

Why buildings collapse?

DR. AFTAB ALAM KHAN

BUILDING collapse has become almost a regular phenomenon in Dhaka metropolis. The last incidence occurred the other day when at least 20 people were crushed to death and many more critically injured. It was also feared that many others were trapped under debris when a six-storey building located at Tajuddin Sarani of Tejgaon completely collapsed on February 25 morning. Less than a year back, a similar incident occurred at Savar when a seven-storey garments factory collapsed killing more than 70 people. Building collapse, tilt, and sink also occurred at some parts of the Dhaka metropolis in very recent past. Ironically, every time these disastrous incidents occurred, there had been some scape-goat explanations. Every time the reason for such disaster was pointed towards structural anomaly, construction defects, non-compliance of building codes, and violation of approved plans. However, according to report, we may suspect some other reasons also. "I was plastering a room on the third floor when at first I heard the sound of an electric generator. Soon I heard the sound of crumbling and saw the walls of the northern part of

the building collapsing', Shahaj Uddin, a mason, told The Daily Star after the building collapsed in a few seconds, as all but the first floor was empty, said witnesses living in adjacent buildings. The 'sound of an electric generator' and the 'collapse of walls of the northern part of the building' are of significance and need critical analysis.

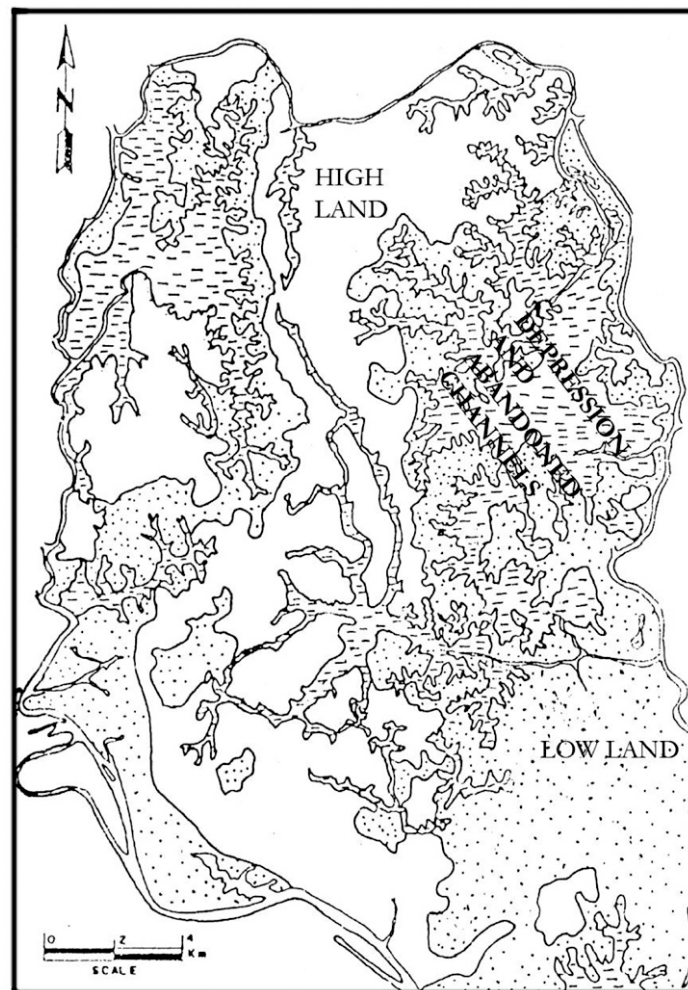
Talking about building code it is not only a single element dependence rather multiple elements dependence. The common practice for engineering design is to calculate only static load. No dynamic load is calculated to incorporate in engineering design. A proper building code is accomplished based on not only engineering factors but also with geological factors. Unfortunately, no geological factors are ever considered. No realistic steps have been taken to stop the "bolt from the blue" appearance once for all. We all have been very vocal in expressing the fact that Dhaka metropolis is sitting on the fireball of disaster while even without the fireball is exploded, the tragic disaster crops out repeatedly. Moreover, as usual, all the concerned agencies seem to be very reluctant to dig out the actual causes.

We all know that Dhaka megacity is overstressed due to its extremely

high population, pressure on housing, transportation and other necessities for day-to-day life. As a result, infrastructural development and expansion have increased several folds over the last thirty years or so. Moreover, the development and expansion are moving in the vertical direction in a converging mode when it is extremely important to move laterally in a diverging mode. Dhaka metropolis has a very limited area where only less than half is covered by original engineering bedrock. More than half of the metropolis area is characterised by depressed/subsided land, low land, and network of buried/incised channels of varying depths. These areas had been eventually filled with channel-fill deposits and then artificial-fill deposits over the original bedrock. Almost all the low lands were connected by numerous channels those carried sands, silts, and clays during every rainy and flood season. The channel-fill deposits are rarely few hundreds of years while the artificial-fill deposits are only few tens of years. In addition, the channel-fill deposits are frequently mixed with eroded red soil from elevated land and are often misleading with original red soil.

The buried/incised channels are also the avenues for continuous sub-surface flow of water that make such areas highly susceptible to liquefaction. It is not necessary that only earthquake vibration will generate liquefaction rather continuous slow ambient vibration would produce local liquefaction pockets. The channel-filled areas are also potential for generating local underground scouring. The situation becomes more risky when artificial filling is done over the channel-fills. The artificially filled areas also develop pockets of organic soil. Hence, the combined effects on to the building structures lead to high vulnerability to collapse.

It is very unfortunate that the last collapsed building was located over the edge of a depressed land and near the incised/buried channel previously known as Mohakhali Khal. There are more channels like Mohakhali Khal within Dhaka



metropolis. Begunbari Khal, Kalayanpur Khal, Dholai Khal, Diabari Khal, and Gazaria Khal are noteworthy. Begunbari Khal once (forty-fifty years back) was connected to Baridhara-Gulshan lake, Dhanmondi lake through present Pantha Path, and Gazaria Khal to the east. Incised Kalayanpur Khal occupies a large area of Kalayanpur. Dholai Khal occupies a large part of Old Dhaka. In addition, enormous abandoned channels characterise a large area between Uttar Khan and Rampura. Rampura-Badda area unfortunately happens to be the depo-centre of low-lying areas. All these aban-

doned channels are associated with depressed lands and have undergone deposition of channel-fills and over-bank fills. These areas eventually came under artificial fillings with the advent of massive structural development. Similar situation was prevailing at the site of collapsed garments factory at Savar. Possibly RAJUK does not have such geological map of Dhaka city. If it is so, RAJUK must have hazard vulnerability map of Dhaka Metropolis on top priority basis. It is necessary to have geologically characterised site map of every development work whether it is building, or highway or runway or bridge or dam, or railway track. More and more the geological factors would be ignored, more tragic incidents would occur. It is also utmost important to have regulations for geological clearance prior to any infrastructural site development and major structures.

Dr. Aftab Alam Khan is Professor, Dhaka University and Vice President, Bangladesh Earthquake Society.



Building collapsed in Tejgaon on Feb 25

Improving secondary education

ABDUS SATTAR MOLLA

SECONDARY Education prepares the students for higher education. In most countries the students receive one or more certificates on successful completion of certain sub-stage of the secondary education. That is why the general mass regards secondary education as the most important stage of education.

Secondary education in almost all countries has at least two subsystems - the general and the technical/vocational. Many Muslim nations have also a religious education subsystem - Madrasa.

There are about 49 countries in Asia. I studied 23 of them thoroughly during the last three years. Now we may have a look into the prevailing trend of secondary education systems in those countries to help develop a better system in Bangladesh.

Duration

The general education subsystem is the most important and overwhelmingly the largest in the secondary education. The duration of this stage varies from 4 to 8 years (depending on the length of primary education) in different countries. The most prevailing system is of 6-year duration and is mostly divided into two stages-the lower secondary (3-4 years) and the higher secondary (2-3 years).

Of the 49 states in Asia, 23 have the lower secondary education for three years (usually grades 7-9). Over 20 of those countries have the higher secondary of three years (mostly grades 10-12) duration. The secondary level education is subdivided into three in a few countries.

So Bangladesh can logically follow the Asian trend of secondary education consisting of two sub-stages - lower (7-9) and higher (10-12). The lower secondary education up to grade 9 should be declared basic (and if possible compulsory) as in many countries of Asia. The very first year of the high school (class 7 instead of the present 6) can be kept outside the public examination that may be based on the studies at grade 8 and 9. A Lower Secondary Certificate (LSC) can be awarded to the students successfully completing the 9-year basic education. This certificate can be treated as equivalent to the present SSC.

Apparently the LSC holders are lower in status than the SSC holders. But it may be mentioned here that at present a substantial portion of the course in grades 6-10 are repeated. So apart from the group-based study, the proposed course up to grade 9 would contain everything of the present course up to grade 10. The actual improvement of secondary education would be effected in the higher secondary sub-stage having enough time for group-based in-depth studies to prepare well for higher education.

Streaming system

The lower secondary curriculum is unified in most countries having a few elective or optional subjects. But in the higher secondary stage the curriculum has some compul-

sory or 'core' subjects and some groups or clusters of subjects. The second provision divides the students literally or in spirit into some groups like humanities, science, commerce, industrial arts, Islamic education etc.

A unified secondary curriculum is prevalent only in 6 countries (out of 23). These are the Philippines, China, South Korea, Sri Lanka, Nepal and Turkey.

Bangladesh can follow the Asian prevailing trend rather than the few stated above. The lower secondary should be unified having some 'core subjects' applicable also to the Madrasas and Vocational schools (Vocational education can start from grade 7 as in China).

The higher secondary should be diversified having some choice of group subjects other than the compulsory 'core' subjects and that should be uniform through the subsystems. The last education commission (headed by Prof.

(Information and Communication Technology) or Business Education is nowhere compulsory. However, these subjects are studied as elective ones in the secondary grades in many countries including India.

Bangladesh can follow the present subject pattern with some minor changes. The 'core course' in the lower secondary can contain a new subject on 'Ethics and Law' having the gist of major religions, some basic laws (including those in land matters) and human rights. The other prevalent subjects may be Bangla, English, Mathematics, Natural Science and Social Science. The proposed new subject 'ethics and law' may replace the traditional religion that so far failed to enhance our moral values.

There may be provision for 2-3 elective subjects from a list containing religion, agriculture, home economics, computer science, business studies, higher science, higher social science, higher math

diversified.

Education system in the independent Bangladesh began in 1972 based on the Pakistani system. The primary and secondary curriculum went through major revisions at least three in Bangladesh. The first revision of the curriculum was done in 1977 by a very large national curriculum committee chaired by Prof. Zillur Rahman Siddiqui. Implementation of that revised curriculum was rather delayed and unification of only the general secondary stage was effected in January 1983. But the unification was dropped in July and the diversified system was reintroduced having two clear streams - Social Science and Science. Under the same curriculum, books underwent major changes in 1985 and in 1987.

The second revision of the curriculum was made in 1995. This curriculum has provisions for three streams - Humanities, Science and Business Studies (new name of Commerce). But these streams are not clear as was during the previous 23 years (1972-1995). Science students of the secondary grades (9-10) are required to study a Social Science course compulsorily and those of humanities and business studies are required to complete a General Science course. This curriculum was implemented from January 1996.

The last revision of the primary curriculum was made during 2002-2004. Such a revision was due on the lower secondary, secondary and higher secondary in a serial order. But the Secondary Education Sector Improvement Project (SESIIP) revised only the 9-10 curriculum in 2005.

All the above components would work positively for improvement of secondary education. But implementation of all the good programmes mentioned above has been stalled for a year (another year may be added since the CG would not decide on such a matter) just because the 45-year old diversified curriculum was unwisely made unified disregarding the views of the stakeholders including the students, teachers, guardians and education administrators (consulted during the evaluation of the existing curriculum in 2002).

Now it is time to decide first on the streaming system in the secondary sub-stage. Then the new curriculum should be revised making it worthy to be implemented. The system proposed above may be analyzed and debated by all concerned so that we can have a better system during the next nation-wide revision of the full curriculum from primary to higher.

etc. Madrasa and technical education subsystems can have their own electives.

The core subjects in the higher secondary can be Bangla, English and an advanced Ethics and Human Rights, each having two papers. Number of elective subjects from a long list may be three, each having three papers (as in Malaysian Form-6). Thus the number of papers studied during the 3-year higher secondary would be 15 instead of the present 10/12 for two years. The one time examination of 15 papers after long three years may be problematic. Yearly semester system can solve this problem of 'memorising' so many subjects. Developing and setting higher level (application, analysis, synthesis etc.) questions in place of asking for producing mere knowledge may also solve the brain-jam (due to memorization) problem.

A note on the postponed Unified Curriculum

The 7-year secondary education in Pakistan was had three sub-stages - lower (grades 6-8), middle (9-10) and higher (11-12). The lower secondary and the secondary (9-10) were unified up to 1960. The secondary education would then complete in having the Matriculation Certificate. The last matriculation examination was held in 1962. The secondary (9-10) course was made diversified (having some groups like humanities, science, commerce etc.) in 1961 and the new type of Secondary School Certificate (SSC) Examination was held first in 1963. The higher secondary was always

Abdus Sattar Molla is Specialist, MDU, NCTB, Dhaka.

TRIBUTE

Prof. Shamsul Haq

A man of decency and rectitude

ZIAUS SHAMS CHOWDHURY

THERE are some people who attract respect and admiration across spectrum. From 1975 to 81 when Prof. Haq was Bangladesh's Foreign Minister, I was a middle ranking officer of that Ministry. I nostalgically remember the wonderful atmosphere we had in foreign office at that time, under Prof. Haque's fine leadership.

The secret of the high respect that he inspired among those who knew him and worked with him can be very simply stated. He was an exceptionally decent and fair minded person during whose time discipline was at a high level. There was an air of predictability. All officers felt motivated to work hard and produce their best. Everyone knew that merit and commitment were the sole determinants of success and no one would be unfairly treated.

Prof. Haq, though apparently handicapped by a lack of any background in foreign affairs, when he joined foreign office, had a raft of other formidable advantages. He was a distinguished academic of the country and had a good image, untainted by any controversy. His repertoire of experience was something not many could match. Beginning his career in education service, he rose steadily. His background included a tenure as Director of Public Instruction (DPI) in East Pakistan, Vice Chancellorship of Rajshahi University and Dhaka University, and a stint as Central Education Minister from 1969-71. President Ziaur Rahman offered him the position of Foreign Minister in March 1975. After carefully weighing various implications, Prof. Haq accepted the offer. He adorned the position with distinction and went on to render significant service to the country.

His contributions as our Foreign Minister should be reckoned to be especially noteworthy because that was a challenging period of our diplomacy. The time following the terrible coup of 15 August 1975 was marked by huge uncertainties for Bangladesh. Our relations with India, our most important neighbour went into a limbo. The threat of internal turmoil that continually roiled Bangladesh at that juncture meant that our credibility to the world was on a severe test. A very carefully calibrated reconfiguration of our foreign policy was an urgent imperative of the time. Prof. Haq played an admirable role as Foreign Minister at that testing time. He showed a great instinct of our foreign relations priorities. His insightful mind, stellar common sense, and his ability to establish good rapport with leaders of other countries

proved invaluable in the conception and execution of what was essentially a very pragmatic approach for the promotion of our foreign policy interests.

If one reads his book "Bangladesh in International Politics" one can see how clear headedly Prof. Haq understood Bangladesh's geopolitical concerns. The book contains comprehensive analysis of our foreign policy challenges. In my humble view, his book can be called a valued manual on how best Bangladesh can conduct its foreign policy. The global scene has vastly changed since Prof. Haq wrote his book but his observations have not lost their relevance and validity even today.



Of all his accomplishments as Foreign Minister, his conduct of our diplomacy in regard India was perhaps most remarkable. In the wake 15th August trauma and the subsequent jail killings that virtually decimated the Awami League leadership, an ominous chill descended on Indo-Bangladesh relations. The advent of a new government in Bangladesh led by an army general created deep resentment in India. In Indian scheme of things, this development in Bangladesh represented a colossal setback. I was serving in our High Commission in New Delhi at that time. I remember vividly how radically the friendly tone of relationship gave way to a bleak atmosphere. The Congress Government of Mrs. Gandhi began to treat the new government in Bangladesh with deep suspicion, if not hostility. After taking charge of the foreign relations, Prof. Haq set about the task of mending the damaged relationship. Success did not come immediately, until a change of government in India, an opportunity Prof. Haq seized adroitly. In this complex and difficult enterprise, he had the support of President Zia. His first visit to New Delhi was very fruitful.

He quickly established good rapport with Indian PM Mr. Desai as well as with the Foreign Minister Mr.

Atal Behari Vajpayee. A process was set in motion that created a positive momentum in the relationship. Prof. Haq was instrumental in creating a congenial environment, with active support of President Ziaur Rahman, that led to the signing of a five-year Ganges water sharing agreement between the two countries. In his book Prof. Haq has mentioned that at a sensitive stage of Ministerial level water talks at Dhaka in April, 1977, stalemate threatened. Prof. Haq intervened to save the talks from collapse, by arranging a last minute meeting between President Zia and Mr. Jagjivan Ram. A water sharing agreement was finally signed in November 1977 over which both sides felt satisfied.

I served in India on two diplomatic assignments at very different times (1973-75) and (1990-93). My experiences gave me some understanding of how Indo-Bangladesh relations work, the things that deter and the things that drive the relationship. I will quote a few observations from Prof. Haq's book which I feel the practitioners of our India diplomacy should heed.

"Where the issue is complex, legal and technical ramifications, formal official talks involving experts invariably lead to prolonged and endless debates with little or nothing accomplished because the parties are reluctant or unable to deviate from their respective brief. On such issues, tangible and speedy results can be obtained only through quiet personal diplomacy at the appropriate political level. It struck a responsive chord in my mind and stood me in good stead on many critical occasions. This strategy in essence underlined the critical role of human factor in external relations, overriding all other factors as in all human and social relations. I repeated this advice to my young friends in Bangladesh Foreign service. I found personal and patient diplomacy yielding excellent results in the management of a number of crises in Bangladesh relations with important countries including India, U. S. and USSR."

Professor Haq's book shows how serious he was in taking lessons from his experiences.

A good man, a man of enlightenment, when he goes, makes a difference to those who have known him. Now when I think of Professor Shamsul Haq, a sad realisation ails me that his ilk is fast getting extinct. May Almighty grant him salvation.

Ziaus Shams Chowdhury is a former Ambassador.

Bird flu: Who's next?

SHAKEEL AHMED IBNE MAHMOOD

AVIAN influenza is an infection caused by avian (bird) influenza (flu) viruses. H5N1 is an avian influenza virus subtype. Wild birds worldwide carry the viruses in their intestines, but usually do not get sick from them. However, avian influenza is very contagious and can make some domesticated birds, including chickens, ducks, and turkeys, very sick and kill them.

How do people become infected? Most cases of avian influenza infection in humans have resulted from direct or close contact with infected poultry (e.g., domesticated chicken, ducks, and turkeys) or surfaces contaminated with secretions and excretions from infected birds. The spread of avian influenza viruses from an ill person to another person has been reported very rarely.

What are the symptoms of avian influenza in humans? Symptoms of avian influenza in humans have ranged from typical human influenza-like symptoms (fever, cough, sore throat, and muscle aches) to eye infection, pneumonia, severe respiratory diseases (such as acute respiratory distress syndrome), and other severe and life-threatening complications. The symptoms of avian influenza may depend on which specific virus subtype and strain has caused the infection.

Is there a risk to be infected by eating poultry? There is no evidence that properly cooked poultry or eggs can be a source of infection by avian influenza viruses. For more information about avian influenza and food safety issues, World Health Organization website may be visited.

Bird flu in Asia: As of February 19, 2006, bird flu has killed at least 91 people - mostly in Asia since 2003, according to World Health Organization. Sick birds have directly infected most victims, but scientists fear the H5N1 virus could change to a form easily passed between humans and spark a pandemic.

Situation in Bangladesh: Although Bangladesh continues to be a low prevalence area, but high prevalence countries surround it, as bird flu has already entered in India. India reported its first case of the deadly H5N1 strain of bird flu after chickens were found to have died from the virus. At least 30,000 chickens have died in Navapur, a



major poultry-farming region of Maharashtra state, of which Mumbai, the country's commercial hub, is the capital (The Washington Post, 2006).

We however must not adopt a complacent attitude in this respect as our country has all the determinants for an outbreak. The healthcare system is inadequate and over-strained and living is crowded, especially in Dhaka city. If the bird flu enters Bangladesh, it may spread like fire. We still have time to be thoroughly watchful, only if we can raise a strong and effective role of Public Health Administration.

Policy implications: It is important to increase awareness of the population and health care staff about the characteristic symptoms and the need to seek prompt medical attention. All ports and borders of Bangladesh need to have strict scrutiny and a plan to boost screening - bar travelers with bird flu symptoms, require health declaration of visitors from affected countries. The border security personnel need to be extra vigilant to prevent smuggling of live birds or poultry products from neighbouring countries. An awareness building campaign needs to be started through media. We need to explore the possibilities of importing vaccines in huge quantity to vaccinate poultry birds.

According to the studies by the World Health Organisation, backyard farming was the source of avian influenza outbreaks in many cases. Due to space constraints, backyard poultry owners could not install bio security measures to

prevent cross infection. It is therefore necessary for us to ban such activities to reduce possible infection among poultry, which might eventually cause human infection. No government could bear to ignore the threat of avian influenza. Instead, all are racing against time to prevent any occurrence of human infection cases.

Above all, we need to plan policies to prevent spread of bird flu. We need to wrestle with this disease. "Try, not to smell where the bird flu is going!"

Prevention in schools

* Schools must not keep poultry in their premises and refrain from keeping live birds where possible.
* Establish barriers to prevent children from touching live bird;
* Avoid organising activities that may expose children to live birds.
* Do not touch poultry and their excreta (wash hands with soap immediately after contact with live birds or surfaces contaminated by bird droppings). Schools should call the government hotline at 1823 for advice on handling sick, wounded or dead birds found on their premises.
* The Agriculture, Fisheries and Conservation Department will collect the birds for laboratory examination, where necessary.
* Cover nose and mouth when sneezing or coughing and wash hands with soap afterward;
* Cleanse used toys and furniture properly.
* Maintain good ventilation.
* Keep sufficient stock of face masks in the school for staff/students who may need one.

* If any students/staff develop respiratory symptoms, they should consult their doctor promptly, wear a surgical mask, and take rest at home and refrain from going to school as advised by their doctor.

Schools should also visit the web site of the Centre for Health Protection of the Department of Health (<http://www.chp.gov.hk>) for more information on the prevention of avian influenza.

Prevention in public places

* Step up hygienic practices like washing hands and keeping the environment clean and maintain good ventilation.

* Cover nose and mouth while sneezing or coughing. Dispose sputum or secretions wrapped in tissue paper into rubbish bins with lids and wash hands as soon as possible.

* Avoid crowded or poorly ventilated places.

* Wear a mask when caring for the sick, and when visiting hospitals and clinics.

* Watch out for the latest situation of the influenza pandemic and further announcements from the government.

* Pay attention to and comply with guidelines issued by the government with respect to prevention of avian flu, traveling and port health control.

* Ban import of birds (including pet birds) and bird products from H5N1-affected countries in Asia and Europe.

* Ban import of birds from areas where H5N1 has been documented.

As a general rule, the public should observe wildlife, including wild birds (seasonal birds) from a distance. This protects you from possible exposure to pathogens and minimises disturbance to the animals. If there is contact with wildlife do not rub eyes, eat, drink, or smoke before washing hands with soap and water. Do not pick up diseased or dead wildlife. Contact with the appropriate natural resource agency if a sick or dead animal is found.

Shakeel Mahmood is Senior Administrative Officer, Health Systems and Infectious Diseases Division, ICDDR, B