

Dhaka traffic: Underpass solution

NABILA NOWRIN and KHALIQUIR RAHMAN

DHAKA is becoming an unlivable city and many factors have contributed to this. A survey identified as many as 37 factors, with traffic congestion topping the list. Unplanned urbanisation is considered to be the root of this peril. Urban planning started in the mid-fifties when DIT building was supposedly the tallest building in Asia. From then on, the population of the city has increased by an order of magnitude (at least 10 fold) in five decades, and we have to give the city planners the latitude that they could not have anticipated this phenomenal growth. Population pressure has simply outstripped any urbanisation plan.

The popular notion is that Dhaka's road capacity is totally inadequate for the current volume of traffic, but there are experts who do not fully share this view. The crux of the matter is not amount of road space per se, but other factors like improper road design, inadequate approach roads, faulty traffic signals and signal system, illegal parking, lack of parking provisions, inadequate bus stoppages, insufficient pedestrian crossings and footbridges, takeover of roads and footpaths by shops and hawkers, little coordination amongst utility services, problems of rainy season, public meetings, VIP travel, etc. etc. Urban planning has failed miserably in addressing these contributing factors.

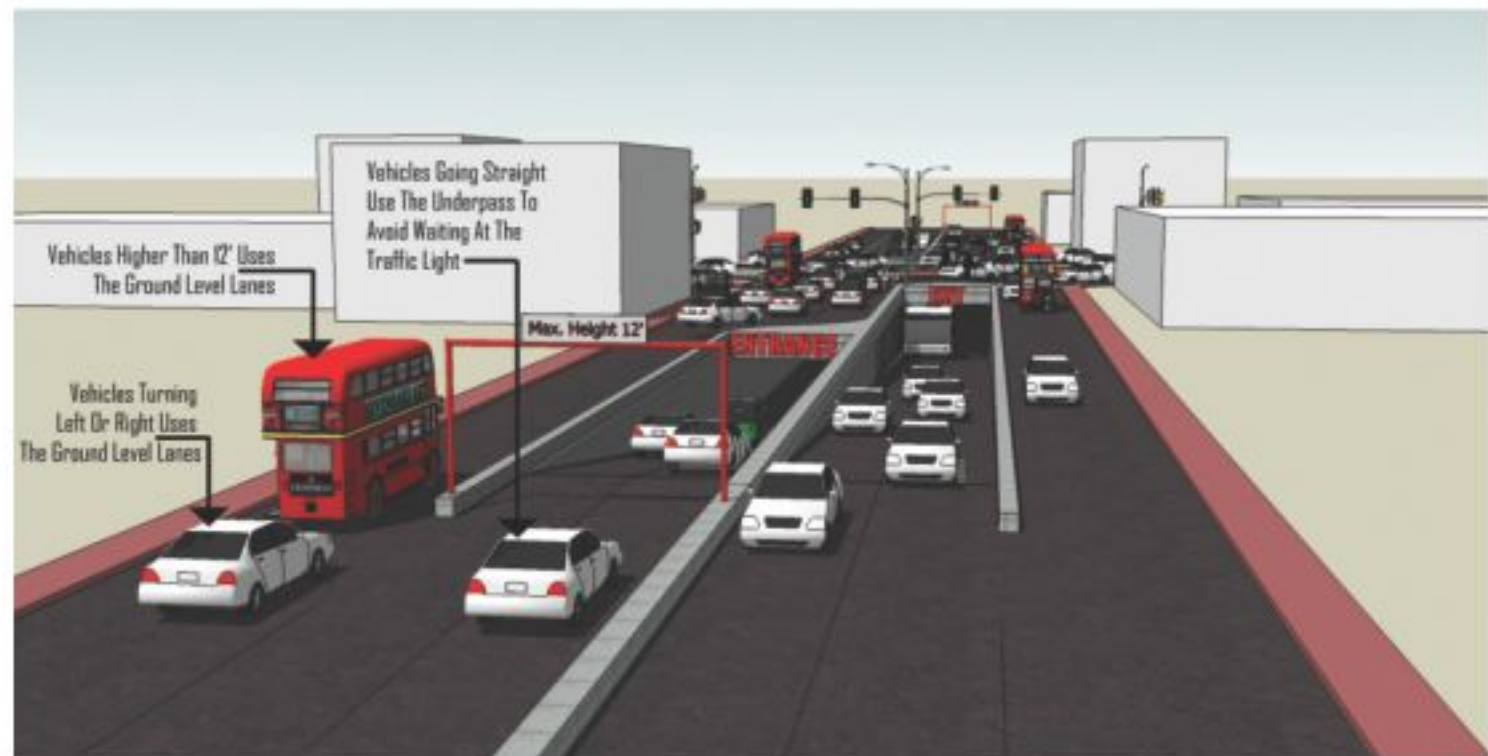
In some areas, city roads are narrow and coverage is less compared to northern part of the city, which had a relatively planned expansion. In the old city, narrow streets are the real bottlenecks. But in the new city, residential areas have generous road coverage and more space could not be justified in these areas. What the city primarily lacks is arterial roads. Dhaka-Tongi and Dhaka-Savar are the two principal north-south arterial roads. Similarly, there are few east-west arterial roads.

However, in spite of some limitations of road space, the traffic condition need not have deteriorated to the present level. Rickshaws are considered by many as the real culprits for the traffic jams. But the fact of the matter is that many main roads are now free of rickshaws, but that has not resulted in relieving traffic jam. If anything, the situation has worsened. Rickshaws occupy 40-50% space, but carry bulk of the vehicular travel, may be 60%, whereas cars occupy 30-40% road area and carry only about 10% load, and

it is cars clogging the streets.

The government has a 20-year Strategic Transport Plan (STP) that has both short-term and long-term implementation policies. The STP recommendations are capital intensive, requiring a total investment of \$5.52 billion excluding land. Some experts consider the STP a well thought out plan, while some others are highly sceptical about it, in particular about the prohibitive cost of elevated motorways and Bus Rapid Transit components.

One important reason for traffic congestion is lack of enforcement of traffic rules and regulations. However, we will not discuss that. Instead, we will consider two factors that are the main causes of traffic congestion and sug-

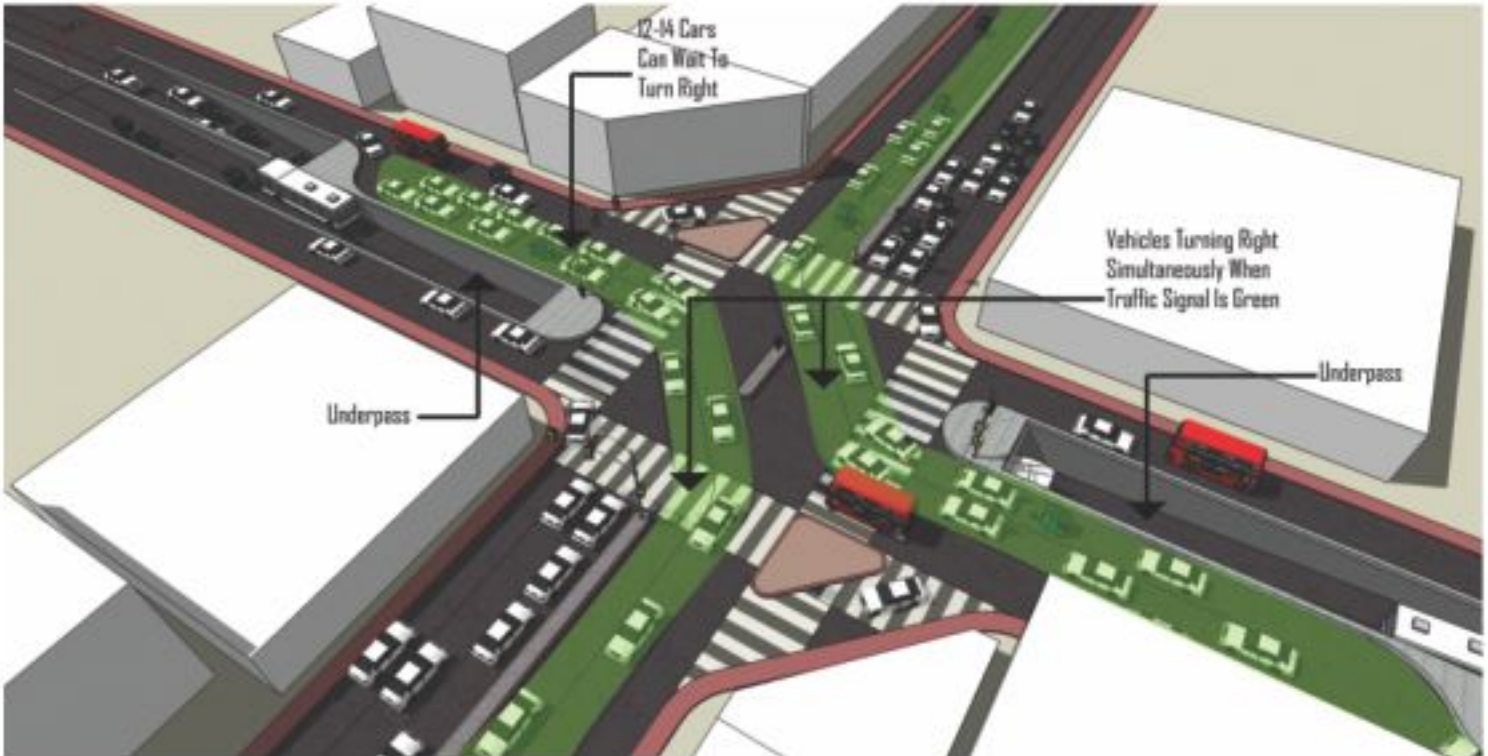


gest pragmatic remedial measures to get short-term relief while we wait for more permanent solutions. The two factors are rail crossings and vehicles making U-turn/right-turn. Rail crossings, except for the flyovers on the Airport Road, do not have any overpass/underpass and they cause enormous jams. Typically, about 80 trains leave and enter the city every day between Dhaka-Tongi, causing six hours stoppage at each crossing! Also, about 20 trains ply between Dhaka-Narayanganj. There are about 20 rail crossings depending on where one draws the city boundary.

Consider the locations where vehicles make U-turn and right-turn. With road dividers on many roads, sharp openings (orifices) have been provided at many locations for U-turn without any consideration of congestion and safety. Also, most road intersections do not have adequate arrangements for right-turn and U-turn. It is these locations that are the nucleation centres of traffic jams. Turning vehicles simply creep in to the opposite side of the road slowing down the oncoming traffic and soon vehicles start moving in all possible directions. Added to this are the people

crossing roads. It is a kind of the physicist's view of 'random walk' of particle motion on a grand scale, except that collisions (inelastic when they happen) are not that many and amazingly 'somehow the whole frantic system hangs together.' Once jam nucleation starts at a point, it is rapidly propagated upstream and when the traffic volume is high the jam reaches another intersection and so on, thus extending the jam. These localised congestions often lead to network congestion, causing paralysis of the city traffic.

It is clear that these localised congestions must be minimised or prevented so that congestions do not grow. For this to happen, turning vehicles should not impede free flow of



through traffic and arrangement for this has to be incorporated. This may be achieved using overpasses and underpasses. An overpass must allow crossing of a double-decker bus, but with 4% normal road grade the size of the structure becomes large, similar to the Airport Road flyovers, which makes overpasses at frequent intervals impractical. An alternative is to construct underpasses with smaller clearance and higher grade so that the size of an underpass remains relatively smaller than an overpass and thus practical to implement.

What should be the typical dimensions of an underpass at an intersection of two major roads, each having three lanes in one direction? The usual grade for ramps is in the range 2%-7%, 4% being the norm, but as high as 10% may be used in demanding situations. Also 12% grade is code compliant for multi-level garage parking. For our proposed system, the underpass clearance is taken as 12 feet, the grade for entrance ramp 12% and that of the exit ramp 6%. The underpass system consists of two lanes each way and with 12 feet clearance will allow unhindered flow of most of the through traffic of the road with

the underpass. The remaining leftmost lane (of the three lanes) are available for normal flow of traffic at the ground level. Two views of an underpass are shown in the figures.

The slope of the entrance ramp may be considered high -12%, but the slope being downward would be fine and gentle speed breakers may be provided for safety. The horizontal length of entrance ramp would be about 100 feet. At the exit of the underpass, the grade is 6%, and that too may be acceptable as the ramp length is short, about 200 feet. Note that unequal grades of the entrance and exit ramps yield a buffer zone of two lanes having a length of about 100 feet available to turning vehicles at the ground level traffic

grades for both entrance and exit ramps equal and have a buffer zone on the ground level, but then the underpass would be longer and not feasible.

The ramps to the underpass and portions of retaining walls will be open to allow partial ventilation and visibility of the underpass. Any rain water getting into the underpass will be pumped out. The underpass area would be large enough for service facilities like pumps, exhaust fans, air quality monitoring equipment, cameras and vehicle waiting area for recovery after breakdown.

How many underpass lanes may be accommodated depends on the width of the road. The arterial roads and some major roads (e.g., Gulshan Avenue and Satmasjid Road) are spacious enough for two underpass lanes each way. Where accommodating two underpass lanes in each direction is not possible vehicle breakdown would be an issue, but a solution may still be possible with a total of three (instead of four) underpass lanes. Also, some problems will arise at T-junctions and rail crossings. These are matters to be considered during design and each site would be unique requiring innovation in design and construction methods.

By design, these ramp-underpass systems would be relatively smaller in length than 'flyovers' and hence construction cost will be less and construction time shorter. Note that the overhead space will remain available for any future use like elevated roads and expressways. The finance for the project may be arranged by leasing out the overhead space above the intersection for real estate development. With superstructure above, pedestrian crossings may be located above ground and escalators provided for ease of movement.

For a trip from Gulshan-2 to the BGB gate at Dhanmondi a dozen or so underpasses may be required. The trip may be a kind of joy-ride, appearing and disappearing from view at frequent intervals, but joy it would be if one could cover the distance in less than thirty minutes at busy hours. There may be questions about aesthetics and beauty, but how does it matter when survival is at stake. "Dhaka is now internationally considered as an unlivable city, it hurts us....we don't have any chance to waste time now," said the former communications secretary in a seminar.

The writers are B.Arch. and former Professor, Buet, respectively.

Let us not give up

HAFIZ G. A. SIDDIQUI

THE US recently suspended Generalized System of Preferences (GSP) for Bangladesh. Suspension can be reinstated in a year provided Bangladesh government and vendors comply with all the conditions the US government wants them to.

GSP programme has been designed to benefit both the US and the exporting countries. Products from selected developing and least developed countries are eligible for GSP privileges (duty-free access to US markets). Almost all Bangladeshi exports are eligible for GSP benefits, but its main export to USA, RMG, is not.

Some people argue we are in trouble due to this suspension. Although immediate loss for Bangladesh RMG is insignificant, in the long run this may lead to loss of our duty-free status for RMG in EU and other markets. Others disagree and claim that we can turn this crisis into an opportunity if we respond positively to Bangladesh Action Plan 2013 the US government has asked Bangladesh government for compliance.

By satisfying the USTR and pressure groups of USA, Bangladesh may even create a new widow for negotiation to get duty-free access for RMG into US market in future. It sounds like a long shot, but may be conceivable in the distant future. It will, however,

depend on changes in the behaviour of vendors of Alliance and economic diplomacy of the government.

The crisis has been caused by carelessness and non-compliant behaviour of some factory owners who mainly count their profits and rarely improve the hazardous conditions in which the workers work. The history of garment industry is full of fires, building collapses and fights between workers and factory owners on wages, leading to deaths of many workers.

The buyers and US government had expressed their displeasure in the past because factory owners did not take adequate measures to recognise the workers' rights. The Rana Plaza episode changed displeasure into anger, resulting in suspension. EU buyers also got concerned and formed a separate platform, called Accord with an Action Plan, similar to that of Alliance. EU, however, did not suspend GSP facilities.

US and European consumers do not buy garments produced in sweatshops. There are pressure groups that prevent retailers from importing garments from countries where workers are forced to work under unacceptable working conditions; there is a lack of adequate fire and building safety; service rules are not of international standard; mini-

mum wages are too low; workers do not have freedom of association, etc.

If Bangladesh wants reinstatement it must implement the Action Plan provided by the US government/Alliance. It must also comply with Accord Action Plan to avoid possible future suspension of duty-free access by EU. The situation has become more sensitive after the fire at Aswad garment factory on

Vendors must take all the remedial measures recommended by the Alliance and Accord. Compliance is the most important requirement. Gaining reinstatement of suspension is an uphill task, but not impossible. We must not give up trying and must not give up hope of reaching the goal.

October 9, when stakeholders were busy in resolving the problems created by Rana Plaza collapse. Bangladesh will need to work harder to prove that it will be able to meet the expectation of US and EU.

To help the RMG industry leaders and the government, the Alliance and Accord have started factory inspection programmes. US buyers formed a consortium of 22 retailers, called "The Alliance for Bangladesh Worker Safety," with Bangladesh Action Plan 2013 to

implement them. EU retailers formed an 87 member consortium called the "Accord on Fire and Building Safety in Bangladesh." According to Alliance, "The safety record of Bangladesh factories is unacceptable and requires the collective effort of vendors, Bangladesh government, buyers, workers and international organisations."

The Action Plans include inspection of about 600 factories by Alliance and 1,500 by Accord. The government will inspect the rest of the factories. Complications sometimes arise in inspection. In one case a difference of opinion emerged. After inspection, the Accord Team declared the building completely unfit for use by a garment factory. However, the owners took a second opinion from a Buet professor who found part of the building structurally safe. (Source: Talk-Show-Tritiyomatra, 5-10-2013). Such debate will delay the process and diminish the hope of meeting the deadline of reinstatement. For Bangladesh, a positive response to the outcome of inspection by both Accord and Alliance is important for reinstatement of suspension.

Bangladesh does not have much choice. Either it complies with Action Plan or it sees the RMG industries consisting of more than 4,000 factories that employ more than 4

million workers, about 78% of whom are women, perish. In spite of warnings from the government, complaints from the buyers, labour leaders, civil society and the workers themselves, working environment has been poor in most factories.

After Tazreen fire in which 112 workers died BGMEA promised to de-list 600 non-compliant factories. But they did not do it. BGMEA simply warned several factories but it was ineffective. This is one reason that the Alliance and Accord members are determined to carry out inspection as per their own Plan.

US sponsored Bangladesh Action Plan 2013 is in fact a checklist. Bangladesh is required to implement it in its totality, including labour law reforms. Bangladesh does not have much choice if it wants to maintain its leading position in the global RMG market. The vendors must cooperate with the teams of Alliance and Accord to inspect the fire preventive measures and structures of factory buildings in the way they want to. More importantly, vendors must take all the remedial measures recommended by the Alliance and Accord. Compliance is the most important requirement. Gaining reinstatement of suspension is an uphill task, but not impossible. We must not give up trying and must not give up hope of reaching the goal.

The writer is Professor Emeritus, Brac University. E-mail: hafiz.siddiqi91@gmail.com

By THOMAS JOSEPH

- ACROSS**
- Put a cap on
 - National symbol
 - Fence supports
 - Bakery output
 - "Yep"
 - Over-throws
 - "Arthur" star
 - Travel stop
 - Try the tea
 - Small bill
 - Badminton need
 - Print units
 - Type
 - Chalices
 - Bowling set
 - Pancreas product
 - Horn sound
 - Entered into the record
 - Misstep
 - Sea dog
 - Explorer John
 - Oklahoma city
 - Mine matter
 - Pharaoh's symbol
 - Maliciousness
- DOWN**
- Corset feature
 - Laundry worker
 - Andes or Apennines
 - Little rascal
 - Loafer
 - Service station fixtures
 - Cry of discovery
 - Target practice setting
 - Source of excitement
 - White sale
 - Parochial buy
 - Publicity
 - Slop slurper
 - Singer Lynn
 - Throws
 - Severe trial
 - Lent ender
 - Send home
 - Big books
 - Hoary
 - Engine need



A XYDLBAAXR is LONGFELLOW

On letter stands for another. In this sample, A is used for the three L's, X for the two O's etc. Single letters, apostrophes, the length and formation of the words are all hints. Each day the code letters are different.

Yesterday's Cryptoquip:

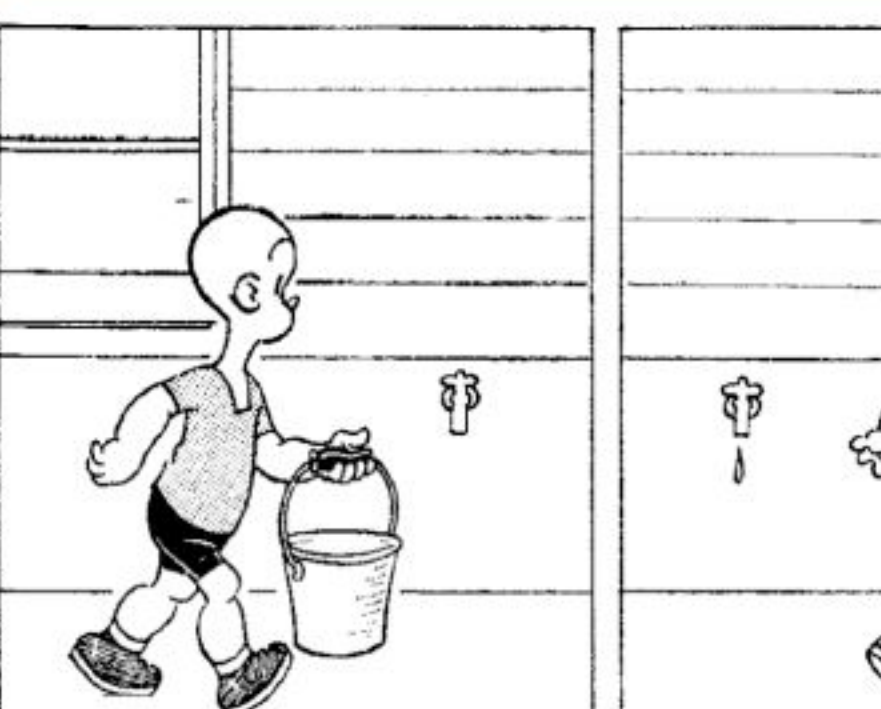
THERE IS ALWAYS ONE MOMENT IN CHILDHOOD WHEN THE DOOR OPENS AND LETS THE FUTURE IN.

-- GRAHAM GREENE

BEETLE BAILY



HENRY



by Mort Walker



by Don Trachte



QUOTABLE Quotes

"In the practice of tolerance, one's enemy is the best teacher."

Dalai Lama