INSIDE THE HEV EPIDEMIC

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ssalamu Alaikum. This is to inform you please don't drink water without boiling it for 30 minutes. Don't drink uncovered juices, sherbets from street food vendors. If your eyes seem yellowish, if you are suffering from fever or diarrhoea for more than three days, go immediately to the temporary health camp at the government urban dispensary…"

The announcer is accompanied by a group of officials from Chittagong Water Supply and Sewerage Authority (CWASA), members of law enforcement agencies, and photographers and journalists. They move into a lane in South Kattoli area of Pahartali. They knock on the gate of a building called Khaleda Villa located at the very end of the lane, and ask the landlord to allow them to examine the building's water reservoirs. The officials quickly open the hatch covers of the water reservoirs and examine it while journalists take photos. They also start the motor pump and collect water sample from the reservoir and the pipeline. While leaving the place, the officials ask the landlord to clean up the reservoirs as soon as possible.

When water means death

The reason behind the announcement and spectacular visit by CWASA officials is the widespread outbreak of Hepatitis E (one of the five known viral hepatitis caused by Hepatitis E Virus, HEV, which spreads usually through faecal contamination of drinking water) in a large part of Chittagong city. At least four people have lost their lives due to HEV infection in the last three months and thousands of people are still suffering. This water-borne epidemic has challenged CWASA's capacity to supply safe drinking water and maintain sewerage system in Chittagong, the second most important metropolis of Bangladesh with a population of more than 2.5 million people.

Just in Khaleda Villa, a seven-storey building housing 18 families, 26 members of 17 families have been diagnosed with Hepatitis E infection. We talked to a family living in Khaleda Villa, where three out of six members of the family are still seriously ill due to acute HEV infection. The only son in the family, Ashiful Hasan Rishad, died of HEV infection on June 20. His mother, Nahid Akhter, has also been suffering from HEV infection for more than 15 days. As she was too sick to look after her son, she often blames herself for her son's death when she is delirious from the illness.

The only family in the building who are still unaffected by the plague inform us that they hardly ever used the water supplied by CWASA. Instead, they used ground water pumped by a tube-well or they purchased purified water because they knew that CWASA's water was not safe. Again, adjacent to Khaleda Villa, we found some single-storey-barrack shaped apartments with extremely congested and grungy interiors. We thought we would find some more HEV patients in these apartments seeing its unhealthy environment. However, to our surprise, none of the occupants of those apartments have been infected so far. Hena Khatun, a resident of one of those apartments, says, "We preserve rain-water and we use it throughout the year. We never use water from the pipelines..."

Dr Selim Akter Chowdhury, chief health officer, Chittagong City Corporation (CCC) says, "We also found several households in Halishahar who don't use water supplied by CWASA and are not infected, whereas many of their neighbours are suffering from HEV infection. You can guess from these cases the reason behind this outbreak."

However, CWASA has been denying this claim from the very beginning. A K M Fazlullah, Managing Director of CWASA, has provided us pages of laboratory test reports which apparently show that there was no presence of faecal substance in CWASA's reservoir and obvious presence of faecal substance in the water reservoirs of the residential buildings. However, those reports are somewhat misleading because there are many other external sources of contamination which can infect the drinking water supplied by CWASA midway between CWASA's reservoirs and reservoirs of the city dwellers.

Emran Hossain, brother-in-law of Rishad, says, "When we learned that Rishad was infected by HEV, which is a water-borne disease, the first thing that came to my mind is the scene of a long-trench dug on the road adjacent to our home by CWASA. At the bottom of the trench, I used to see several rusty pipes—probably sewerage or drinking water pipes. Those pipes remained uncovered in the trench for at least two months. During this time, all kinds of waste, runoff water and dirt fell on those pipes. And it seemed that those rusty pipes are not at all leak-proof. I will not be surprised if drinking water supplied by CWASA gets contaminated in this way."

When asked about this particular case, Fazlullah agrees. "Yes this can also be a source of contamination," he says, and reveals a more shocking scenario. According to him, CWASA's drinking water supply system is at least 33 years old and many sections of the pipeline are more than 50 years old. The age-old rusty pipes leak frequently, which they have to repair by digging open trenches on the road. As many parts of Chittagong city get submerged during high tide due to its dilapidated drainage system, polluted tidal waters can mix with the drinking water through these open trenches and rusty pipelines.

"Besides, we could not develop any systematic sewerage and drainage system for Chittagong city. We had no budget and resources for it. As there is no sewerage system, I cannot rule out the possibility of contamination of sewer water with drinking water completely but the possibility is very low as we repair the pipes regularly. I think waterlogging is mostly responsible for this outbreak and Chittagong Development Authority (CDA) is working on it," argues Fazlullah.

An epidemic of false claims

While CWASA tries to pass on the responsibility to another organisation and continues testing water from its reservoirs to prove its purity, every day, hundreds of patients are being diagnosed with HEV infection in different parts of Chittagong. According to the office of the civil surgeon, Chittagong, 99 new patients have been identified with HEV infection just on July 2 (from 9 am to 5 pm). On July 1, this number was 125. And from May 1, 2018 till July 2, 2018, the total number of patients infected by HEV is 848. However, these numbers don't show the true scale of the epidemic at all. According to Dr Md Nurul Haider, medical officer, disease control, Chittagong civil surgeon's office, the source of these data are the daily reports sent by several hospitals and private clinics and a few government dispensaries where HEV patients have been treated.

Experts believe that the number of HEV infected people is much higher. "Halishahar is a very densely populated area with extreme waterlogging, sewerage, and sanitation problems. Around 800,000 people live in less than nine square kilometres.Water-borne infectious diseases like Hepatitis E can spread like wildfire in this condition," comments Dr Md Mamunur Rashid, associate professor, department of clinical tropical medicine, Bangladesh Institute of Tropical and Infectious Diseases (BITID).

"Besides, the incubation period for HEV is 45-60 days. That means, the first symptoms start to appear 45-60 days after catching the infection. As a result, many people, mostly from poorer socio-economic backgrounds, take primary treatments of fever, diarrhoea, or jaundice, or go to shamanic healers which is more affordable for them and which make it more difficult to comprehend the true range of the outbreak," adds Dr Rashid.

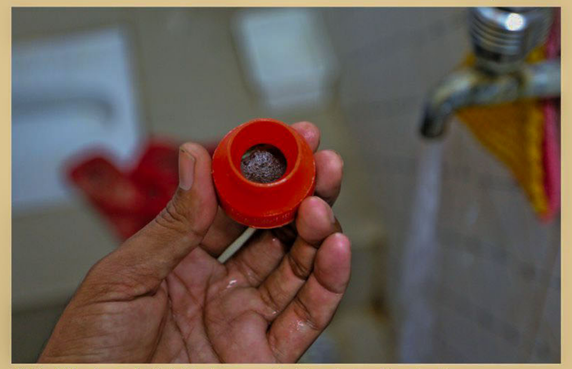
In fact, the government health offices have utterly failed to identify the outbreak in time. They first noticed the outbreak of Hepatitis E in the first week of May. "There might have been sporadic cases of infection before May, which we didn't know of. But the first major outbreak occurred in the beginning of May and this is why we started to collect information about HEV patients from May 1, 2018," says Dr Haider. According to all government records, three HEV patients have died since the outbreak in May.

However, the local people of Halishahar and Agrabad told us that they have been suffering from jaundice outbreak since as early as February-March. We found a family who lost one of their members on April 29, 2018 due to HEV infection—who is not on the government's list.

Ashiful Hasan Rishad, student of Government City College, Chittagong died of HEV infection on June 20, 2018.

Due to limited number of beds and huge number of patients, hospitals in Chittagong admit only high risk HEV infected patients.

PHOTOS: RAJIB RAIHAN



White filter turned pitch black moments after placing it under the water supplied by CWASA.

"I had been hearing about jaundice outbreak since March, I think. One day, I learned that one of our neighbours had also got jaundice. It was probably in the beginning of April. At the time, I didn't know about Hepatitis E, and I was extremely busy with my wife and my new-born boy," says Ishtiaq Hasib, a textile engineer and a former resident of Halishahar area. Ishtiaq became a father of a baby boy in December 11 last year.

"It was April 10 when I noticed that Tanzida [Tafazzol] too started showing symptoms of jaundice. She was an introvert. Although she was suffering, she hardly expressed it. She used to breastfeed my son regularly and she was receiving regular treatment of jaundice," says Ishtiaq. On April 24, Tanzida's condition deteriorated suddenly and she had to be hospitalised. Medical investigations conducted in the hospital revealed that Tanzida was infected by HEV. In fact, by April 24, Ishtiaq learned that it wasn't just Tanzida, but all of the inhabitants of his building, Darul Mustafa, located in Eidgah, Boropukurpar of Halishahar, had also been diagnosed with HEV infection. Ishtiaq, too, was infected.

Tanzida, who was just recovering from complications caused by pregnancy, could not survive the attack. On April 29, 2018, she succumbed to her illness leaving behind her four-month-old son and her bereaved husband. However, the earlier outbreak of HEV that caused Tanzida's untimely death is not recognised by the administration at all. Her name is nowhere to be found in the government records. This unfortunate case proves the unreliability of the government's estimateand indicates that there might be many more cases of infection and casualty which are not included in the given estimation.

Plaguing the city for at least five months, HEV infection is now rapidly advancing to different parts of the city. Although Chittagong City Corporation and Civil Surgeon's office are claiming that the HEV infection has been contained in Halishahar area, the reality is quite different.

How HEV is spreading

According to BITID, patients infected with HEV are coming from all parts of Chittagong city. In fact, from May 4, 2018 to June 30, 2018, 32 HEV infected patients have been admitted to this hospital. Thirteen of them came from Halishahar area and rest of the people hailed from different parts of the city such as Khulshi, Pahartoli, Akbarshah, Colonel Haat, Agrabad, Port Colony etc.

"It is not at all correct that HEV infection is limited to Halishahar. There is no doubt that HEV infection is predominant in Halishahar. It is likely that it started from that area but now we are getting hundreds of infected people every day from different parts of the city. Due to limited bed capacity, we are only admitting patients who are in severe conditions, pregnant mothers, extremely weak patients or those suffering from multiple diseases like HEV infection and diabetes," states Dr Rashid, associate professor of BITID's department of clinical tropical medicine.

How the epidemic is spreading is quite evident in the educational institutions in Agrabad, an important commercial and financial district of Chittagong city. Academic activities have been stalled in most of the educational institutions. Shayeda Fahmida Sattar, Head Teacher of Agrabad Talebiya Government Primary School, says, "At least 10 to 15 out of 30 students are absent in all of my classes. Three of my teachers are also on sick leave. All of them are suffering from jaundice and some of them have already been diagnosed with HEV infection. The road adjacent to my school remains clogged with filthy water throughout the year. It is very likely that people in this area will be affected from water-borne diseases."

The situation is more intense in Hatey Khari School and College. 30 out of 80 students of the school's grade ten are absent due to jaundice. In grade nine, the number is 36 out of 75 students. Almost half of its students and teachers have been suffering from jaundice for more than a month. Even the principal is sick. Academic activities and extra-curricular activities have crumbled. The guardians who are still healthy are afraid of sending their children to the school. "We have already organised two teacher-parents meetings to figure out what to do. However, both of the meetings ended without any conclusion. We are facing an unprecedented crisis," adds Sattar.

What are we doing to prevent HEV?

Nonetheless, the only noticeable initiative to prevent the epidemic's rapid propagation is distributing leaflets, public announcements, and distribution of negligible amount of water purifying pills. For instance, each family in Khaleda Villa got only ten pills from the civil surgeon's office, which is not even enough for a day's water consumption.

"We don't have any budget or resources to tackle such a crisis. Moreover, Chittagong city is not my jurisdiction. These purifying tablets were allocated for upazilas. Seeing the crisis, I distributed those tablets to city dwellers. I have also organised temporary health camps in the government urban dispensaries and sent directives to the hospitals and clinics to keep us updated about the situation," says Dr Azizur Rahman Siddique, civil surgeon, Chittagong.

On the other hand, CCC's preventive measure is solely limited to awareness raising activities. However, Dr Rashid thinks that the current style of awareness raising is not enough. "People should be informed of certain necessary facts. For instance, people showing slightest symptom of jaundice must avoid painkillers," he says.

According to Dr Rashid, since it takes a long time for the symptoms to appear, infected people often take painkillers to reduce the fever and continue their daily activities. "Painkillers are hepato-toxic drugs which cause an adverse impact on liver. Again, if they don't take proper rest and don't have adequate amount of liquid food, the situation may turn fatal," he argues. He also adds that people with previous liver infection, pregnant mothers, and diabetes patients are particularly at risk; most other patients get cured automatically if they take rest and sincerely follow their doctors' prescription. "Instead of spreading panic, people should be made aware of these things," he argues.

"We are trying to reach out to people to make them aware of the consequences if they don't go to certified doctors for treating diseases like Hepatitis E. However, if safe drinking water cannot be ensured and the problem of waterlogging is not solved, no measures will be able to stop the outbreak," warns Dr. Chowdhury.

The Future is Doomed

Neither CWASA nor CDA could give us any hope of speedy improvement in this regard. "What I can tell you is that we are moving towards a fully-functioning sewerage and water supply system in the future. We are replacing 600 kilometres of old pipelines with new pipelines. 130 kilometres of pipelines have already been installed. But the solution will not be sustainable if the problem of waterlogging is not solved," argues Fazlullah.

Waterlogging is one of the most pressing issues for all the inhabitants of Chittagong City. During every mayoral election in Chittagong, the first promise of the mayoral candidates is that they will stop waterlogging in the city. However, this promise is never fulfilled. The Chittagong Development Authority has been allocated Tk 7000 crore to recover and rehabilitate the city's 32 canals which could effectively drain away the tidal waters. Instead of recovering and rehabilitating these canals from the land-grabbers, CDA is dredging the canals. "Whenever we try to evict the illegal occupiers, we have to stop our drives due to political intervention. We are dredging the canals to increase its water retention capacity to tackle this emergency. From the next year, we shall restart our drives to rescue the canals," says Shahinul Islam Khan, chief town planner of CDA.

Continuous inattention of the government organisations to the city's long-term problem of water, sanitation, and hygiene has made its inhabitants dangerously exposed to a deadly epidemic. Most government organisations are still trying to pass on the responsibility to others to escape liabilities—and their indifference to the victims' sufferings is truly heart-wrenching. We found many families who have spent almost all of their belongings for the treatment of their infected family members. When we asked Chittagong City Corporation officials whether they have any plan to compensate the affected families, their reply was, "They all live in urban areas. They are not poor. They have enough money to treat this disease." If our government officials tackle this epidemic with this kind of indifference and with publicity measures, we must conclude that the future of Chittagong city is doomed.

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CAN WE DEFEAT THE SIXTH MASS EXTINCTION?

MAHBUB SUMON

Over the last two centuries, humans have caused irreparable damage to the environment. Forests, rivers, hills, and seas have turned upside down and species displaced for food and shelter.

In the last 50 years, humans have done so much damage to the environment that it might be impossible to make any tangible recovery, according to a report, Millennium Ecosystem Assessment (MEA), published by the UN.

Currently the rate of extinction of both plants and animals is much higher than normal. Although extinction of one species in a million per year is considered normal, conservation ecologist from Duke University, Dr Stuart Pimm, and curator of palaeonology department of American Museum of Natural History, Dr Michael Novak, believe the rate of extinction of different species will be 1000 times the natural rate within the next few decades; and 50 percent of the world's species will be lost forever within the next century. This cannot be considered normal.

Many biologists suspect we are living through the sixth mass extinction. We have witnessed five mass extinctions before, where more than 75 percent of all species disappeared. The first mass extinction happened due to a severe ice age, the second mass extinction due to algal bloom in the sea, which sucked oxygen out of the water and the the third mass extinction also known as "The Great Dying" happened due to a cataclysmic eruption near Siberia which blasted CO2 in the atmosphere. Consecutively, the fourth was caused by a meteor shower while the fifth mass extinction was caused by natural climate events. All the above mass extinctions took place due to natural reasons. However, scientists believe, we are now going through the sixth mass extinction and it is happening due to human activities at a rate much faster than all the previous ones.

Below, we take a look at some of the possible causes behind the sixth mass extinction.

Forest cover loss

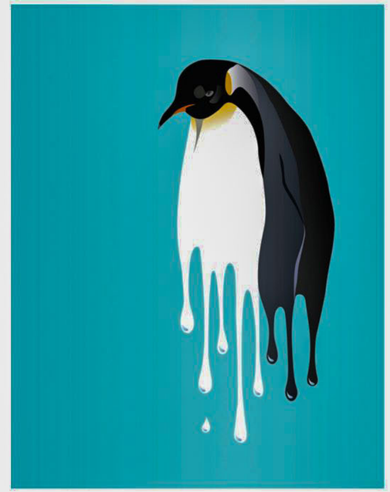
Rampant urbanisation has resulted in the destruction of forests and habitats of thousands of animals, birds, butterflies, and bees. For example, owing to habitat losses, orangutans and honey bees are both facing extinction threats. Both species are responsible for fruit seed dispersal and pollination respectively. Now if both disappear, the world will face immense food shortage and eventually famine.

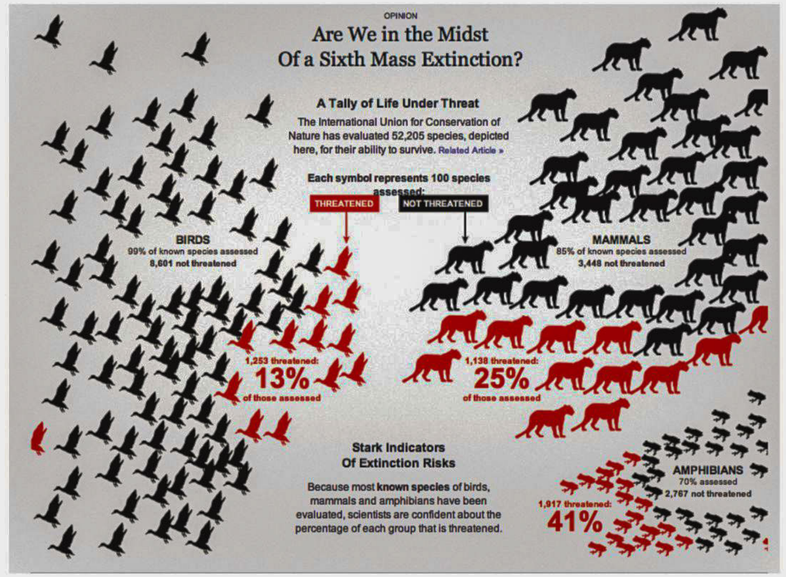
Monoculture and invasive species

By introducing a new species in an ecosystem, the whole ecological balance could be harmed. The new species might have been harmless in its original habitat but it can be aggressive in its new environment. It can spread diseases and even put the existence of other species at great risk. For example, the African Magur was not invasive in its homeland, but our experience suggests that it is much bigger in size and aggressive in nature when it is cultivated in Bangladesh. Humans are importing species from many places and practicing monoculture that drives ecological damage.

Nitrogen and Phosphorus Cycle

Humans have almost broken the natural cycle of nitrogen and phosphorus due to industrial and agricultural purposes. We know that plants need nitrogen and phosphorus for their growth. Since we use synthetic fertiliser to maintain proper soil nutrition, we are artificially producing nitrogen and phosphorus fertilisers. Trees can utilise only 5 percent of the fertiliser while 95 percent washes away due to rain and is deposited in the nearest water body; finally it makes way to estuaries and coastal areas flowing through the river. When huge amounts of nitrogen and phosphorus are deposited into water bodies, algal bloom occurs. When the algae decompose, it ends up consuming almost all the oxygen in the water body. This results in the water body running out of oxygen, something that is called the Hypoxic zone. In a hypoxic zone all biodiversity is threatened. Those who can move, quickly move away from that place; however most of them die and eventually that place becomes a dead zone—as it did in the Haor area of Bangladesh last year. There are almost 405 dead or Hypoxic zones in the world, which was only numbered at 49 in 1960s.





Land system reform

Around the world, humans have changed the indigenous land system use for their own purposes. A rapid change in land system is the key reason behind decreasing biodiversity. People have also modified river systems and its course. In 2017, hundreds of people were killed in the Chittagong Hill Tracts in landslides. Such incidents are happening everywhere in the world where unplanned urbanisation takes place.

Climate Change

Climate change has resulted in increased global temperatures, heat waves, rising sea-levels threatening coastal communities, water stress, extreme weather events such as flash floods, drought, waterlogging, food scarcity, increased salinity, ocean acidification, and so on. Fossil fuels have increased the amount of CO2 in the atmosphere and changed the local and global climate. In the last century, the average temperature of the planet increased by 1 degree Celsius. There could be a 5 to 6 degree Celsius increase in temperature by the end of this century. This has devastating environmental consequences. Most of the ice and glaciers in Greenland and Arctic will melt, resulting in sea level rise inundating coastal communities. Millions of people will become climate refugees. Intensity of monsoon storm and cyclone will increase.

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