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Perspective >> **Sunday February 04, 2007**

Trusting the taps

Water from the municipal supply is considered unsafe by most Bangkokians, but after investigating the matter, SIRIPORN SACHAMUNEEWONGSE, finds that's a misconception

When in Switzerland last week, I couldn't resist relishing the drinkable tap water. It was comforting not to have to pay the exorbitant prices for Swiss bottled water, but my appreciation for the service was mostly because it spared me the trouble of walking to the store and carrying a heavy pack up the steep mountain walkway back to my chalet. The incident brought to mind last summer's vacation at Cha-am beach in Thailand, when I had to bear a load of big bottles of drinking water from the mini-market to my apartment.

Alas, in contrast to many developed countries, here in Thailand water from the municipal supply is rarely drunk by anyone who has a choice. Indeed, most Thais under a certain age have been drinking only bottled water from their very early years, so it has become a deep-rooted habit. Except by the poorest members of society, tap water is normally seen as intended only for domestic chores.

A variety of bottled drinking water at a supermarket in Bangkok. Bottled water is big business in Thailand.

Though it's fairly economical for the average consumer, the sale of bottled drinking water is clearly big business. There don't seem to be any reliable statistics to pinpoint the exact number of bottles of water sold on any single day, but casual observation at any cafeteria, supermarket or minimarket reveals that water has got to be among the top-selling consumer goods in Thailand.

The popularity is also reflected in the number of brands lined up on supermarket shelves. Ranging from claims to being richly laced with minerals to straight H2O _ purified by reverse osmosis, and therefore demineralised _ the bottles also vary in size, shape, price and perhaps taste.

Residents have long gotten their monthly dose of bottled drinking water supplied directly to their doorsteps. More recently, home water purifiers have come to be considered an essential appliance for many homeowners. As mentioned in the previous article in this series, most people remain unaware of potential dangers associated with regular consumption of demineralised water.

The bottled trend is clearly established even in elementary schools. Khru Toi, a teacher and nutritionist at a local school, remarked that the youngest students at the school had become picky in their drinking water sources, preferring bottled drinking water over the school filter system.

Tourists in Bangkok are also often spotted with a bottle of water in hand, as the Tourism Authority of Thailand itself advises against drinking tap water.

A whole lot of people besides the TAT assert that water out of the taps in Bangkok is not drinkable, for a variety of reasons. Some say the city Metropolitan Waterworks Authority (MWA) doesn't do a good enough job in purifying it, others say that even if it does, the pipelines that deliver it are dirty, or there's too much chlorine.

As mentioned before, it is mostly financial status that seems to determine whether one drinks from the taps. There are those who can afford bottled water that will tell you they have been drinking municipal water for years with no adverse effects, but rightly or wrongly, most people regard this as tantamount to making a voluntary choice to shorten their lives, increasing the risk of almost every ailment from diarrhea to cancer. To them, bottled water is a necessity.

In all fairness, the MWA has declared time and again that tap water is safe for drinking, and their water quality tests are backed up by independent tests done at Mahidol University. But this has done little to persuade Bangkokians to switch from bottled water.

DRINKABLE OR NOT?

Water from the Chao Phraya River flows through a clarifier and a filter at the Bangkhen water treatment plant.

To address the important issue of whether the MWA is up to the task of providing drinkable tap water to Bangkok, Perspective made a trip to the city's water treatment plant at Bangkhen. The first thing we heard after setting foot in the restricted operations area was that the source of water for the Bangkhen plant is the Chao Phraya River. Frankly, this sounded absolutely unappealing. But Mr Suppakiat Wattanasil, director of the Water Quality Control Department (WQC), assured that the water was treated thoroughly until it is safe for drinking. He explained that water is first tested as soon as it begins flowing along the canal that directs it to the plant for treatment.

''The test is obligatory to determine the volumes of chemical components that will be required to cleanse the water. Performing this test is even more significant these days because of the deteriorating quality of the river,'' said Mr Suppakiat.

At the plant, water passes through clarifiers, filters and a thorough chlorination process until it is ready to flow into the distribution network. We were told that the treatment process is identical to that approved by the American Waterworks Association, except that the chlorination process at the MWA is prolonged to 3 hours, much longer than the normal 5 minute requirement for disinfection.

Water leaving the plant also contains chlorine, explained Mr Suppakiat, to ward off any germs that may contaminate the distribution network. He remarked that Japanese waterworks likewise use chlorine as a major part of the treatment process.

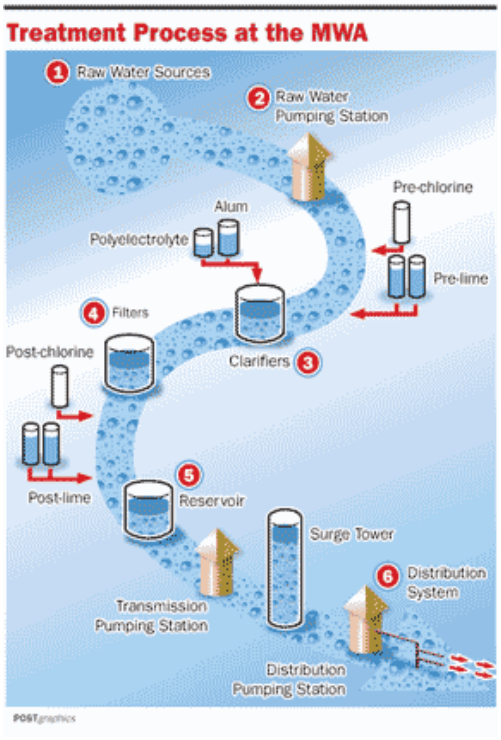
We took note of the special smaller PVC pipelines visible at each stage of the treatment, intended to transport water back to the WQC lab so that engineers can perform checks on the chemical and micro-bacterial components in the water. This testing process takes place around the clock at 2-hour intervals to assure that water being treated meets the required standards. We were informed that the MWA does not use wastewater in its treatment processes.

It certainly appears that the MWA is very serious about quality control. Aside from frequently visiting large institutions like hospitals and schools to check on tap water quality, the MWA claims it does tests in every district, every month, and if the water supply anywhere is found to be below standards, a team is immediately sent to perform further investigation.

We asked for results of the December assessment; the tests for quality were all satisfactory, as are around 95% of all quality tests done on tap water in Bangkok and surrounding vicinity.

Mr.Suppakiat acknowledged that people often do not have faith in the distribution system, and explained that pipelines in some areas such as Yaowaraj (China Town) were created during the reign of King Rama V. He admitted that occasionally tests did find that the water quality in those areas was inferior to that leaving the treatment plant, but by and large it is not a big problem.

DISTRIBUTION NETWORKS PRIORITY



Mr Suppakiat recalled that formerly the maintenance of pipelines was a more complex task. For instance, the MWA would have to accelerate repair and maintenance procedures because of worries over traffic congestion. However, in the past few years it has been made clear that water quality control is a high priority. Accordingly, the MWA has repaired 100 percent of its distribution network that runs underground in Bangkok. New PVC pipes have replaced the old iron pipes, alleviating the old ''red water'' panics. It is stressed upon employees that the management does not tolerate any carelessness.

''Of course, some countries are still better off than Thailand,'' Mr Suppakiat admitted of the city's water supply.

''Pipelines in Japan are made from stainless steel; we can't have that here as yet. But people will see that our workers are constantly fixing pipelines in Bangkok. Recently, the MWA actually had most of its larger pipelines wiped with cloth until each inch in the distribution network was thoroughly cleansed. We have a regulation to fix pipelines only when they are dry to avoid taking risks to tap water quality,'' added the director of the WQC department.

Waterworks authorities are particularly concerned about leaking pipes, as they encourage doubts over tap water quality, unreasonably according to Mr Suppakiat. He explained that leaking pipes are not a threat to water quality because, given the pressure and rate of flow in the pipelines, any leak would result in water flow outward. Chances for impurities to enter the distribution network are minimal. And even if any impurities manage to enter the pipeline, the excessive chlorine then acts as a safety valve. In any case, he said, the MWA will continue to fix any leaking pipe in Bangkok immediately to keep citizens satisfied and not take any chances.

The WQC director then turned to the matter of chlorine in tap water. Tests in recent years have shown high levels of chlorine. Mr Suppakiat explained the MWA ratcheted up chlorine levels after some faraway districts, such as Minburi and Lad Krabang, were added to the distribution networks. After chlorine levels were puffed-up, tap water at the end of the distribution network had adequate levels of chlorine, whereas residents closer to the Bangkhen water treatment plant found their tap water smelling as if it had come from a swimming pool. The inevitable complaints compelled the

MWA to amend the chlorination process and base chlorine levels according to the distance that was to be travelled to reach end users.

''Today, residents either close to or extremely far away from the water plant have tap water that does not possess much of a chlorine smell. Besides, the MWA does not unnecessarily add excessive chlorine to tap water, as that merely amounts to unnecessary costs,'' said Suppakiat.

''Nevertheless,'' he added, ''if users still feel that they get a chlorine smell from their tap water, they should let it settle for about 5-10 minutes; the gas will evaporate in no time.''

According to the World Health Organisation, safe chlorine levels in drinking water should not exceed 5 mg/litre. Mr Suppakiat said that tap water in Bangkok has a maximum of 1 mg/litre.

He added that most airlines taking off from the new Suvarnabhumi Airport have approved of the quality of tap water at the airport. Airlines are notoriously cautious about the quality of drinking water offered to passengers, as poor health practices could ruin their reputations. For this reason, most airlines usually purchase bottled drinking water before departure from the Indian or Sri-lankan airports. This strongly implies that Bangkok's water quality is indeed better than is commonly portrayed.

As a matter of fact, water treated by Bangkok's MWA _ like municipal water in America, Europe and Japan _ meets standards set by the WHO. Mr Suppakiat said the MWA's end product actually exceeds WHO standards.

When we asked the expert whether tap water meets Thailand's Food and Drug Administration requirements for drinking water, he said that standards set by the FDA were intended for packaged water, and that therefore the WHO standards were more appropriate. The WHO standards for safe drinking water were created as a tool to promote affordable, good quality drinking water around the globe.

While addressing the issue of health, Mr Suppakiat also informed us that the MWA did not employ the reverse osmosis process as it could translate into a public health concern.

''Water treated by RO is like fresh rain water. However, rain water's purity is neutralised with mineral content when it is stored in an earthenware container, while RO-treated water remains pure unless it is enriched,'' he said, adding that the MWA does not use ultra violet treatment either because it was not believed to be effective in disinfecting water. Ozone treatment to freshen water is also not done because it would be costly and the ''benefits do not last for long'', noted Mr Suppakiat.

PASSES EMPLOYEE TEST

''In point of fact, people are unaware that unsafe tap water is easily detectable,'' said Sirilak Nanthnapramod, chief of media relations at the MWA. ''Tap water frequently comes into contact with sensitive body parts, like the eyes during a face-wash or mouth while brushing. If tap water was actually unsafe, it would cause irritation or other noticeable symptoms. However, this is rare, because tap water is safe.

''Yet, many people boil their water, and even more prefer bottled water,'' she continued, ''not only in Bangkok, but even in America. But we (every employee at the MWA) drink tap water. We know it's clean. Why waste money?''

Mr Suppakiat said he too too drinks tap water at home and has not had any health problems.

''Twenty years ago, I even gave it to my newborn baby, although my wife forced me to boil it first,'' he confessed. He added that the quality of tap water has improved over the years.

''It's safe. No one has ever had any disease because of drinking tap water in Bangkok. However, home owners should bear in mind that worn out pipes should be replaced and water tanks should be cleaned frequently to minimise chances for water contamination.''

He also assured that the quality of tap water throughout Bangkok did not deviate much as all treatment plants use the same procedures and have the same water source.

However, he cautioned, the tap water quality could be substantially different in other provinces.

''Considering smaller scales of investments, different water sources and larger quantities to be treated, I would not guarantee that tap water supplied by the Provincial Waterworks Authorities meets WHO standards.''

TAP A BETTER CHOICE?

After the tour at the Bangkhen treatment plant and the discussion with quality control expert, we had a considerably better opinion of what is coming out of the taps in Bangkok.

Perhaps tap water in Thailand is not believed to be as good as the bottled alternative because it is much less expensive. People fail to realise that this higher price could merely be a result of the costs of marketing, packaging and transportation, that they are paying for media advertisements, plastic/glass bottles and fuel rather than better water.

It is a common assumption that bottled water originates from pristine environments, but very often the source is tap water. It may have undergone additional treatment, like ultraviolet, ozone finishing or reverse osmosis , or it may just turn out to be tap water sealed in bottles. Mr Suppakiat said that some brands of bottled water in Thailand contain tap water that has only been passed through activated carbon to filter chlorine. As a result, chances for contamination in such water are higher than in tap water.

On the other hand, the preference for bottled water could be mostly due to effective marketing campaigns. The MWA obviously has little capacity for marketing, but Mr Suppakiat would at least like to promote the fact that tap water is drinkable. However, heavy advertising would increase costs, and since tap water is a public service intended for the use of everyone, raising prices would disproportionately affect poor people. Cost is an especially significant issue for the MWA these days, as raw water quality has been deteriorating.

Therefore, said Suppakiat: ''We don't comment much on the preference for bottled water. It is a personal choice and our goal is not to increase sales of tap water. As the saying goes, you can choose to have a bottle of protein drink regularly instead of simply boiled eggs for good health, but the nutritional content of both are just the same. Likewise, bottled water and tap water are both equally safe for drinking.''

The MWA has been trying to raise awareness in young Bangkokians that tap water is drinkable through school field trips to tour the MWA treatment plant. Perhaps future generations will be less reluctant to trust the city water supply.

One thing is clear, drinking tap instead of bottled water would clearly save money for families and individuals. If you buy just one 10-baht bottle of water a day, that's 3,650 baht a year. Most people probably spend a lot more than that. When one considers all the plastic used, not to mention fuel, in perpetuating the bottled habit, such a switch could have a significant effect on the environment as well.

Of course, we're not saying that one should totally abandon bottled drinking water. After all, taking pleasure in drinking mineral, sparkling, or spring water is absolutely harmless.

However, a strict preference for bottled water may not be warranted when there is a cheaper and equally safe choice so easily available. The next time you start out the door to pick up another load of bottled water, perhaps you should consider the tap alternative.

This is the second in a two-part series on drinking water in Thailand. The first part ran on Jan 14, 2007.

Watering nostalgia

One Bangkok Post staffer, a Thai currently in his 50s, spoke fondly of growing up in a time when rainwater was still a common water source. "I spent my childhood days in the countryside. We had rainwater stored in an earthenware container. Rainwater was so delicious and cool," he remembers. There are many people in Thailand, and Asia for that matter, who keep a fondness for rainwater. Some people even today consider rainwater as the only truly fine water source.

However, the conventional practice of storing rainwater for drinking and domestic purposes has faded in present day Thailand. Times have changed, and even in rural areas most people have switched from rain to tap as pipelines have been developed.

Mrs Jasbir Kaur, a resident of Mae Sot, close to the Burma border in Tak province, recalled that most of their water came from another source.

"Houses in Mae Sot did not have tap water 40 years ago. My mother would pump water out of the well," said the 52-year-old. It was used for all domestic chores, as well as for cooking and drinking.

Despite the nostalgia, abandoning rain and well water as primary water sources should probably be considered as a positive change, as today's uniform distribution systems can be much more easily certified for safety. A study done by Mahidol University researchers found that water allowed to settle for long periods of time can have high levels of bacteria.

For example, rain water flowing on a roof before reaching its containing vessel may sweep across some bird feces, or the containing vessel itself may have some mice feces. In either case, the bacteria could then multiply and contaminate the water, making it undeniably un-fit for drinking.