January 20, 2012 19:53 PM

Purchase This News

"Hidden Hands" In Flash Floods

By Melati Mohd Ariff

KUALA LUMPUR, Jan 20 (Bernama) --- It is extremely hot these days, with the afternoon temperature hitting a high of 37 degrees Celsius, but many city folks just shrug their shoulders and move on with their lives.

To them, the scorching heat is better than the heavy downpour that has left them with the anxiety of dealing with flash floods.

Flash floods and the ensuing massive traffic congestion: Many city folks are left pondering this scenario each time the sky darkens.

NIGHTMARE

Flash floods being a recurring phenomenon to city dwellers, they have become part of their lives. However, encountering a flash flood can still cause them nightmares.

Many motorists who use Jalan Tun Razak, particularly the stretch near the National Library, still remember what happened on Dec 13, 2011.

Exceptionally heavy rain, which lasted for about two hours, caused a flash flood, trapping thousands of motorists heading home from work. The flash flood occurred when Sungai Bunus overflowed its banks and the water spilled onto Jalan Tun Razak and the surrounding areas.

A similar situation happened the next day, when a two-hour heavy rain caused some areas to be flooded. Among the worst hit were Jalan Chan Sow Lin and Jalan Brunei in Pudu.

With the two episodes behind them, city folks may now momentarily breathe easier, despite having to endure the blazing temperature from the sun.

WHY IT HAPPENS?

Flash floods happen suddenly, after which the water level recedes within a short period of time. But what actually causes the flash floods?

Many motorists have this question on their minds while trapped in massive congestion, which means having to be home late than usual.

Many point their fingers at local authorities. Others blame narrow rivers and clogged drains. Some say it is due to climate change.

To environmental activist S. Piarapakaran, it is unfair to blame climate change for flash floods.

Climate change, he said, takes place because of human greed in destroying nature.

"It is like when we have fever due to infection. Likewise, it is just natural for earth to adapt to changes in the surroundings. Climate change cannot be stopped. It will continue until equilibrium is achieved.

"But with technology we can be more prepared to mitigate the effects of climate change," he said.

CLEARING OF FORESTS

Piarapakaran said flash flooding is closely related to the clearing of forests to fulfill the country's growth and development.

"Since the early 1960s, we have been experiencing rapid development. So many so vast areas of forests were cleared to make way for industrial,

Other News

- Kazakhstan, A Young Country With A Big Future
- Chap Goh Meh Evolves With Time And Aspirations
- Shopping Boost For The Malaysian Economy
- RTC Gopeng Pioneers Rural Transformation

agricultural and housing projects.

"This has directly increased the surface water flow (rain water that flows on top of earth's surface) during rainfall," he explains.

Piarapakaran, who is President of Association of Water and Energy Research Malaysia (AWER), said when it rains in dense forest, the forest will absorb the rain and release it slowly into rivers.

"In the absence of forests, water flows instantly and this contributes to the increase in flash floods. To cater to the increase of surface water flow, the authorities build many concrete drains.

"However, it does not assist in solving the problem," Piarapakaran said.

RUBBISH NOT THE CULPRIT

By looking at the state of rivers in the country, we can see they are fast becoming our rubbish dumps. Even drains are becoming a favourite for many city dwellers to dump unwanted stuff and garbage.

Just take a look at the rubbish floating in the rivers and drains. Today, even human bodies and fetus are reported found in rivers!

Nevertheless, according to Piarapakaran, rubbish can no longer be faulted for causing flash floods.

SHEER INSULT

"We often hear people saying how rubbish chokes the drainage system and causes flash floods.

"However, this has its limits. The recent flash floods in Kuala Lumpur and Kajang cannot be blamed on rubbish alone. To continue using such an excuse is an insult to engineering knowledge," said Piarapakaran, who is an environmental engineer.

Although clogged drainage is one of the reasons for flash floods, rivers and monsoon drains (huge concrete drains) that overflow have nothing to do with rubbish.

According to Piarapakaran, it is related to design and maintenance, which is more than satisfactory.

He explained that drainage design is not static and that it has to be improved with time.

"We know that many old drainage designs have not been upgraded.

"With the increase in non-permeable surface (surface that does not absorb water) as the result of housing development, business areas and roads, a lot of rainwater will flow on the surface.

"If the drainage system is inadequate, flash floods will be a normal occurrence," he elaborated.

DEEPENING THE RIVERS

When asked whether deepening the rivers could be a possible solution to flash floods, Piarapakaran said such a measure should be uniform.

Deepening a river, he explained, means the volume of water carried at a specific time will increase.

If it is only deepened in affected areas, the areas flowing out will be more shallow.

Such a situation, he added, would only make things worse with settling of sediment, and perhaps a worse flood may occur.

"I have visited drainage that is zigzag and straight.

"Areas that have obstacles, whether corners or uneven base of the drainage (with rocks or blocking structures), will have a hydraulic jump (height of water flowing increases immediately).

"When hydraulic jump happens, rainwater flowing into the drainage will be blocked. Sometimes, it overflows from the drainage," he said.

MUST BE FLEXIBLE

According to Piarapakaran, the calculation method of drainage design has to be flexible.

In engineering, he said, every design is prepared to function in a worst-case scenario.

This means that the design we have for flood mitigation should be

functioning to cater for more than the worst-case scenario.

However, if the critical condition (heaviest rainfall) increases rapidly, it can cause design failure and flash floods will be more frequent.

"Therefore, in the design process, the rate of the increase in critical conditions must be considered.

"How do we actually measure failure of a flood mitigation design? If flash floods occur frequently within a short period of implementation of the mitigation project," he explained, it is a failure.

OBSERVE NATURE

"Mimic nature," Piarapakaran said when asked if deepening the drainage is a feasible option in dealing with flash floods.

He was referring to the fact that water flows from higher to lower elevations due to gravity.

During its journey, it forms fresh water swamps and lakes. Similarly, it needs to maintain a good infiltration of water to the soil to maintain the level of groundwater.

"This is the principle of natural water flow. Therefore, flood mitigation projects must be based on this principle.

"If such a principle fails to be implemented, not only we will fail to solve the flash flood problem, we may worsen it," he explained.

Piarapakaran also talked on the subject of retention ponds, which he said need to be maintained periodically. The groundwater level also affects the function of such retention ponds, he said.

APPLICABLE METHODS

The AWER president shared some applicable methods which he deems can delay surface water flow.

One involves the erection of hollow tubes vertically into the soil, filled with hollow stones. The stones will absorb the water during rainfall and slowly release it to groundwater.

Another method is to have recreational areas, which have wavy surfaces, covered with grass.

This is a temporary rain water retention area and very suitable in housing estates. Other methods include having more man-made lakes, which he said is a normal method in Malaysia.

The lakes can be used to retain rain water and the water is then released at a predetermined rate.

Such lakes can also be used as recreational areas, he said.

Piarapakaran also suggested the building of man-made fresh water swamps that he said can contain more water than lakes.

"In these areas, a variety of plants can be grown that can improve the water quality.

"Putrajaya uses this method to manage surface water flow," he added.

-- BERNAMA

Back Top

Home | General | Politics | Business | Sports | Features | World | Full News List | Archived News | RSS Feeds | Our Facebook | Our Twitter