

For saving the city water bodies



Md. Asadullah Khan

If a city has a memory, then the Thames would be always a part of the London's eternal psyche. For Paris, so would the Seine be. For Toronto, the lake Ontario, for Chicago, the lake Michigan, and for New York, the Hudson with its slow underflow. Great cities on great rivers and waterbodies. And for Dhaka, there is the river Buriganga. But rarely does anyone living in Dhaka city and its satellite towns realise that it has rivers like Buriganga, Shitalakha and some lakes around. These waterbodies refresh the mind of the people, offer recreational facilities and more so rejuvenate their spirit in a city gone mad with construction of multi-storied apartment blocks leaving no breathing space for the dwellers.

In our country, especially in Dhaka city, such water bodies as Gulshan-Baridhara lake and Uttara lake in the outskirts that still remain escaping human settlement and greed of the land grabbers are being polluted at will. Unhappily for the residents of Uttara, Gulshan and Baridhara and



Pollutants accumulating in the lake.

Worsening civic and environmental conditions and lack of civic amenities have nudged citizens across the region out of their slumber. With Uttara Association, the central body representing sector Kalyan Samities, as the nodal agency, 'Uttara Lake Bachao Andolan' committee formed in December, 2005 have launched massive awareness campaign to jolt communities and public leaders to action. Could there be someone from the industrial conglomerates, banks, business community, NGOs and public leaders who would come forward to save these water bodies, the essence of life in a polluted city? If RAJUK, Dhaka City Corporation and WASA, the trio individually or together cannot cope with the enormous task with their own resources then they should invite such public participation, themselves remaining as facilitators, as they did for the beautification work of the city on the eve of the SAARC Summit.

Badda, these water bodies are now a lifeless receptacle of human wastes. Uttara township that was once conceived to be a model town as per the original Master Plan has turned into a cluster of apartments, shopping malls, clinics and schools with densely packed surroundings. Added to this is the menacing proliferation of garments, dyeing and knitwear industries growing up cheek by jowl with residential houses. In absence of proper drainage system for disposal of the wastes, industry owners as well as residents drain out the waste water and other wastes into the Uttara lake. Once a source of pure and transparent water, Uttara lake today is full of raw sewage and toxic waste.

For centuries, waters in lakes and rivers of this country have meant purity and life. But shockingly, poisoned waters in the Uttara or Gulshan lake now symbolise not life but death. Sadly true, there is little original water left in the Uttara lake, only narrow streams of sewage and industrial waste water that's pumped continuously into these glorified sewers.

These waterbodies have long had the capacity of self-purification -- pollutants diluted and slowly absorbed -- but with the rivers like Balu and Turag that once flowed into these lakes now drying up because of indiscriminate encroachments near Ashulia and adjoining places and waste water discharges increasing by the day, the death of these lakes seems as the only possibility.

Uttara lake is a large water body, almost 5 km in length and 200m wide stretching from one end of the sector no.3 and running straight across the middle of sectors nos. 5, 7, 13 and 11. It could have been, if properly preserved, a pure surface water source. Uttara is now a vast residential area inhabited by about 3 million elite citizens mostly comprising retired high level government officers, doctors, engineers, teachers of universities and colleges, lawyers and well-meaning businessmen. But in total violation of the original Master Plan because of the pressure mounted by say, ministers and high ups in the government, during the last 20 years, RAJUK allotted plots for housing to influential groups on spaces earmarked for market, play ground, parks and schools or even burial ground. With houses built cheek by jowl, the whole residential area looks macabre.

Irrational housing plan, absence of adequate sewer lines and most notably lack of urban vision and environmental concerns make a mockery of model town requirements. Precisely speaking, the grand plan of the visionaries of those days for Uttara has burst into an illusion. In the face of mounting protests by the conscious dwellers, encroachment attempts on the lake had stopped for some time. But it has again gained momentum. Defying the Supreme Court injunction of March 19, 2005 on the basis of a

writ petition filed by BELA in matters of filling up the lake by some groups having backing from the high ups, filling of the lakeside in the same contentious plots has again started in sector no. 3. No sooner had these fake owners, based on unauthorised allotment started their work again in full gusto, local residents filed a G.D in Uttara Thana enclosing the Apex Court order but that complaint seems to have fallen on deaf ears.

With such encroachments of the lake going apace and waste water, garbage and piling materials finding way into the lake from different sectors, the bed of the lake has been raised. The lake that exists today by name only is just a cess-pool of blackish stagnant water. Thanks to the enterprising efforts of some residents in the adjoining sectors, RAJUK completed the construction of a mini park with a 550m long walkway in sector no. 13 by the side of the lake, covered by plantations of trees and flower plants undertaken by Dhaka Forestry Division. This seems to be the only breathing space for the residents of Uttara on the western side of the Dhaka-Tongi highway. But pathetically true, breathing has become difficult because of the horrible stench coming from the polluted toxic water of the lake.

The situation poses a major threat to the health of the children living amidst such unsanitary condition. One tends to believe that the vision of hell that urban Bangladesh has really become is mainly because development has taken place before planning. Astoundingly, none and most notably our national leaders, many of whom reside in these areas, notice that they have allowed their housing areas to become a vast squalid wasteland with everyone closing his/her eyes to the importance of town planning. Unfortunately, protest rallies,

human chain, media reports, editorial comments and columns pinpointing the abysmal work going unabated, specially in this so-called model town, have yielded no response from the authorities concerned.

Happily, records abound in stories that recount the role of lakes in creating the Indian history. Historians think that it is possible that the sound of gentle ripples softly lapping against pebbles may have lulled Rani Laxmi Bai into a reverie in which she saw an India throwing off the colonial yoke. The intrepid 19th century queen, the sword wielding icon of resistance to the British spent a great deal of time by the lake in Jhansi. The beauty of the place was invigorating since the shimmering water and lush greenery around captivated human imagination. But the Laxmi Tal, as the lake is known, was reduced to a cesspool covered by unyielding stretches of water hyacinth and wastes flowing into it from all directions. Rajneesh Dubey, district magistrate of Jhansi at the time took it upon himself to revitalise this historical water body that was later named as Lake Placid.

While on a tour to different regions of Jhansi district as Dubey stood on the banks of the lake, the foetid stench of the rotting plants and solid waste made him realise the task he was to shoulder. Dubey, mindful of the lake's significance, wondered what the 175-year old lake must have once looked like and what he could do to save it. But aware of the fact that securing government fund to clean the lake would be difficult, he instead turned to the public to carry out the campaign early in 2002. Responding to his plan, traders, professionals, Bundelkhand University students and even housewives stepped



Uttara Lake: Like other water bodies in the city is refreshing but threatened.

forward as volunteers. Finance was not the issue at all as the local citizenry rose to the occasion. Petrol dealers provided fuel for the huge JCB machines that removed the slush and garbage, the Crushers Association supplied tractor trolleys and NGOs provided lunch packets for those at work. The government here worked as a facilitator.

The recovery of the lake was by no means an easy task as the discharge from about a dozen drains in the city had been emptying into the lake for decades. There is something more for us to learn if we ever set ourselves in recovering the Uttara or Gulshan lake considered by many as pristine possessions for this historical city. Dubey's work, away from our country may be inspiring and might revive the concept of community living in our environment that seems to be on the wane because of our entrenched self-interest in every pie. As it appears today, whether it is an environmental disaster, a calamity, a dowry death or even taps running dry, we are used to seeing a Bangladesh buckling under. With outstretched hands lamenting the lack of government largesse, we take everything as fait

accompli. That mindset has to be changed.

The failure of the government's development efforts clearly has more to do with systems and less with resources. There must be some people around us or some enterprising individuals like Dubey who pioneered the work for the revival of the Lake Placid or Aradhana Shukla eloquently named for recovery of Naini Tal Lake in Uttaranchal in India who can lead the transformation of the area from urban chaos to a model township. The current system underestimates the community's ability to contribute. Finance is not the issue. More important is participation, for them to see that things can be changed. Precisely speaking, Uttara lake or Gulshan Baridhara lake or even the river Buriganga can be revived by community participation. This is true at a time when politics is defined and understood as nothing beyond elections and the art of cobbling a majority.

There are very few opportunities available within this system for bridging about basic change. Which is why disenchanted people are turning to community initiatives. Citizens are indeed stepping

out. In a departure from the past, Uttara residents aren't resigning to their fate. Worsening civic and environmental conditions and lack of civic amenities have nudged citizens across the region out of their slumber. With Uttara Association, the central body representing sector Kalyan Samities, as the nodal agency, 'Uttara Lake Bachao Andolan' committee formed in December, 2005 have launched massive awareness campaign to jolt communities and public leaders to action. Could there be someone from the industrial conglomerates, banks, business community, NGOs and public leaders who would come forward to save these water bodies, the essence of life in a polluted city? If RAJUK, Dhaka City Corporation and WASA, the trio individually or together cannot cope with the enormous task with their own resources then they should invite such public participation, themselves remaining as facilitators, as they did for the beautification work of the city on the eve of the SAARC Summit.

Md Asadullah Khan is a former teacher of physics and Controller of Examinations, BUET. He can be reached at asad_k@bangla.net

Our dry season water needs

LAMYEA BINTEA ALI

BD is situated in the delta of one of the world's largest river systems dominated by three mighty rivers -- the Ganges, the Brahmaputra and the Meghna. As a consequence of being riverine, its socio-economic activities has been defined by the river systems from the ancient times. The rivers play the dominating role in its ecology and environment. Agriculture and fishery are still the two major sectors influencing the economy of the country. Both dependable on water the main source of which are its rivers. Attributable to seasonal variation, the fluctuation in the supply of water becomes distinct. During monsoon (June-October), excessive rainfall results into overflow of rivers, causing flood that leads to destruction of properties and lives as well. Consequently, Bangladesh is known as a nation recurrently subjected to devastating floods. Hence it is difficult to visualise water scarcity in Bangladesh, which has become one of the severe in recent years. Monsoon (wet season) is followed by dry season (winter included). At the end of dry season, during summer after it turns into drought.

The nation's water resources provide multitude of services to the population and to the environment as well. Although Bangladesh has not yet managed to plan to utilise the river water in large scale, but it is considered to be the largest source of water. Beside rivers, surface water (ponds, lakes, beels) is traditionally used and from the last two decades ground water is being used both for domestic and commercial purposes. Depending on the purpose, the demand of water supply can be categorised into a) domestic, industrial and commercial uses; b) irrigation demand; c) non-agricultural demand (fishery, forestry and environment); d) in-stream demand.

Domestic use of water mainly includes, drinking, bathing, cooking, washing etc. Per capita consumption varies according to the standard of living, mode of water supply, availability and quality of water, between urban and rural areas. According to the National Water Management Project (NWMP) estimation, average per

capita consumption in metropolitan, town and rural areas is found to be 139 liters per day (l/d), 118.91/d and 101.51/d. But the figures seem to be unrealistic, particularly for the rural areas, because in rural areas pond water is usually used for domestic purposes other than drinking and cooking. Domestic use of ground water in rural areas is about 25 l/d per person. But with the increase in population and decrease in water availability, demands for water will gradually rise. As per projection of WARPO, within 2025 the population in the rural and urban areas will increase to 34 and 15 million and 27.5 and 28.5 million respectively. Thus, total demands of water for domestic purposes during dry season may be about 180 and 350 million cubic meters (Mm3) in 2025 and 146 and 665 Mm3 in 2050, in the rural and urban areas, respectively.

In commercial and industrial sectors, the use of water covers the area of washing, dilution, processing and manufacturing of products. Moreover, production of electricity in Bangladesh depends on the supply of river water. Therefore, commercial and industrial demands typically stands at 8-11% and 10-15% respectively, of the total water supply for piped distribution systems. Where as, WARPO adopted 10% and 15% of gross domestic demands in urban areas (metropolitan areas and towns) as gross commercial and industrial demands, respectively.

Irrigation is highly demanded for the production of crops. However, the extent of irrigation varies according to the type of crops, different phases of crop growth and obviously seasonal variation. According to previous studies, if non-irrigated crop is planted following an irrigated crop, then the requirement for irrigation would be minimal. Moreover, the demand of water varies depending on crop development stages: initial, growing, mid-season and late season. During the dry season (November-May), irrigation is provided with the aid of ground water, as the surface water becomes scarce and the upstream flow gets minimised. With the gradual reduction in upstream flow and late arrival of monsoon, the irrigable areas are increasing as well. According to NWMP, total irrigable area in the GDB delta is

Prolonged dry season has become more frequent in recent years, with phenomenon as "Monga", leading to scarcity of food. Whatever the reason, water scarcity during dry season is imposing problem for the agriculture as well as the economy of the country and the vulnerable group are suffering the most. In spite of being a riverine country Bangladesh is failing to quench the thirst of the nation. Assessment for water availability during dry season is essential in such circumstance to calculate the quantity of water that can be abstracted and utilised, to meet the demand of all sectors.



Although the delta waterbodies, but they do not hold much water for dry season.

about 26,160 km2, with a gross irrigation demand of about 15,665 Mm3.

Non-agricultural demands arise from areas under fisheries, forestry and environmental importance. Areas under fisheries includes major and regional rivers, standing waterbodies (ponds, lakes), and seasonally flooded waterbodies (haor, baor, beels). These are the major fish habitats and breeding grounds, supporting the sustenance of the fish population of Bangladesh. Fishery is still one of the major economic sectors on which the livelihood of the poor

fishermen depends. But the waterbodies are getting decreased due to the encroachment for agricultural activities, sedimentation and encroachment for human habitat. Other than anthropogenic reasons, under natural condition, water from these waterbodies are getting evaporated to the atmosphere and draining to the surrounding rivers. Therefore, to meet the demand of the total area under fisheries which is about 940km2, the estimation is about 435 Mm3.

Forestry sector demands a huge percentage of water, although the intake is not visible. A medium

sized tree can absorb up to 30 ton of water from the ground water table and release it to the atmosphere through the process of photosynthesis. Therefore the quantity of water required to meet evapotranspiration demands of such trees is a net demand and needs to be accounted for. Total demand from forestry sector was estimated to be about 810Mm3.

Environmental demand includes that for rivers and parks, playgrounds and roadside plantations in urban areas. For rivers the demand rises due to the evaporation loss to the atmosphere and

leaching into the groundwater. The total area of rivers is about 960km2 and to meet the demand for water the estimation is about 430Mm3. And urban areas under environmental use, includes mainly parks, playgrounds and gardens and in case of the rural areas the use includes household trees, bamboo clumps, yards, etc. Total area under environmental uses (excluding rivers) was found to be about 5945 km2 from the district level data given in NWMP the break up into the urban, rural and other areas being 1883, 2829 and 1145 km2 respectively (WARPO), the total

environmental demand was found to be about 150Mm3. Water is also required to control the salinity intrusion into the rivers. Inadequate discharge of upstream rivers, would let the saline water be pushed in by the Bay of Bengal. That may destruct the natural balance of the inland water ecology, including fishery, aquatic flora and fauna and navigation. To prevent saline water to be pushed in, approximately 700 million acre feet of water need to be flashed out per second by the GBM and their distributaries. More precisely, the in-stream flow requirement to push the salinity fronts in the rivers near Khulna and to prevent environmental degradation in the SW hydrological region was estimated to be about 150m3/s in the Gorai river and 25m3/s each in the Kobadak, Betna, Mukteswari and Hari rivers (WARPO).

However, the supply of water to meet the demand of different sectors does not remain at the same range. Though, the GBM and their distributaries flash out 953 million acres feet/second throughout the year, but the proportion of the flow becomes almost half during the dry season. The variation between average high and low flow is very distinct, which is about 1:4 in the monsoon and 1:20 during the dry season. The reduction in upstream flow during the dry season is mainly caused due to lack of rainfall and such reduction is believed to be enhanced because of the construction of Farakka barrage on the Ganges. During dry season as there is no rainfall, the surface gets dried up and the surface water (ponds, beel, haor, baor, etc) gets evaporated as well. In such circumstances, river water and ground water is the only source to be utilised for crop production and other water related activities. But as 90% of the river water flowing through Bangladesh is originated outside the country. Bangladesh fails to regulate the water flow whenever required.

Therefore, during dry season farmers are unable to produce crop without extensive irrigation. But recently, many existing irrigated areas are experiencing regular shortages during critical dry periods (11 March to 10 May). These shortages are causing farmers to grow low water demanding crops during earlier months of the dry season, and to keep the lands

fallow for subsequent months when ground water is low. Consequently, in spite of technological support, the enhancement of crop production remains stagnant during dry season. Although measures have been adopted to provide irrigation, but it covers only about half of the potential area. All irrigable areas (75600km2) need to be brought under irrigation to meet increasing food demands for growing population, which now exceeds 140 million.

Furthermore, proper management practice needs to be adopted for irrigation. Because, though irrigation is supporting crop cultivation, on the contrary it is causing problem for pisciculture and navigation. Because the use of water in irrigation lessens the resource's utility for others downstream, it often leads to conflicts among different stakeholders. Farmers irrigate their lands by pumping water from the ponds, beels, haors, baors and small rivers. This leads to be disruption in fish culture. Therefore, the fishermen fail to harvest beneficial percentage of fish, which leads to conflict with the farmers. Such conflict can only be prevented through proper management of irrigation and water bodies during dry season.

Water scarcity during dry season is getting intense as a result of variations in the seasonal cycle caused by climate change. Excessive dryness of land, prolonged dry season, desertification of the northern region of the country are some of the symptoms indicating the change in the seasonal cycle. Prolonged dry season has become more frequent in recent years, with phenomenon as "Monga", leading to scarcity of food. Whatever the reason, water scarcity during dry season is imposing problem for the agriculture as well as the economy of the country and the vulnerable group are suffering the most. In spite of being a riverine country Bangladesh is failing to quench the thirst of the nation. Assessment for water availability during dry season is essential in such circumstance to calculate the quantity of water that can be abstracted and utilised, to meet the demand of all sectors.

Lamyea Binte Aji is studying at IUB (SES).