

Feature

In Grips of a Silent Assassin

Pinjira Begum was once a happy wife and a proud mother of three. Then came the silent assassin and suddenly her world just fell apart. Years of exposure to arsenic contamination had taken its toll. Life became a nightmare. Helpless and virtually discarded by her husband and the family, Pinjira died. Pinjira's is just one of many such tragic tales, writes **Quamrul Islam Chowdhury**

DEATH came as a saviour for Pinjira Begum. The 26-year-old mother of three was a virtual outcast. Her husband had discarded her and got married again. It was not her fault, though. Quiet came the assassin, arsenic, and snatched away her happiness before stealing her life.

When she finally gave in on May 10 this year after fighting an already lost battle for seven years, Pinjira's last wish was for her children's good health. Her husband was there a few feet away from her bed with his new bride. However, he could not give her any assurance, for Shapla, 10, their ten-year-old daughter has also become a victim of arsenic contamination. She is now worried about her brother Arif (7) and nine-month-old sister Jutti who are suffering from malnutrition.

Pinjira's husband Masudur Rahman (27), a rice-mill worker at this remote village of north-western Bangladesh, 350 kilometres off the capital, is too poor to purchase arsenic kits and vitamin tablets for his **family members** (Masudur's sell an arsenic patient is baffled with the disease already hitting 10 of the 13-member family. They are not alone. A neighbour and a social worker Nargis [20] told members of Forum of Environmental Journalists of Bangladesh (FEJB) that the entire village is exposed to arsenic and nobody knows how to face it. Her father Nurul Alam Sarker (60) was among the ones who died.

Nargis said a number of arsenic-tainted tube wells have been sealed without providing an alternative source of pure drinking water. "Pinjira and my father were recovering after getting some treatment but they succumbed when local physicians stopped supplying vitamin tablets," Nargis told visiting journalists. She informed about 400 arsenic patients in her village. UNICEF project officer M. Asadur Rahman said that they found 63 arsenic patients at Mapur. Mohammad Mohiuddin of CARE International based in Rajshahi said, "we cannot cope with the extent of arsenic contamination across the Rajshahi division. We are sensitizing the local people about some coping strategies like Solar disinfection of surface water by keeping water bottles whose one side is black 4-5 hours in 40-50 degree celsius sunshine and freeing arsenic contaminated groundwater of bacteria by keeping it in a bottle for 3-4 hours with four drops of lemon."

Ishaq Ali, Superintendent Engineer of Department of Public Health Engineering Department (DPHE), Rajshahi centre conceded that DPHE is yet to cope with the magnitude of the problem and demand for sinking tube wells to replace the arsenic contaminated ones is also increasing. We could sink only one test tube well at Mapur and it is inadequate to meet the **drinking needs** for safe drinking

Across much of Bangladesh, thousands of people today have been exposed to yet another environmental problem — that of a serious arsenic contamination in groundwater of parts of the country. The fallout of this arsenic-contaminated water has been a deadly health hazard threatening the lives of millions.

Experts predict that if the problem is not addressed immediately and in right earnest, tens of thousands of people would be victims of the scourge of arsenic pollution within the next decade. The crisis is even being described as one of the world's most serious environmental problems.

The revelation of the existence of a high level of arsenic in the groundwater jeopardised years of efforts to ensure the supply of the cheap, safe and easy-to-fetch drinking water for millions in Bangladesh.

The news of an ever-growing number of arsenic victims and patients has set off a panic among users of tube-wells, the cheapest and primary source of drinking water for our rural

masses. It is reckoned that some 75 million people in 59 districts, are virtually exposed to the risk of becoming arsenic victims.

The arsenic's slow creep may affect different people differently. Some members of a family may be suffering but not showing any signs. Doctors suggest that nutrition could be a critical factor. Most people in Bangladeshi villages are malnourished.

The first signs are usually a darkening of the skin. Over a long period of time the arsenic breaks down the protein building body tissue, resulting in melonarsis. Hideous warts appear all over the body. The hands and feet crack up and blister. At this stage, doctors say, there is no treatment for the poisoning. However, detected at an early stage the physical damage can be arrested.

And quite disquietingly, the bulk of our poor, illiterate rural people are still unaware of the magnitude of the problem; they have been virtually at a loss and do not know what to do.

Arsenic that contaminated



Tell-tale signs of arsenic contamination

our ground water find their way into the bodies of millions of people as they drink from the thousands of tube wells spread throughout the country. The effects of drinking arsenic polluted water become visible only after years. Experts say that arsenic poisoning for 10 years or more can lead to several forms of cancer and result in many other deadly diseases. In other words, drinking such arsenic contaminated water is nothing but exposing the populace to a kind of slow poisoning that may culminate in death.

Quite paradoxically, the present crisis of arsenic contaminated groundwater is an unintended consequence of a nationwide programme of ensuring safe drinking water for our rural people. Let us recall the situation in rural Bangladesh decades ago when the only source of drinking water had been surface water.

Researchers surmise that arsenic bearing minerals rest in sediments washed down from the Himalayas over thousands of years. Heavy uses of tube wells have lowered the water table. As oxygen fills the gaps, a chemical reaction separates the arsenic from the minerals and seeps into the aquifers.

Arsenic in drinking water poses the highest cancer risk ever found," says Dr. Alan Smith, epidemiologist at the University of Berkeley, California, who has visited Bangladesh several times as a WHO consultant. WHO standard for arsenic in water is a maximum of 0.01 milligrams per litre. But arsenic contamination in the water of Bangladesh's affected areas is five to ten times higher.

Today, tube-wells that once supplied pure and safe drinking water to our rural people, have been pumping poison. And what is strange about this problem is the fact that one pump may be giving out arsenic contaminated water while another, 10 feet away, may be giving out pure water. Researchers assume that this phenomenon could be due to variations in the underground rock and soil. Therefore each of the 3.5 to 4 million tube wells in operation throughout

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Now, years after, as the alarm bell against arsenic presence in our groundwater has been rung, the queue of villagers at those tube-wells is shortening only to elongate the queue in front of health complexes of cancer and result in many other deadly diseases. In other words, drinking such arsenic contaminated water is nothing but exposing the populace to a kind of slow poisoning that may culminate in death.

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The alarm bell has been rung, and there has been a nationwide awareness against the threats of arsenic contaminated water. It is for our researchers and policy makers to address the problem in right earnest and find out the quickest way to rid the country of arsenic pollution and mitigate the suffering of its victims.

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— FEJB-SEMP Feature

its inhabitants — Flemish, French, German regions, and Brussels region, which is bilingual), farmers began to notice weird things happening in their farms: eggs were not hatching and the birds were going lame.

An insurance company engaged an independent expert to investigate, and poultry feed was suspected to be responsible, especially processed fats used in feed.

In April, a laying hen and a feed sample were sent for examination to Dutch State Institute for Quality Control, which confirmed the presence of unusual amount of PCB (Polychlorinated biphenyl) and dioxin. Further examination conducted again on two chickens and two eggs produced in April provided conclusive answers. The results showed that the chicken fats contained 958 and 775 parts per trillion (ppt) dioxins respectively.

PCB and dioxin are compound chemicals. Dioxin is considered to be a cancer causing element. It also affects reproductive, immune and thyroid systems. Experiments of dioxins carried out in Belgian University have shown its carcinogenic effects on monkeys. Pregnant women are especially vulnerable since dioxin can cross placenta.

In March, following initial investigations, the Ministry of Agriculture was notified that poultry feed was the source of dioxin contamination. The manufacturers of such feed were identified, and one of the major producers of the contaminated feed was Verkast, a company based in Gent, a Belgian town.

The company produces poultry and animal feed using animal fats. According to latest news reports, the fats so used were produced in companies in the French region of Belgium. The fats were reprocessed animal fats that also used reprocessed machine oil.

News reports suggest an 80 ton batch of recycled fat was contaminated with about eight litres of pure PCB oil, of the type used in industrial electrical transformers. This was added to a 1,000 farms, where it was fed to livestock, mainly chickens, pigs and cattle.

The government did not make public disclosure of the contamination. As the media leaked the news, the government dithered. It was only in May that Health Minister Marcel Colla advised retailers not to sell a host of products.

The ban included all products from poultry bred in Belgium since January 15, 1999; foods containing poultry meat, such as soups, stock cubes, charcuterie, chicken-based snacks; foods containing over 2 per cent egg or egg derivatives, like mayonnaise, and salad dressings, salads containing mayonnaise, crepes, flans, pastries, brioche, fruit cake, waffles, sponge fingers, puddings and pudding powders, ready-made meals (fresh, frozen or tinned), prepared mince, pasta containing egg, tiramisu, zabaglione, biscuit; foods which might contain placentas.

The consumers have more

Haunted by Bio-terror

The best weapon against any form of terrorism is to stop it before it even starts. This is especially true of bio-terror, for there is very little one can do afterwards, writes **Md Asadullah Khan**

A death warrant might sometimes come not from a battle equipped army but simply by an apparently unremarkable man striding briskly in a crowded city street. It may so happen that shouldering through the rush-hour traffic movement, he works his way to the edge of subway platform either in Tokyo, or New York, or London. Unnoticed by those around him, the man drops what appears to be a light bulb onto the tracks. The bulb shatters releasing a fine, smooth powder. The man takes to his heels but the catastrophe begins.

Moments later the incoming train pushes a huge column of air through the station, dispersing the tiny particles. Subsequent trains keep them circulating into sub-way cars and into the lungs of tens of thousands of passengers. Within 48 hours many who either rode the subway or platform or the busy and crowded intersections at that particular time — may be hundreds or thousands — will feel unusually tired. Few will consult doctors about their commonplace flu-like symptoms, muscle aches, fever, coughing, mild chest pain. After another day or two, some people seem to improve. But their improvement, as experts suggest, will be temporary and brief. Suddenly they will crash and be panting for breath. The gasps will produce a sickening whistle. At this point lab work completed by their doctors, of course in a sophisticated and equipped hospital, say either in America, Japan or UK might identify the illness as something related to "Anthrax" release, a deadly bio-weapon now being produced in some countries either by terrorists or in some cases by government bioterrorists.

If not treated within hours of the onset of the symptoms anthrax is almost always fatal. Less than two days after the symptoms worsen, more than 90 per cent of those infected will start to die — conceivably before authorities even realise that a terrorist has attacked. The assassin of course in many cases was vaccinated before the attack. And anthrax is a biological weapon that can wreak havoc on innocent people in any country. Biological weapons — most of them fine, respirable powders bearing deadly diseases are a real danger and a matter of serious concern to all governments bearing hostility with each other. Anthrax is not the only threat. More worrisome small pox and bioterrorists have been weaponised. Some health officials even fear that hemorrhagic fevers that have no vaccines and no cure, such as Ebola and Marburg may someday be used by governments have.

Other than the US or even Iraq now in suspect, many nations may have bio weapon facilities. The year after signing the biological weapons ban in 1972, the Soviet Union created an institution called Biopreparat. According to defectors, this became a network of 20 facilities employing 15,000 workers and producing biological weapons such as anthrax and small pox. When the USSR broke up, the new Russian government cut funding for bioweapons. Reports have it that unemployed scientists are now peddling their expertise or even their products to the high-bidder, possibly including China, India or forces in Afghanistan. Defector Ken Alibek, once Biopreparat's top scientist revealed that he could not even speculate on where his former colleagues ended up or what they took with them when

Bio weapons are easy to carry and conceal. Days or even weeks may pass before their use is apparent. Pound for pound, they are deadlier than chemical or even nuclear weapons. The worst case scenario — 220 pounds of anthrax spores released from a crop-duster over Washington DC, on a calm clear night could kill one million to three million people in the metropolitan area,

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to three million people in the metropolitan area, according to the US Office of Technology Assessment. William Patrick, who served as a UN Inspector in Iraq, believes the scenario could take only 100 pounds of the agent. Evidence gathered by UNSCOM (the United Nations Special Commission on Iraq) reveal that Iraq had bought equipment useful for the production of biological weapons. There was a spray dryer — essential for drying out bacteria so that they can be stored and then, when the time comes, dispersed efficiently. There were also four specialised filling machines, required for packing germ warfare agents into weapons or containers.

they left. "Nobody knows where they are employed to-day," he says.

The agents of germ warfare, as these biological weapons are called, fall into two categories: infectious diseases and biological toxins. These are as described below:

Anthrax (*Bacillus anthracis*): This is a bacterium that infects mammals, including people. It occurs throughout the world including the Middle East, The Americas and the British did anthrax research in the 1940s. The Russians had an accident with anthrax in 1979, when it escaped from a military laboratory in Sverdlovsk and killed people and animals down wind. According to "Jane's Land-Based Air Defense 1997-98" book that is about to be published, the Russians have also four specialised filling machines, required for packing germ warfare agents into weapons or containers. Iraqis claim to have destroyed their biological arsenal.

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