

# Earthquake in Chittagong

DR. AFTAB ALAM KHAN

**I**F an earthquake occurs in Chittagong what will happen? This is a pertinent question since we all are concerned about our vulnerability to earthquake damage.

Earthquake occurring anywhere is felt at long distances but certainly the potential damage is done at the place of occurrence characterised by active fault movements. Intensity of fault movement is markedly reduced with increasing distances of the felt region from the epicentre. As long as earthquake wave is propagated quickly through the geologic materials, the level of damage is less but if the same is attenuated in the passage of propagation the damage level is relatively high. Nevertheless, it is of prime importance to identify whether an area characterises an active fault, what attenuation character does it have. Then the next question is whether an area is vulnerable to earthquake occurrence or not. If so, what probability does it have pertaining to maximum magnitude, recurrence period and ground shaking scenario.

Recently, a field investigation has been conducted in Chittagong region. Certainly a bit of concern,

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if not panic, cropped-up about the disastrous episode of an earthquake is epicentred right at Chittagong! My deep concern is focused especially on two areas, one within Chittagong metropolitan city and the other in and around Chittagong University. Before highlighting the earthquake scenario and vulnerability status of Chittagong, I would humbly express that some human activities, out of ignorance, especially the hills cutting and leveling have already increased the vulnerability level of damage in Chittagong. The main concern is with isostatic balancing. The removal of materials from the hills has imbalanced the area significantly from isostatic point of view in addition to its naturally occurring fragile subsurface geologic status.

The information on earthquakes in Chittagong region is available from historical records. It suggests that in December, 1830 Chittagong was affected by severe shocks followed by loud noise from south. Most of the houses were severely cracked with an

estimated ground acceleration of 0.1g. Earthquake was also felt in October, 1842 having ground motion in east-west direction and the vibratory motion in north-south direction. It is reported that clocks were stopped oscillating during earthquake. There were also two earthquakes in the years 1851 and 1865. December, 1865 earthquake was reported to have been the severe one that badly cracked most of the buildings and was accompanied by a noise like that of coming of a northwester. There were five shocks between 07:30 and 10:30 pm. The first one was severe and lasted about 2.5 minutes.

However the past earthquake record does not imply much severity but certainly indicates area vulnerability. In the recent times, last thirty years, improvement of earthquake recording and monitoring facilities globally, however, does not contradict with the earthquake vulnerability status of Chittagong region. The map generated with the earthquake data since 1973 from USGS record suggests that Chittagong

region certainly is characterised by earthquake source zones. These source zones clearly follow a definite trend along well defined faults.

The earthquake of November, 1997 with a magnitude of 6.1 could create much concern because of the sinking of two floors under ground of a five-storey building burying and killing 32 people at Hamzarbagh, Chittagong. The irony is that this earthquake was located (epicentre) far in the east of Bandarban outside the international boundary. Although there was considerable damage and trauma in Bandarban area, it failed to draw much attention. Similarly, July, 1999 Mheshkhali earthquake (Magnitude 5.2) has not been given due attention in spite of widespread damage and loss of property and also lives. The survey in 2000 for earthquake damage estimation revealed that 8000 people in seven unions were severely affected, seven persons died and 24 persons were seriously injured, 1292 houses were fully damaged with 5662 partially, 10 cyclone centres, hospitals, and

other structures were damaged. The estimated financial loss was about 14 million Taka. However, the July 27, 2003 Kolabunia earthquake in Rangamati district with a magnitude of 5.6 could draw the attention due to its widespread damage in terms of collapse of brick and mud houses, occurrence of extensive zones of fractures, large surface craters and series of sand boiling/liquefaction. Although the loss of life and property was much less in comparison to Mheshkhali one, nevertheless it was a wake-up call.

When we look for earthquake damage assessment in and around Chittagong in an impending earthquake, the scenario is quite alarming. There are no scopes of being reluctant as we definitely could locate 7 to 8 epicenters close by Chittagong between 1989 and 2003. Although the magnitudes were only between 4.1 and 4.5, it certainly tells us the existence of source and active fault zones right across Chittagong. The very recent field investigation has revealed that the subsurface condition in some parts of Chittagong city and

Chittagong University campus are quite vulnerable and alarming from earthquake damage point of view. These vulnerable sites are distinctly characterised by faults and lubricating material like clay, mud and shale at very shallow depths. The two subsurface imaging, one from Chittagong city and other from Chittagong University campus reveal very vulnerable sites. However, there is one finding a bit relaxing. The present accumulated strain can only precipitate in an earthquake of maximum magnitude of 6 if it is released in a single event. On the other hand, another finding supports a maximum ground shaking scenario of about 0.4g in some locations of the vulnerable sites on the fault plane. This finding is alarming. The next question is, when the 6 magnitude earthquake would occur? The recurrence time calculation suggests a mean value of 17 years for an earthquake of magnitude between 6 and 6.9 while it is six years for magnitude between 5 and 5.9.

Last but not least, earthquake cannot be prevented but we must be aware of the facts and should plan and execute accordingly in order to minimise the loss of life and property.

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Dr. Rubaiul Murshed

**All health information to keep you up to date**

## Tea or coffee: Limitation is the key

**E**NJOYING breakfast in the morning or 'afternoon special' with a cup of tea is a part of our daily life style. It doesn't matter whether in city, mufassil or village! Consumption of both tea and coffee in Bangladesh like in rest of the world has been increasing considerably over the last few decades. Many people consider tea and coffee as minor stimulants to their stressful life. Some may also discover these as improving the efficacy of minor painkillers and as a good source of certain minerals, especially manganese and fluoride. It is interesting that an average cup of strong tea contains 50 mg and that of coffee 100 mg of caffeine, but there may be some variations.

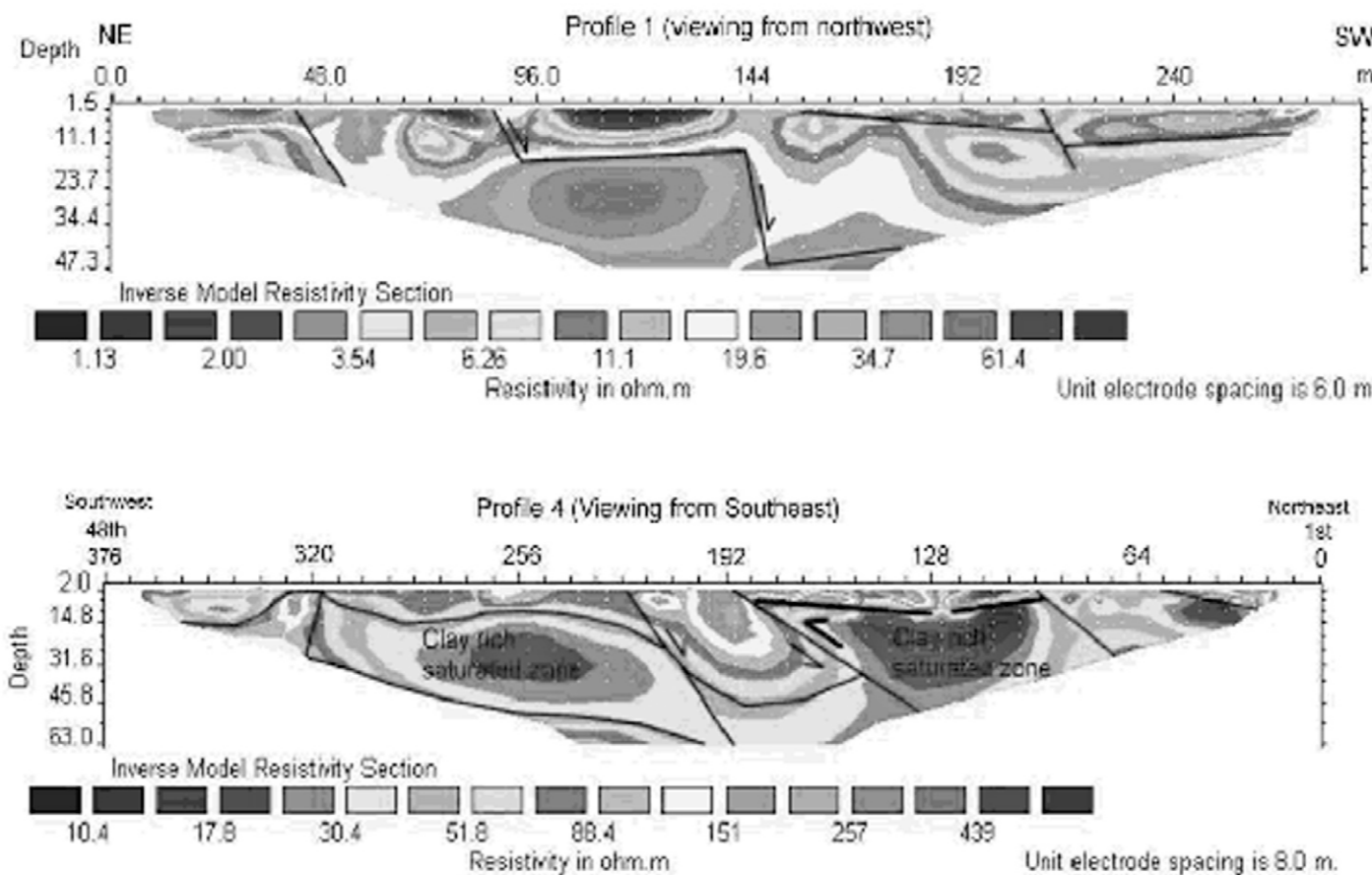
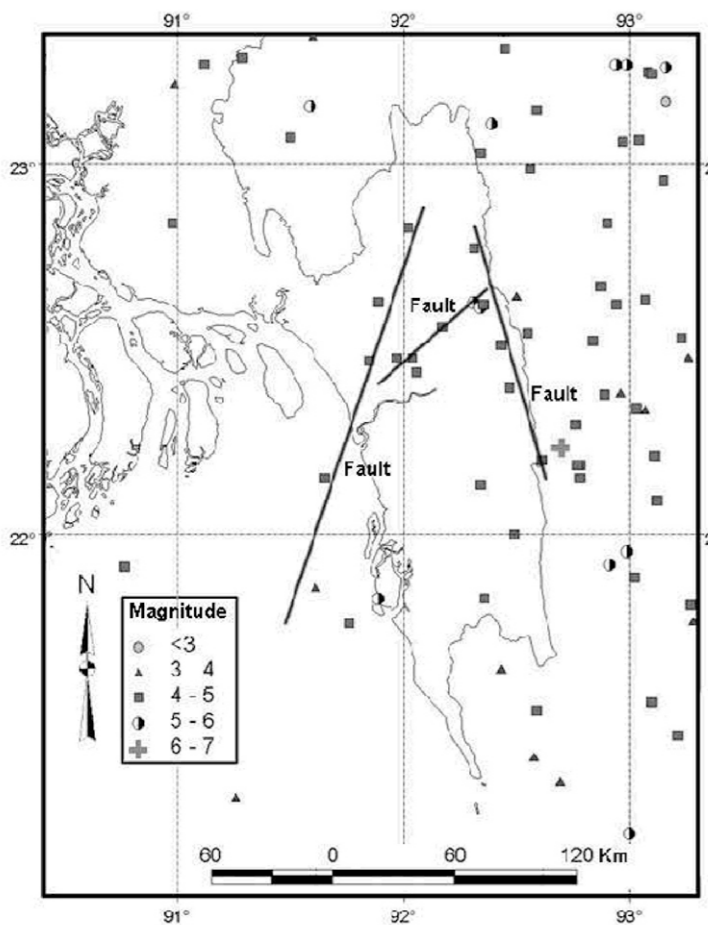
Today the scientists have recognised caffeine as the most widely used psychoactive drug in the world. Caffeine exists in our diet mainly from coffee, tea, chocolate and some (cola) fizzy drinks.

Caffeine has a wide range of stimulus effects on heart, brain and kidney. According to some scientists the routine consumption of caffeine leads to the development of tolerance to the drugs used for cardiovascular and neuro-endocrine disorders. It is said that caffeine is chemically similar to theophylline, a medicine used in treating asthma. In contrast, because of the biological activities of caffeine and related compounds, excess consumption of tea and coffee may have a number of adverse effects. Those who have heart burn or reflux caffeine is not good for them as it is a stimulator of gastric acid secretion. Even in decaffeinated coffee some biologically active agents remain.

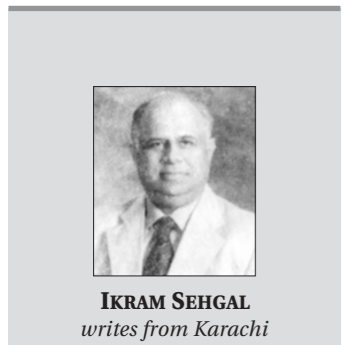
Some scientists believe that tea and coffee also inhibit zinc absorption. Consumption of tea or coffee at mealtime can reduce the amount of iron absorbed from vegetables to one third. So this is not that good specially for women of childbearing age, as they may run the risk of becoming iron deficient. You may also find some people drinking too much coffee suffering from insomnia and passing excessive amounts of urine. Some studies have found abnormal heart rhythms and restless legs at night and some scientists believe that it increases blood cholesterol. In recent times some researchers have found that drinking three or more cups of coffee a day significantly raises 'blood pressure' and increases the risk of coronary heart disease and stroke.

Then again, there is no obvious confirmation so far that caffeine intake is undoubtedly associated with heart disease, hypertension, osteoporosis or high cholesterol. But it is true that the caffeine has complex actions on the circulatory system, and some believe the final effects largely depend upon the dose used and the situation existing at the time of administration. Scientific reports have suggested that pharmacological effects can be experienced from 50 mg upwards, and doses exceeding 250 mg-300mg are likely to produce significant effects.

Sometimes drinking tea or coffee in the presence of the above-mentioned conditions seems conflicting; as we need more epidemiological and clinical data on caffeine consumption that may help to resolve many questions. In fine, this article wants to address public concerns more than the different diversified scientific conclusions. It would be absurd to forget about tea or coffee as a whole, but it is just as absurd to pretend that the above studies do not exist, or that they should not affect drinking either tea or coffee. This is about a 'precautionary approach' to the people who drink tea or coffee a lot, until our gaps in knowledge are filled. But, people who have certain health problems or especially pregnant need to check with a qualified doctor for guidance about their daily tea/coffee consumption. Some people are more sensitive to caffeine's effects than others and may experience effects at smaller doses. So although there are some tasty advantages of tea and coffee, it is better to be aware of its distasteful effects.



# 'Actionable' intelligence



IKRAM SEHGAL  
writes from Karachi

**O**NE of the things common about Pakistan and US has been brought to the surface by the 9/11 Commission: countries fighting the modern version of terrorism need to have far better quality of intelligence than available at present, this must be shared quickly and effectively with the units actually fighting on the ground. The prime requirement of today's war against terrorism is timely "actionable" intelligence. The accountability inherent in any democracy means that the US is doing something about it, public hearings by a bi-partisan blue-ribboned panel has exposed the in-built weaknesses of the entire US intelligence apparatus. While the creation of a new "Homeland Security" Department have resulted in extensive reforms of the entire intelligence system and the observations of the Commission have force-multiplied these reforms, this process may well take several years. The major finding of the Commission was that while there was a proliferation of sporadic intelligence reports, "actionable" intelligence was not available in real-time. Moreover the intelligence reports crucially lacked the projected date, place and method of attack, the process of the jigsaw puzzle were spread over too many departments which were unwilling to share information due to inefficiency, ineptitude or simply inter-departmental jealousy.

One can gather intelligence on an enemy's capabilities in any number of ways, but determining the enemy's intentions is extremely difficult. This was

made more difficult for the US when under the mandate given by US President Carter, CIA Boss Admiral Stansfield Turner virtually dismantled the "human intelligence" assets of the CIA in favour of electronic intelligence. To an extent the ISI suffered a similar fate in losing a whole lot of the field operatives once the first "Afghan cleansing" was done in 1993-94 in the wake of the US threatening to put Pakistan on the list of "terrorist nations".

training of more agents who are capable of penetrating terrorist groups, having more analysts to interpret the information collected on a daily basis, and ensuring that the processed intelligence is immediately and completely shared among those who need it on the frontline of the "war against terrorism". Some of this was seen to good effect in 1994-95 when the Intelligence Bureau (IB) under Maj (Retd) Masood Sharif penetrated the

tation and to conduct reconnaissance, and organise the move of men and material, to put in place escape routes, communications, manpower and equipment, etc and all this without attracting attention of the law enforcement agencies (LEAs). The intelligence apparatus of the State has to work overtime with a positive mindset to search out indicators and leads during this "vulnerable" period. It may seem personnel are easy to hide, nothing is more difficult, the

conclusion every time is not correct. Certain militant religious organisations are engaged in "copycat" atrocities to attract notoriety, e.g. suicide bombings in the mosques.

While there is no "smoking gun" evidence that Al-Qaeda are behind the incidents, one must not detract from the Al-Qaeda threat. Intelligence agencies must function with an open mind without pre-conceived notions, political hits will always attempt

beyond the planning stage of their intended operations.

Analysts make their best estimates, the leaders must use these estimates for quick decision-making in the circumstances availing. Intelligence is an art not a science, not even an inexact one. Under adverse circumstances the making of sound decisions requires both courageous leadership and excellent judgement. The dictionary meaning of judgement is "arriving at a decision or conclusion on the basis of indications and probabilities when the facts are not clearly ascertained". One can only ensure that leaders take correct decision if the intelligence agencies make definite improvements in the quality of "actionable" intelligence.

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## AS I SEE IT

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Penetrating an enemy organisation to ascertain the enemy's capabilities and intention requires human intelligence ("humint"), electronic intelligence can kick open the door, you need boots on the ground to go through that door. Only "humint" can discover not only what the enemy can do but what he plans to do, and find out the where and the when. The US has discovered this weakness at grievous cost, first in Afghanistan and then in Iraq.

Contrary to universal perception, the ISI was virtually without any intelligence assets in Afghanistan pre and post 9/11. This has put tremendous pressure on the intelligence community to deliver "actionable" intelligence, leading to atrocities like Abu Ghraib. People generally assume that intelligence is like a jigsaw puzzle and it is not possible to act till the last piece of the puzzle is in place. It is an extremely dangerous assumption to equate "actionable intelligence" with "complete intelligence", the US has paid dearly for it through the 9/11 attacks.

Overhauling/re-organisation will mean improved intelligence to cope with the new demands, requiring the recruiting and

militants in Karachi to devastation effect. What is stopping the government from using his services again? During wartime, and we are at war, the country needs to use its best available talent and resources irrespective of political leaning and beliefs. Intelligence must be available to the leaders in quality more than quantity for quick decision-making, it being understood that absolutely perfect intelligence may not be attainable. Improved intelligence gathering, analysis and sharing thereof is even then unlikely to give the detailed picture required, the agencies will certainly have to perform far better than they have done till date.

The only time a terrorist attack can be prevented is in the planning stage, this could be over in a few days or even extend to several years. Once the planning is done a different group will be involved in carrying out the attack and it would be difficult to recognise the people because they may not be of the same group that did the planning. During the planning stage, there is need for terrorist managers for logistics management, to designate personnel, weapons and equipment, to acquire transport

only period that the terrorists are really susceptible to interdiction is during the planning stage.

Recent incidents need to be enquired into and studied in some detail, viz (1) the two assassination attempts on the President in Rawalpindi, (2) the murder of MMA notable Mufti Shamzai in Karachi, (3) the attempted assassination of the Commander 5 Corps in Karachi and (4) the murder of PPP leader Munawar Suharwardi in Karachi. While the assassination attempts on the President was clearly Al-Qaeda, the Karachi incidents seemed to be crude attempts to put the blame on Al-Qaeda. If Al-Qaeda is sophisticated as they are advertised to be they would be stupid to attempt anything in Karachi; this happens to be their primary conduit for logistics and at one time served (and maybe still serves) as a major base for their "safe houses". After any incident in Karachi, the LEAs invariably manage to discover one or two Al-Qaeda safe houses and some of their operatives were killed/captured for the crimes of others. Why should they invite attention? It is true that Karachi has sectarian violence and has had its fair share of ethnic trouble; however, to jump to the Al-Qaeda

to shift blame to sectarian or Al-Qaeda violence to avoid feeling the heat of subsequent investigations.

The actual participants of the attempted hit on the Corps Commander have been rounded up, they must be squeezed for a wealth of information. The agencies have to shun Marquess of Queensbury rules, too many lives are at stake, too much is at stake for the city of Karachi. After all, the participants had to have motivation from someone and somewhere, a lot must have gone into planning and logistics. All these require funds, funds have to be transferred by some means. Every Police Station in the country has good information on people who live in their area, strangers moving into any locality excite immediate attention. The terrorists have to engage in some activity in pursuing their objectives, to show their heads above the "grass", how long will they lie low? Only by quickly bringing in specialist agencies that have the experience and expertise will this intelligence become "actionable", it then depends upon the agencies how well to exploit this "actionable intelligence" to ensure that terrorists do not go