No to War, Yes to Peace

by Dr Mubashir Hasan

Pakistan's foreign minister must not return without some achievement. The difficulties in his way may be Karakoramarian but rewards in store for the people of the subcontinent would be Himalayan. He would be talking to foreign minister Jaswant Singh, one of the most able and urbane foreign ministers India has ever had and who has shown due restraint during the last weeks in his comments on the current situation.

FOREIGN minister Sartaj Aziz is planning to go to India in the next few days at a very delicate juncture in the process that was initiated by the prime ministers of Pakistan and India last February. All credit to him if he succeeds in landing at the Indira Gandhi international airport. He should be prepared for a modest reception.

Pakistan's foreign minister must not return without some achievement. The difficulties in his way may be Karakoramarian but rewards in store for the people of the subcontinent would be Himalayan. He would be talking to foreign minister Jaswant Singh, one of the most able and urbane foreign ministers India has ever had and who has shown due restraint during the last weeks in his comments on the current situation.

The foreign minister should have no difficulty in explaining to India that Pakistan has not done anything unusual following the snow melt this year. The Mujahideen have been waging their struggle all over Kashmir for many years. It so happens that this time the Kargil-Dras sector is in focus. One can be sure that India realizes hat politically and physically it is not possible for Pakistan to seal the Line of Control, even if it wants to any time in future, must as it is not possible for India to do the same with all its manpower and resources.

As one politician to another, the Muslim League foreign minister should keep in mind that the action of the Mujahideen has put the BJP government in a not very enviable position domestically. The matter would welcome any proposal, scheme or declaration that would go to help Prime Minister Vajpayee's party in the next polls. The Indian side may be in a better position to hint at such an initiative. Pakistan should seek it out, if necessary privately.

One sure way for the BJP government to win the elections next September would be to go for a big score on the negotiating table within the next two months. It would be big blow for its opponents. A big score for peace would be a big score for the region as a whole. It would be above partisan politics. The situation calls for bold measures. Last February the BJP government was favourably inclined in that direction. Nothing has happened to change the logic of its decision earlier this year. Indeed, it was India's decision and not merely of the BJP.

It is no use denying the political difficulties in the way. There are powerful entities in Pakistan just as there are in India who do not favour a solution of the Kashmir dispute except on extreme terms. However, that is a historical position. New is the stand taken by Prime Minister Nawaz Sharif's government. Prime Minister Vajpayee had responded to Pakistan's new stance and offered one of his own. There should be no going back.

The importance of some sort of a united approach by India and Pakistan on the nuclear issue is also of far-reaching and emergent importance. Such an approach has nightmarish prospects for the big nuclear powers. They are scared of India's advances in the nuclear and missile development fields. Under the doctrine of threat perception, the security of the sea lanes of oil in the Arabian Sea and the Indian Ocean is in jeopardy. They would go to any length to keep India and Pakistan at loggerheads. They would not mind the Kashmir issue remaining unsolved as long as they can prevent India and Pakistan from going to war.

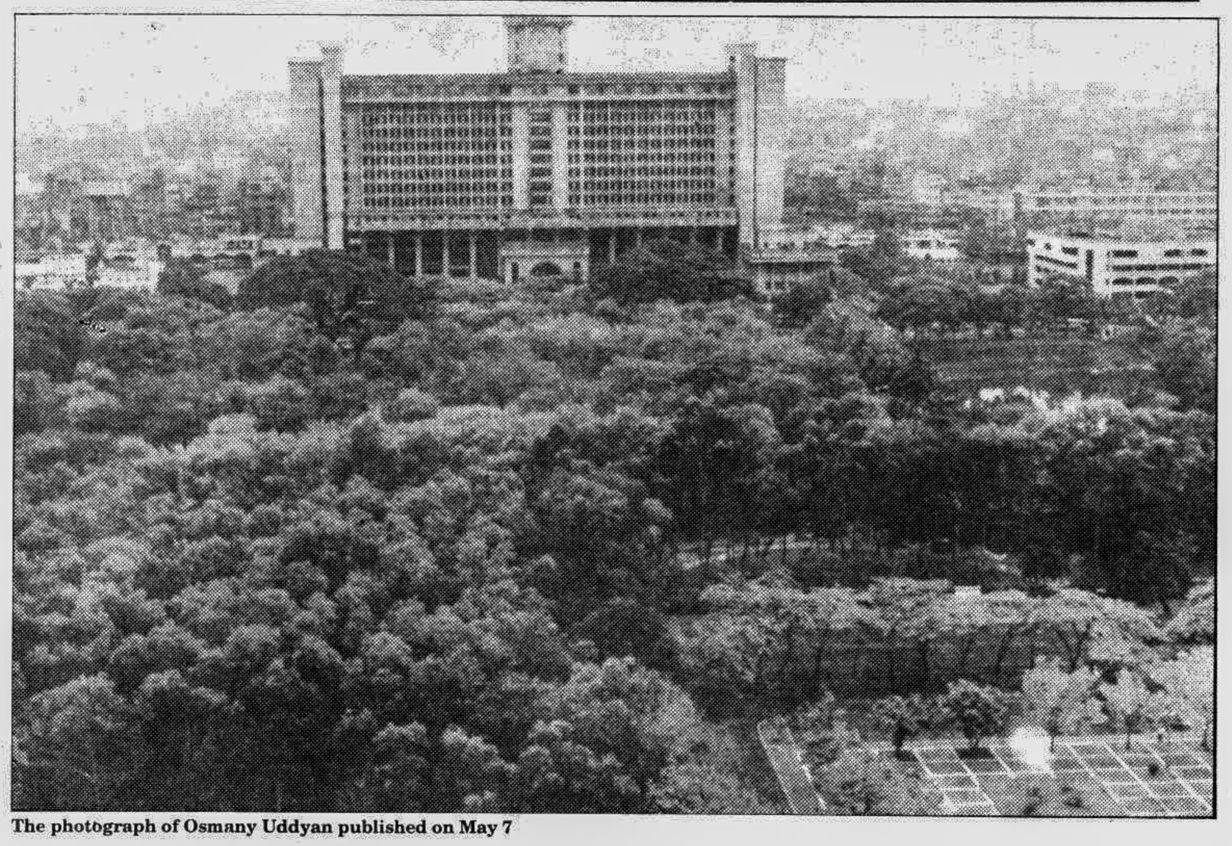
The two foreign ministers would do well to talk about agreements that would keep them away from war. Thus agreements on prevention and avoidance of any kind of hostilities and on a united approach on the nuclear question are two extremely important issues on which the two foreign ministers may well concentrate. Let them initiate talks that would give good news during July 1999. Let them decide to resume the stalled talks immediately.

Courtesy: The Dawn of Pakistan

Open Spaces, Closed Minds

by Kazi Khaleed Ashraf

The crisis at Osmani Uddyan is a litmus test of things to come. Building of a conference centre there will be a great opportunity missed, and at the same time, can be a permanent dark blotch on the body of the city.



The photograph of Osmany Uddyan published on May 7

ONE should get credit where one is due. The holding of the Non-Aligned Movement Summit in Dhaka is certainly a prestigious event, and the present government gets high marks for hosting it. In the same token, one should express concern where one is pending. The decision to build an international conference centre at Osmani Uddyan for the Summit seems extremely flawed, and by now from the flood of criticisms, most distressful to the people of Dhaka.

The outrage arises from a number of reasons. The most spontaneous reaction is to the plan to cut down those magnificent sesul trees in the Uddyan that contributes to an ecological and visual well-being. The photograph on the first page of *The Daily Star* (May 7) was the most poignant image that I have ever seen, a scene of what was to be sacrificed. Another reaction focuses on the impending loss of an open park area. The devouring of open spaces in the city has taken epidemic form in recent times. What makes it frustrating in this case is that the authorities themselves are championing the misdeed. Other reactions point to the rather vehement and short-sighted nature of deciding where and what kind of centre this is going to be. The Chinese are able builders (apparently they will construct the Centre), but one cannot commend them on their current architectural prowess. Who knows what horrid, bureaucratic architecture will replace that arboreal oasis. Prepare yourself for another blistering barnacle on the body of Dhaka.

All these point to deeper crises in the life of our city. From a very decent and livable city, Dhaka has quickly become the most anarchic and uncivil city in the world. We thank all our past and present leaders —mayors and martial law administrators, planners and developers, bureaucrats and commissioners — for taking us down that hellish road. As we feel gratified that we are the happiest lot on earth, we should also celebrate that our prime city is one huge environmental time-bomb —spewing sewage, fuming gases, berserk traffic, dwindling foliage, swindled spaces. Surpassing Mexico City, or Bangkok, Dhaka is proudly on its way to becoming a premier urban apocalypse. Someone aptly remarked recently, "Living in Dhaka city is like living in a gas chamber." So much for that "tilottama" business.

The key problem about Dhaka is that there is no particular vision about what we want this city to be, and consequently no well-meaning development plans to carry it out. There is no serious thinking on how should it grow, what should be developed and how, how the roads are going to be, what should be the nature of housing and residential areas, and how are the open spaces to be preserved and organized. There is, in short, no long-term idea for Dhaka, where do we want to take it in say twenty years? What we have are ad hoc, piecemeal, and, at best, ill-motivated schemes. There is something of a Master Plan, the so-called DMDP, a set of inane, unimaginative, and lackadaisical proposals produced by some third-rate British consulting firm and endorsed by a luminous group of elite. The production of a city needs the finest thinking and the profoundest vision, and the deepest commitment to carry it out. Unfortunately, we see none of that for our capital city.

[Cut to trees, and to that glorious image in *The Daily Star*.] Three for one, anyone? Three trees are to be planted for every tree felled, so goes the barter deal. Very soon, as every open space in the city is devoured on some pretext or another, it will be necessary to plant trees on people's heads. Trees are essential but that is not the issue (some of tree-aligned statements have been quite overly nostalgic and romantic). NAM summit is certainly prestigious, but after a while what does it matter. What truly matters here are open spaces and urban places, and how critical they are to the life-blood of the city.

The Daily Star elegiac photograph was a stunning one. I must confess I was shamed. As an architect, as someone who thinks who understands cities and how they work, I should have conceived that compelling image, and pleaded at the outset to save whatever is left of Dhaka. But I relented... I suppose we have been reduced to catatonic creatures, dying every day bit by bit, feeling less and less for what is meaningful and essential in our lives. How long can one put up a struggle when the city is being ravaged relentlessly, being corroded, maimed, and vandalized every day by its own ruthless citizens and captains?

It seems that this city has an antipathy to open spaces of all kinds. Notice how fast they have been disappearing in the last ten years or so. All the ancient canals in Dhaka city have been filled up much earlier. I haven't been to Ali Mian's Talao in ages. Does it exist anymore? Even Suhrawardi Uddyan has been encroached upon by all kinds of structures, including the Engineers' Institute. Abahoni Field in Dhanmondi is continuously becoming a chain of buildings when just a spectators' pavilion would have been enough. The field on Road No 8 disappeared under the continuous onslaught of money-generating stalls for exhibitions and performances (what a pleasant change of scenario when the removal of ugly chhapra-like stalls, following a newspaper feature, revealed a still-green field with the sudden stream of young footballers and cricketers). The rapine of the lakes in Gulshan and Baridhara is now an open public display. Even the rivers do not run free, their banks and even their bellies are being forcibly occupied. How many of the younger generation know that Dhaka is situated on the bank of a great river?

Two urban spaces — South Plaza and Crescent Lake, both in Sherebanglanagar — still remain intact and immensely popular as planned public places integrated by parks, walkways, orchards, and lakes. Such urban spaces in the city, as Central Park in Manhattan (and all the smaller parks and gardens in that amazingly complex city), the vast Fairmount Park in Philadelphia (the most "green" city I have ever experienced), the Maidan in Calcutta (dubbed the most livable city in India), prove how essential they are for the well-being of its citizens, and the pragmatic, psychological, and mystical functioning of the city. But then, one fears, for how long. The decision to build on Osmani Uddyan proves that a seemingly responsible government, instead of turning the tide of a pillage, can decide to join it. What a sad, sad day for the city of Dhaka.

[Flashback to Osmani Uddyan.] From all architectural and urban considerations, Osmani Uddyan is the poorest choice for a site for an international conference centre. Most of the area around the Uddyan is already densely built, and packed with places of intense public gathering (like Baitul Mukarram mosque, Stadium, Osmani Hall, Gulistan markets, and the Secretariat). The traffic condition in the area is beyond anyone's control (excepting the "royal road"). Has anyone calculated the increase in vehicular traffic in the area during conference occasions, and how to get in and out of there? No thoughtful planner will endorse intensifying such an existing core in a city like Dhaka. An international conference centre at Osmani Uddyan will contribute nothing remarkable to the larger urban situation, other than adding, without doubt, to the nightmares of Dhaka.

The alternative seems quite a simple one, and yet so promising: To build the NAM conference centre in a relatively underdeveloped area so as to create a new urban focus, and thus transform the region around it (a number of such sites have already been suggested). Large-scale urban projects, such as these, can be effectively utilized for redirecting the dynamics of a city in positive ways, by creating new urban subcentres that distribute the pressures from existing, overused, and paralyzed city cores. The creation of the Curzon Hall area in 1910, New Market in the 1950s, Sherebanglanagar in the 1960s did just that. They were built for a particular function, but in addition they became powerful urban icons, generating and orienting new growth spurs for the city (ironically, they were undertaken by alien governments but with a greater vision of the city). In our country, and in Dhaka, where such large-scale urban projects are rarely taken (primarily for financial incapacity), the building of the NAM conference centre should have been enthusiastically embraced for being a potential catalyst to transform, even if partially, a maddening city. As an urban subcentre, if located properly, it could develop into a cluster of conference halls, institutions, hotels, commercial places, even some housing, in short, a model of an urban ensemble.

A great city is never made from some lame ad hoc plans. The city is who we are, it is the most autobiographical expression of its inhabitants. It is as boundless and illuminating as their vision and imagination, and as wearisome and malefic as their greed and short-sightedness. The crisis at Osmani Uddyan is a litmus test of things to come. Building of a conference centre there will be a great opportunity missed, and at the same time, can be a permanent dark blotch on the body of the city. In the long run, it is not only about open spaces and trees, but about what the government is thinking about the fate and future of our cities.

The writer is an architect and architectural writer. He is currently at the University of Pennsylvania in Philadelphia.

Arsenic Study in Bangladesh

Some Comments

by Md Khalequzzaman

More study need to be carried out to better understand the spatial-temporal variability and the controlling geologic factors of arsenic contamination in Bangladesh.

ARSENIC contamination of groundwater in Bangladesh is now a well established fact of life. Preventive measures are imperative. However, before designing any successful arsenic mitigation plan it is necessary to determine the extent of the problem, as well as the geologic factors that control the source and mobility of arsenic in groundwater. Many studies are conducted and many others are underway to achieve this goal. In April 1997 a World Bank Fact Finding Mission visited Bangladesh to assess the situation and to initiate a mitigation programme. As a part of the "Rapid Investigation Programme" recommended by the World Bank, the UK Department for International Development (DFID) agreed to finance a project to evaluate the arsenic contamination. On behalf of the Government of Bangladesh (GOB), DFID appointed British Geological Survey (BGS) as overall consultants for the study. BGS in turn appointed Mott McDonald Ltd (MML) to carry out the bulk of the Phase I work. Recently, MML have submitted a report of Phase I.

I have read the "Executive Summary of the Main Report of Phase I, Groundwater Studies of Arsenic Contamination in Bangladesh" by BGS and MML for the GOB. This report is the most comprehensive compilation of pre-existing data and the results of new analyses on groundwater collected from Bangladesh. Both BGS and MML deserve a round of applause. They did a great job in summarizing the extent of the arsenic problem in Bangladesh. I understand that this is an executive summary of the first of two phase reports, and that a five-volume report is available for purchase. Although the full report probably has a detail explanation of all the findings, the executive summary stands alone and should be internally consistent with the elaborate report. It is based on this premise that I decided to make a few comments on the summary. I have organized my comments on various topics in the same order that the writers used in their table of content. However, I did not make comments on each topic listed on the table of content.

Review of existing data: Based on existing data it appears that arsenic contamination is maximum in the southern and northeastern Bangladesh at a depth of 10 to 100 meters. However, the authors mentioned the spatial variability and patchy nature of arsenic distribution. According to earlier reports by other authors and organizations (NIPSOM, DCH, etc.), arsenic contamination is very high in southwestern districts as well. According to the report, Arsenic seems to be of geologic origin. Sediments deposited on delta plain and coastal plain in Bangladesh originate in various parts of the Himalayas and are carried by rivers that flow through India. To understand the full extent of the spatial distribution of arsenic and the geochemical processes that control the transport and sink of arsenic, one will need to analyze both sediment types and arsenic concentrations in water for the entire Ganges-Brahmaputra-Meghna watersheds. If arsenic solely originates by adsorption-desorption of arsenic-rich iron oxyhydroxides then arsenic must be present in the aquifers of the entire watershed. Is it the case? We know that arsenic contamination is a problem in some parts of West Bengal. Did anyone look for arsenic in groundwater in, say, Uttar Prodesh, Bihar, Assam, Tripura. Geologic processes (such as flooding, arsenic contamination, etc.) are not bounded by political boundaries. We need to know the nature of distribution of arsenic at various reaches of the watersheds — from the place of origin (Himalayas) to the various depositional environments in India and Bangladesh. As the surface water and groundwater flow from outside Bangladesh, do the concentrations of arsenic increase or decrease? What geochemical processes are dominant along the flow path of groundwater?

Collection of existing data: It is mentioned in the summary that "the groundwaters in regional survey have characteristics typical of reduced groundwater: high dissolved iron, manganese, and low sulphate concentrations." Since the data were collected by various organizations, how could the author possibly know how reduced the groundwater was at the time of collection? Arsenic is a very redox sensitive element and its mobility and speciations are very much controlled by pH and Eh of the groundwater. This summary does not mention the pH and Eh range at the time of collection. These measurements should be done in the field, not in the lab, using flow-through cell, which are also used to measure other sensitive field parameters, such as pH, Temperature, dissolved oxygen, and total dissolved solid. The type of dissolved iron species are also pH-Eh sensitive and are important in arsenic mobility. It is not clear from this summary as to what methods or measures were taken to ensure the quality of these measurements.

Small-scale variability: the special study areas:

Approximately 50 wells per thana (Nawabganj, Faridpur, and Laksmipur) were studied in greater detail to determine the small-scale variability in arsenic contamination. Lithologic logs were examined to determine the structure and continuity of aquifers. It is not clear if new wells were dug for this purpose. I have serious concern about pre-existing lithologic logs in Bangladesh. Firstly, to my knowledge (I worked for a relevant GOB organization) no detail lithologic logs are kept by DPHE. A lithologic log described by engineers or drilling technicians generally do not serve the purpose of understanding geologic nature of sediments and the depositional environments that various lithosomes represent. Lithologic logs described by geologists/hydrogeologists can only be used for this purpose. In addition, privately dug hand-pump owners do not keep any lithologic logs. They dig their wells based on experience about the water-bearing sand layer in a locality. Secondly, examination of pre-existing logs is not adequate to understand small-scale variability in mineral composition, because those logs were not meant to be used for such detail analyses. Thirdly, one log per 7 km2 is not adequate for small-scale variability or arsenic concentration. Several dozens of monitoring wells need to be placed around a hot spot (both up-gradient and down-gradient of the flow) of contamination — more like studying a plume from a landfill and leaking underground storage tank.

The summary also mentions that "not all of the wells in the hot spot are contaminated, but some are." The question is why? Obviously, there are geochemical variations in terms of mineral composition, extent of aquifer vs. aquiclude materials, organic content, pH-Eh, etc., which need to be determined.

The sedimentary depositions in a delta plain or coastal plain show a great deal of variability in terms of facies change. A simple layer-cake approach in analyzing spatial and temporal variability in the aquifer materials will lead to erroneous conclusions. This perspective seems to be missing from this summary report. To get a better understanding of the subsurface geology of Bangladesh, without which it will not be possible to understand the spatial and temporal variability of Arsenic contamination, a series of new wells will have to be dug and detail lithologic logs maintained by professional geologists. Once there are enough geologic control of the aquifers, then the pre-existing lithologic logs can be used to supplement the newly acquired data.

Geologic sources of arsenic: According to the summary, a high proportion of the arsenic in the sediments is present as adsorbed arsenic. This would not be true of arsenic present in primary minerals such as arsenic-rich pyrite. Arsenic can be derived from both adsorbed arsenic (e.g. in pH >8 and Eh <- 250 mv) and from arseno-pyrite by oxidation. Therefore, it cannot be concluded as to what is the major mechanism by which arsenic is being introduced in groundwater in Bangladesh. My understanding is that depending on Eh-pH conditions and other mineralogic parameters (e.g. amount of dissolved iron species, sulfate or phosphate present), arsenic mobility and chemistry varies from place to place and from surface water to aquifers.

The summary mentions about "physical separation of sediments during their transport and reworking in the delta region has resulted in a separation of arsenic-rich minerals in fine-grain sediments in lower part of the delta." According to the summary, "this is likely to be responsible for the greater contamination in the south and east of Bangladesh". This is probably true, however, the delta has been prograding over geologic time. As a result, the areas that are located inland at the present time used to be the lower reaches of delta in the past. Before any such generalization can be made, it will be necessary to determine the paleogeographic maps showing locations of various environments of the delta for various geologic times. To my knowledge, no such study has been done in great detail.

This summary also makes some comments about the sea-level fluctuations and its impact on arsenic concentration. According to the summary "all highly contaminated groundwater occurs in sediments deposited since last glacial period, i.e. 18,000 years ago. This is a very naïve statement and lot more need to be understood (such as, ages of various layers and groundwater, paleogeographic reconstruction of the delta as mentioned earlier, occurrence of arsenic in incised valley-fill deposits, etc.). In addition, the location of lower part of the delta must have been beyond the "Swatch of No Ground" in the Bay of Bengal — not inland — during the low sea-level stand.

Influence of pumping and irrigation: According to the summary, "older wells are more likely to be contaminated than recently constructed ones." Why? No explanation was offered. Also, many older wells are constructed using metallic pipes. It need to be studied to see if corrosion of the pipes accelerate or enhance arsenic contamination. It is not known if the type of pipes (PVC vs. metallic) makes any difference in contamination.

Although it seems that shallow wells are more contaminated than the deeper ones, it cannot be concluded that all deep aquifers are safe, especially when reduced conditions (deeper wells must be more reduced than the shallower ones) control arsenic contamination and mobility.

Solutions?:

Based on the extent of arsenic problem in Bangladesh and based on the complexity of arsenic mobility in groundwater, it appears to me that it is almost impossible to treat the aquifers in Bangladesh by any treatment procedure that is currently available. Our only option is to treat the pumped water at point of entry (POE) or point of use (POU). Ferric hydroxide, Fe(OH)3, apparently is the best sorbent of arsenic at low pH<8. Ferric hydroxide, which is very abundant in red soil of, say, Savar, Madhupur Garh, and the Barind Tract probably can be used in filtering mechanism. Since arsenic is a redox sensitive element and since our treatment will have to occur on surface water, any adsorption reaction that is feasible at high Eh (oxidizing environment) will be the only one that can be used. Ferric iron (as opposed to ferrous iron) is stable under high Eh.

Conclusions: While I think the BGS and Mott McDonalds' report is a very good compilation of existing data, it raises more questions pertaining to their interpretation of geologic nature and its relevance to arsenic contamination in Bangladesh than it answers. More study need to be carried out to better understand the spatial-temporal variability and the controlling geologic factors of arsenic contamination in Bangladesh. This report is a first step in the right direction. A holistic approach is necessary to solve the arsenic disaster in Bangladesh. Hopefully, the questions raised will be addressed or answered by the authority concerned before proceeding to the second phase of the arsenic study in Bangladesh.

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