areas are often associated with such weaknesses as longer travel time, disadvantage to those physically weak or too old to climb, and so on.

One hundred pedestrians were interviewed at different locations and the respondents were asked to give predominant reason(s) for not using the overpass.

The findings are tabled below: (*Source: Mohammad Gulzar Hossain, Effectiveness of pedestrian overpasses in Metropolitan Dhaka, Dept. of Civil Engineering, BUET,1991*)

Common problem of the overpasses

- Problems that are making the over passes ineffective are as follows:
- Occupation by hawkers and beggars.
- Lack of cleanliness and maintenance.
- Worn-out plaster in concrete bridges and rust in iron bridges.
- Approach of bridges is hidden by hawkers and thereby making their accessibility difficult.
- Insufficient barricade on the road encourages pedestrians to cross the road.
- Antisocial practices of eve teasers, vagabonds, prostitutes and petty thieves are discouraging.
- Lack of knowledge about traffic and related accidents

Recommendations

- It is essential for achieving reduction of accidents by promoting the creation of better road users with improved behaviour. An integrated road safety education programme, covering children between 3 to16 years, may be included in the school curriculum as an effective measure against road accidents.
- Advertising, campaign and documentary films should be arranged
- In underpasses sufficient light and ventilation should be ensured.
- Systems designed for pedestrians, including over bridges and underpasses, should be safe, attractive and convenient to use. Safety should be ensured by good lighting, long lines of sight, etc.
- Pedestrian movement system should be carefully related to rapid transit lines, bus stops etc.
- Continuity of movement should be maintained.
- Continuous median barrier is effective to reduce violation of road-crossing rules significantly. Hence it should be installed wherever necessary.
- Regular supervision should be made to ensure cleanliness and hygiene.
- Pedestrians to be protected from discomfort caused by the hawkers and beggars.
- Spot penalty should be clamped on pedestrians for crossing a road by ground where safer and alternative facilities exist.
- Entry and exit should be well defined and should be cleared of illegal occupants.
- Where overpass or subways have been provided, other facilities like zebra crossings, including signalised, should be avoided adjacent to these areas.
- Particular attention should be given to pedestrian facilities near schools, as children are more likely to run across a road.
- Regular assessment of public needs should be carried out, and the findings considered in design.

Conclusion

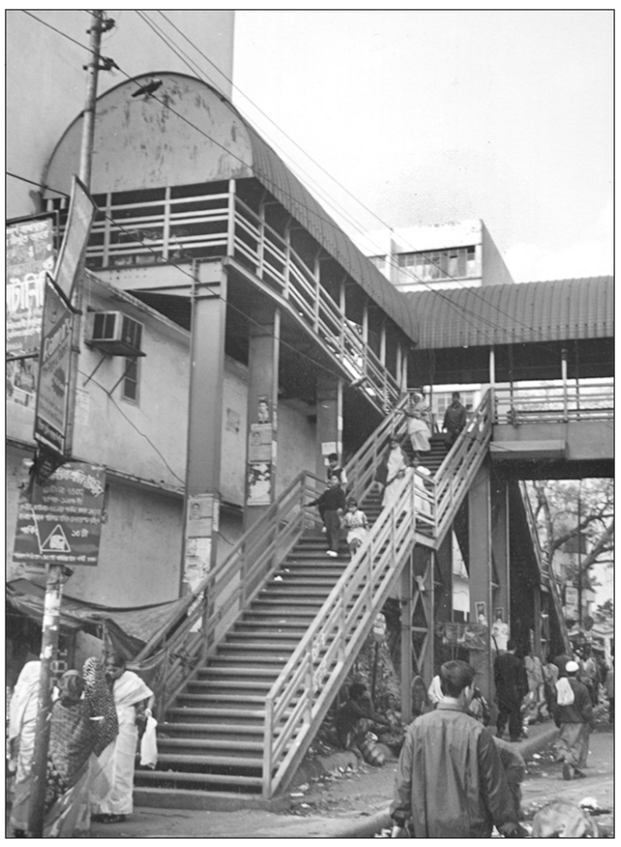
For the Dhaka City dwellers, traffic jams at important business and commercial nodes, long delays, road accidents and public meetings on main roads are common features. These are mainly because of the high rate of the population growth in the face of insufficient and ineffective public facilities. If proper system design were not implemented immediately, the city's traffic system would experience further and increasing woes in near future. Road

Causes of not using the overpass: the pedestrian response

Causes	Percentage
Difficult to climb the overpass	25
Travel through overpass takes longer time	12
Overpass is too high	18
Physical weakness of user	11
Overpass is far away from the route	22
Other factors	5
No response	7

Pedestrian preferences to different facilities

User type	Percentage
Pedestrian preferring overpass	15.0
Pedestrian preferring underpass	49.5
Pedestrian not sure	35.5



Dual purpose: Bridge-cum-dustbin at Shahbagh.