The Arsenic problem grows world wide

Aapo Saask, September 2003

At one point we believed that Arsenic in ground water was only a problem in West Bengal and Bangladesh. The World Health Organization (WHO) called the situation in West Bengal and Bangladesh the worst mass poisoning in history. However, dozens of other countries in the world are now reporting increasing problems with Arsenic.

In Bihar, with a population of 83 million people upstream in the Ganges delta, 80 per cent of the people drink water from underground sources. In July 2003, Fred Pearce reports in New Scientist about a study performed by Professor Dipankar Chakraborti of the School of Environmental Studies at Jadavpur University, in Kolkata. In a survey of 3000 tube wells in Bihar, it was found that arsenic levels in 40 per cent of them exceed the WHO limit, and that 12 percent contained water at more than 20 times the limit. Most of these tube wells have never been tested for arsenic before, yet more than half of adults examined show symptoms of arsenic poisoning.

"The same pattern we saw in Bangladesh is being repeated," Chakraborti says. "There, we began with the discovery of three villages. Now thousands are known to be affected and more are being discovered all the time. Our early warnings were ignored then. Now we are warning about Bihar. We feel that this is just the tip of the iceberg."

Chakraborti says that a large proportions of the half a billion people living on the plain from northern India to the delta region of Bangladesh could be at risk. And because the poison only builds up slowly in the body, every year of extra exposure increases the total damage.

In Vietnam, Fred Pearce reports, groundwater from tube wells sunk beneath the Red river delta, home to 11 million people, including the capital Hanoi, have been found to contain arsenic levels up to 300 times the WHO safe limit. These wells were installed only seven years ago and symptoms have yet to emerge.

Arsenic reports are also coming in from Nepal, Myanmar, Thailand, Cambodia, and Pakistan. Tens of thousands of people around the world have developed skin lesions, cancers and other symptoms, and many have died. Hundreds of millions, perhaps even billions may now be at serious risk.

There is as yet no accepted explanation to the increasing spread of Arsenic poisoning in the world. Some say that much of the blame lies with aid agencies that began promoting ground water as a safe and reliable source of drinking water to replace contaminated surface water, and did so without heeding age old local knowledge about ground water sources and without even testing the well water.

Although these accusations contain some truth, they fail to explain why Arsenic is a growing menace in countries where aid agencies have not been active, for instance the US, China, Greece, Hungary, Argentina and Australia.

Perhaps one could tentatively assume the following hypothesis: In most of the afflicted areas, few people drank groundwater until a few decades ago. As surface water from rivers and lakes have become increasingly polluted, however, people all over the world need to start

using ground water. And some wells contain little arsenic, some contain more and some contain very much. So, in most countries where ground water is found in rocks or in sediment, Arsenic will be present in larger or lesser quantity.

Although Arsenic may sound like a rare and exotic substance, one should not forget that it is the twentieth most common element in nature. So it must be everywhere. It is however only dissolved into water under specific conditions, i.e. when the local soil chemistry leads to reducing conditions.

Although the situation is worsening around the world, no doubt the Ganges delta still seems to be the most afflicted. One reason, which is however not yet proven, may be that the sediments from the Himalayas contain more Arsenic than any other soils. A contributing factor which is clearly true, however, is that poor nutrition makes a person more likely to develop symptoms and illness, given equal exposure.

Poor people will therefore succumb quicker to Arsenic poisoning. It is not only a question of the quantity of food that a person eats, but also the quality. One-sided diets that lack essential minerals, for instance Selenium, will make the body less resistant to Arsenic.

Improving the diet will certainly help, but when that is done, can we forget about Arsenic? Certainly not! The target must be a good supply both of nutritious food and good water. Apart from the obvious task of improving nutritional standards among poor people, one of the main missions for the Bangladeshi Government is therefore to investigate which measures have been efficient in mitigating Arsenic poisoning and which not.

While only an emerging threat in many other countries, Arsenic mitigation is already of highest priority in Bangladesh. Therefore, whatever progress is being made in Bangladesh may also serve as a model for other countries as they approach the disaster.