

Old-age complications need selfless remedy

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In any study at any level on the future liveability of Dhaka, the conclusion invariably is that the city is too populated, and the solution perpetually borders on the need to decentralise each and every national institution, in which proposed action the speaker/analyst/discussant without exception reckons that he, his family and his friends, and everything he needs and desires remains within the city premises. This writer is no exception.

That self-seeking privilege at individual, group and institutional strata is one of the primary reasons why we have not been able to think straight and make much headway in keeping this city mobile, clean, healthy, well supplied, hazard-free and serviceable, among other shortcomings. We have to rise above ourselves in order to serve and save ourselves.

In this edition's article, Engineer Syed Azizul Haq touches on an issue that many may consider dead, prayed for and buried. But, experienced as he is in dealing with mainly 'plumbing practices', which entails many aspects of the urban framework that he delves in, albeit cursorily because of the scope of this page, the author is optimistic, or else his piece would not have seen the light of day.

It is necessary to pump vigour into this aged city's development and redevelopment programmes. Intertwined and complex aspects there are many, but Engr. Haq's query 'where is the land?' may become especially vital even if one fine morning we wake up as angels on mattresses of riyals and yens.

For the past several decades we have become used to the statement, uttered and lettered, that Dhaka will become unliveable in the 'next' five years. True or not, none has left the burgeoning mass of concrete, humans and shops; rather the reality has been to the contrary.

In dealing with the problems of mega-Dhaka we so readily offer our garbage to the other districts, just as we did with our pre-CNG baby taxis, that we seldom ponder whether the rest of the country is willing to accept our rubbish. It is therefore pertinent to suggest that time perhaps has come when they should sit down, discuss and call the shots.

Let the rest of the country invite us, instead of us going to their still quiet habitats uninvited. We have to think from outside Dhaka, only then perhaps will our proposals be selfless and practicable, only then will Dhaka live to be 500 and beyond.

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Live in Dhaka or leave Dhaka: Environmental facts

SYED AZIZUL HAQ, P. Eng

DHAKA is the place which was made as point of attraction for all kinds of human activities since four hundred years back. Since then it has been growing with urban characteristics but in little planned manner. The rate of growth was not that much steeper than other surrounding growth centres. Even in British colonial times some districts near Kolkata were comparatively developed in many aspects in comparison with Dhaka. But after having the status of capital city of the then East Pakistan started growing at a faster rate than the other districts. And after liberation the growth rate in all urban perspectives was no match with those of other districts in Bangladesh. The provincial level administrative and commercial offices situated in Dhaka had been transformed into the corresponding head offices. The top level policy makers, officials and businessmen, as well as various other professional and non-professional groups, from all corners of the country started making room in Dhaka. Some of course opted for other comparatively developed districts like Chittagong and Sylhet. This migration toward urban centres is still going on. In the past the policy makers and the responsible authorities took little initiatives to cope up the situation for having no vision in their planning. In the present days there is poor headway in these regards; rather the situation is deteriorating so fast that within a short span of time it may go beyond manageability. Then Dhaka will lose its liveability and some may well opt for leaving it. Among the grave concerns, environmental factors will be on the top of the list. This article tries to focus on the anticipated environmental consequences of the development process of Dhaka and what could be the probable steps to mitigate the negatives.

Trend of growths in Dhaka causing negative environmental impacts

Among all the factors putting more pressure on environment some are growth of population, building infrastructures, traffic, industries, land development etc.

Population growth: High growth rate of population is the primary cause of all sorts of environmental degradation. In 2001 the population density in Dhaka has been recorded to be 7918 person per sq km and the percent increase over preceding year is 56 (BBS2001). It is expected that in 2025 population will be about 3 crore in about 1530 sq km area of Dhaka city. It will augment the demand for necessary infrastructure development for their living and livelihoods. Fast growth of population demands for fast growth of infrastructures creating opportunities for unplanned and unhealthy growth of building structures mostly residential and some other various commercial buildings. The road network is also increasing but not accommodating the anticipated traffic demand. Other services like electricity and water are provided but not fulfilling the required growing demand.

Building growth: To accommodate the high growth of population buildings are also growing fast amongst various other supporting infrastructures. Among those which have high environmental implications are high rate of increase in water production and supply and then comes the increased demand for sanitary drainage from those buildings.

Water supply: Intermittent piped water supply system is developed for supplying the buildings in Dhaka city. The growth of pipe network and the growth of water production remain lagging for a long period and the gap has increased more in the recent years. Surface water particularly river water pollution is increasing. River water pollution is supposed to be caused by discharging untreated or poorly treated industrial wastes. But lack of sanitary waste disposal form newly growing buildings and dilapidated and under capacity of existing sewer facilities are also ultimately causing the surface water pollution along with other modes of pollution. Surface waters of near vicinity have lost the condition of treatability. So intakes are being shifted towards North, which has many limitations. The next option is sourcing from groundwater.

Presently about 85 percent of water is extracted from groundwater. The upper level aquifer has dried up. Now water exploitation is being carried on from the lower deep aquifer. Metal surface is covering almost hundred percent city lands not allowing ground recharging. So groundwater table in Dhaka is receding by about 3 meters per year. In some places bacterial contamination of ground water has been recorded which is a bad signal for the future. Presently the allocation of water is about 136 litres per person of Dhaka city but for making a healthy city it should be at least 250 litres per capita. In India the recommended per capita water demand for cities is about 270 litres per person. So growing scarcity of water in future not only will bring environmental deterioration but will also endanger public health.

Sanitary drainage: The poor situation is also prevailing in the development of drainage facilities. Majority of the newly developed areas are lacking sanitary drainage system. In those areas building waste disposal system is supported by septic tank system due to absence of sanitary sewer system. In septic tank system there must be either soak well or leaching field to be developed for managing the effluent of septic tank. Leaching field is seldom developed for want of sufficient land around sides of the building. Soak wells are not properly constructed depending upon the soil condition. Septic tanks are also rarely built by engineered method. Furthermore septic tanks are not properly maintained due to lack of periodical desludging to be facilitated by the city corporation. Soak wells mostly remains malfunctioning for lack of maintenance. As a result the overflowing soak wells or the septic tanks almost discharge raw sewage which finds its way into the surrounding water bodies through the surface drains or in some cases through storm sewers. The only sewage treatment plant at Pagla is too small to handle the present sewage of Dhaka. In future if more treatment plants are to be set up availability of suitable land at desired locations might be a problem.

Traffic growth: With the growth of population in a city motorized traffic on roads also increases. It is estimated that about 50 used or new motorized vehicles are emerging on roads of Dhaka city every day where road space covers only about 6 percent of city area. As the width of road and length of road can rarely be improved so traffic congestion prolongs with the passage of time. To meet the increasing demand of transports old and outdated vehicles continues plying on roads adding more pollutants in the air. When the management authorities fail to manage the planned traffic system then the problems increases manifold then what is predicted.

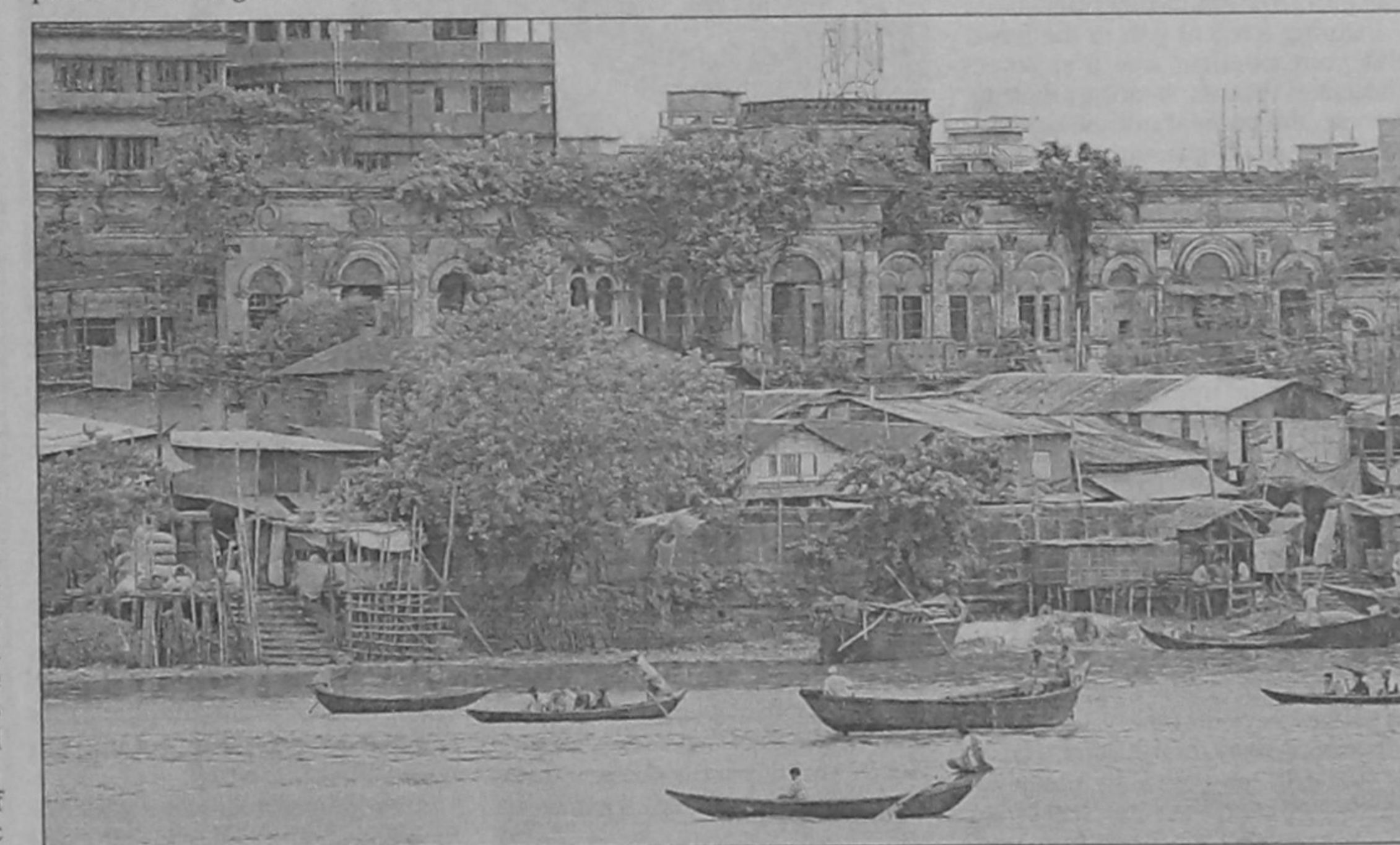
Industrial growth: Along with growing urbanization demand for industrialization also grows. Majority of various industries are established to meet up the local demand first and then opt for exporting. With the establishment of new industries supporting and linkage industries also mushrooms around. The industries are not only producing goods for meeting the demand side by side polluting the environment at minor to maximum scale in many ways. Some of the industrial types of heavy pollution potential, those which have grown in and around Dhaka, are:

1. Leather industries: responsible for increased pollution of Buriganga river.
2. Cement industries and Brick fields: cause of increased air pollution.
3. Textile industries: contributing

to surface water pollution.

4. Garments industries: inviting in-migration, putting pressure on water and sanitation.
5. Ceramic industries: increasing land and air pollution.
6. Steel rolling mills: causing heavy air pollution.

Land development: High demand for building development increases demand for land. The high lands stretching North-South direction has been built up with infrastructures leaving only the low lying areas in the Eastern and Western parts of Dhaka. These low lying areas are used to hold the surface runoffs from central highlands relieving the areas from land logging. But due to high demand of lands these low lying areas are being filled up indiscriminately for various developments comprising primarily of various buildings. Both the public and private developers are in the race, but the private developers are many in number. Development is being carried on without considering its environmental impacts. The focus is only on accommodating the increasing population. Development of land in such manners for limited purposes are creating demand for lands



for various other purposes, such as education, healthcare, religion, communication, sanitation, etc., but little land remains. The newly developing housing areas are barely and rarely provided with those facilities.

Anticipated environmental facts of Dhaka

If Dhaka possesses its present status and administered in the way now being run and no mitigating measures are taken it is feared that within short span of time Dhaka may lose the condition of living in the near future. The factors responsible for that unwanted situation will be the environmental factors whose present situation and trend of growth have been portrayed above. If this situation is allowed to continue without adopting any effective and sustainable mitigation programme, environmental hazards will be forcing people to leave Dhaka. Some of those anticipated facts expressed by the respective researchers are mentioned in its support.

Growth of building: It is calculated that within 2025 about 44.5 lac dwelling units will be required to accommodate the future growing population of Dhaka city. Considering each building of average eight stories with five units then about 1 lakh units of residential building shall need to be built. To cater to these newly built residential units various other occupational buildings are to be built

Question is where the land is. Then one of the options might be expansion of city boundary by reduction of agricultural or other usable lands. The other option is increasing the density of buildings reducing the existing open or green spaces for limited expansion of city boundary. This will result in increase in metal surfaces creating more heat islands and hindrance in ground recharging by rainwater.

Growing water demand: Anticipated growing people will need water first. Where is the growing source? Potential sources are either surface water by successive transferring of intake points toward north or from underground by successive lowering the depth of deep tube-wells. Now the question would be where the limiting boundaries of these transformations are. For surface water it is clear that geographical boundary at north is the limit but for underground water it is yet to be fixed. If the average lowering of ground water is assumed to be 5 meter per year then in 2025 the fall will be about 85 meters. At that time demand of water, availability of water, affordability of technology, cost of extraction will come to the fore.

Sanitary drainage: Growing

Policy adoption

It is a well established fact that the growth of Dhaka city is taking place in a much unplanned manner and at faster rate in comparison with the development of other mega cities. So the policy of development should be the planned harmonic development among the cities, the districts, the upazillas and even the rural areas covering the whole of the country. Under the policy various strategic plans proposed as under may be implemented.

Short-term strategies

Completing detailed area plans and developing institution: It is really frustrating that the detailed area plan for Dhaka city is yet to be furnished though the strategic plan has been completed about 11 years back. By this time the unplanned growth of buildings has certainly magnified the negative impacts many folds. The plan shall be finalized properly. The accepting authority of the plan shall also have to be capable to value its worth. Rajdhani Unnayan Kartipakkha (RAJUK) is supposed to be the guardian for the planned development of Dhaka city whose

and related infrastructures, the private developers can be encouraged by offering pecuniary or other form of incentives like tax relaxation, land price subsidization, etc. In such respect foreign investment can be highly encouraged. To attract human settlement in those relatively thinly populated areas good educational provisions, healthcare and other services shall also be developed along with various job creating enterprises and facilities. For the dwellers of those areas all sorts of taxations, tariffs, etc. shall be reduced in comparison to those realized in Dhaka or some similar large cities. The amount of incentives or tax relaxation will be related to the size of population to be attracted for settlement depending upon the expected planned growth of population density in those areas.

Midterm strategies

Streamlining and strengthening Service providing and Regulatory authorities: It is true that same type of services for development and living supports are being provided by multiple organizations creating occasionally administrative, functional and monitoring disruptions. As for example, water supply and drainage services are being catered by concerned Water and Sewerage Authorities and the Municipal Corporations in their command area. Urban planning is done by concerned Metropolitan Development Authorities, Urban Development Directorate, Local Government Engineering Department and Municipal Corporations. Public buildings are being built and maintained by various organizations established for other particular purposes. So no exclusive and authoritative organizations are being developed for particular services. As a result sustainable development toward achieving the target is always lagging far behind and the sufferings of the stakeholders are mounting high. So a particular type and nature of service shall be vested upon a particular organization and the working boundary shall cover the whole of the country. Most of the service providing and the regulatory authorities are run by particular professionals or cadres gradually being experienced in their respective services. These authorities shall be steered and administered by those professionals or cadres of the respective organizations.

Ensuring good governance: All the service providing, regulating and planning organizations shall be ensured good governance. The authorities shall be administered by respective professionals or personnel of respective cadres, where necessary, and competent personnel of various fields. These authorities shall be working as the executing authority in their respective concerned areas and the concerned ministries shall be supporting them by providing rules, regulation and policies only.

Long term strategies

Setting up research institutions: Population is increasing resulting in increasing pressure on land. Urban migration is increasing and so urban boundaries are putting pressure on rural lands. The migration and settlement pattern of population in various cities and urban areas differ in nature and rate. The land-use pattern and change in land-use also differ in different urban areas. Therefore, research should be carried on social and economical issues related to the pattern and trend of population migration, its root causes, mitigation options, etc. Similarly, for urban areas research

should be carried on density of population to be accommodated in particular areas, distribution of population of various income groups, service and infrastructures demand assessment for urban populations, changes in land-use and distribution of land for various infrastructures and services, rate of expansion of urban areas, etc. The outcome of the researches can be utilized in development planning, monitoring, etc. Existing technical universities can take up these types of need-based researches. More technical universities shall be set up to carry out more and specific research in these fields. Independent research institutes can also be established for the purpose.

Land reclamation from the Bay: Bangladesh is probably the unique country in the globe whose landmass formation will remain dynamic as long as the Himalayas exist, and Padma, Meghna and Brahmaputra will be flowing. The huge volume of sediment carried by these rivers has ushered formation of big landmass in the Bay of Bengal. Natural process of such land development would be a very slow process, and so initiatives should be taken to hasten these land development by taking some structural measures. Initially the developed landmass will enrich biodiversity and in course of time these areas can be used for human settlement.

Conclusive remarks

Population on earth is growing in an exponential pattern. In Dhaka the growth of population is natural to some extent and to a great extent the causes are manmade. Lack of vision, mission, and adoption of strategies, promulgation of rules and regulation and its strict enforcement are the main problems. Dhaka is getting overburdened over population. Necessary infrastructures, mainly residential and commercial buildings, are growing in a much unplanned manner creating a chaotic situation for the development of other supporting infrastructures. As a result living environment is being lost at a fast rate. If the situation is allowed to continue only time can say when Dhaka will totally lose the condition of liveability. Even the concerned policy makers endorse the fact.

Sustainable steps should be taken without delay to prevent the anticipated consequences. Dhaka shall be developed in a very controlled and planned manner. Other cities and urban centres shall also be growing in harmony. Priority and all sorts of supports and facilities for development shall be given to thinly populated underdeveloped areas. Service providing and development regulatory authorities shall be streamlined, strengthened and institutionalized. Good governance shall be ensured therein. Research institutes shall be developed and utilized in changing land-use pattern and allocation of land for various development projects, particularly in densely populated areas. For the upcoming generation new and liveable land shall also be kept prepared otherwise they will never forgive us.

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Note: The author has taken material for this article from his own book 'Rain Water Harvesting: Save Demagnetized Dhaka of Hopes', World Habitat Day Souvenir, CUS and BIP, Dhaka, 2008, from Islam, Nazrul and Shaif, Saima A. 'A Proposal for Housing development Programme for Dhaka City', Nagar Unnayan Committee, MoH&PW, June 2008, Dhaka; and Jain, V.K. 'Hand Book of Designing and Installation of Services in Building Complex Highrise Buildings', Khanna Tech publication, Delhi, 1988.

