

City Talk



Going from being totally flooded on September 8 to operating almost as usual a day later is incredible.



NO PLACE FOR FINGER POINTING OVER DELUGE

This month's once-in-500-years rain, with the deluge cascading to 600 millimeters of rainfall in the span of just 24 hours, caused extensive flooding.



Nuts and bolts

Edmund Leung

The rainfall for those 24 hours alone is equal to one fourth the annual rainfall for Hong Kong and the worst in history.

Our rainwater drainage systems are designed for once-in-200-years rain.

This caters for the eventuality of a 0.5 percent chance of a severe storm.

But this time the torrential rain far exceeded that, inevitably causing floods in many low-lying areas and their underground structures and landslides.

I am going to say something controversial: this is a natural occurrence and cannot be easily prevented.

Hills, created during volcanic eruptions, are weathered down by rain and water flows to form valleys and flood plains that, being fertile and flat, are perfect for dwellings and farming.

And then, once in a long while, a large flood occurs and the ensuing serious damage to dwellings forces their occupants to move to another safer location until the next severe flood occurs.

This cycle of naturally forming terrain probably occurs over some 100,000 years, but for our civilization of thousands of years, we see such adverse weather from a nearer perspective, and it is convenient to blame authorities.

But we also know that, if we want to cater for such eventualities, it would involve no houses on plains, no basements or underground structures and the need for huge drainages that we are unlikely to need for hundreds of years.

No government will have the resources to build a city to such standards.

But there are effective ways to design city drainage systems for safe occupation.

If floodwaters exceed the designed volume, they can be led to surface drains that discharge into the sea, confining the floods to a smaller part of the city.

Provided human lives are not affect-

ed, such measures would be a lot more manageable and effective.

I shall try and explain what our government has done to cater for torrential rains in my next article.

As for landslides, when soil in a slope is saturated with water and soil drains are unable to disperse the water fast enough, frictional properties are lost and parts of a slope will start to slide down.

Hong Kong is probably in the forefront in cataloguing all slopes and monitoring them for integrity. That is why we seldom see landslides these days.

Sharp slopes have retaining walls to ensure the soil is protected, and soil nails are often used to increase their stability.

However, in the recent rain, a few landslides were induced by unauthorized underground structures.

The problems they pose are threefold.

First, they add load to a slope's top.

Second, they intrude into the retaining walls and weaken their effectiveness.

Third but most important, most of them do not have proper drainage systems, causing a water buildup to saturation point and the soil to lose frictional forces, resulting in landslides.

Such landslides are the result of a wilful disregard for safety and integrity of slopes, so I'm glad to see authorities taking serious action.

The government and public utilities must be thanked for their extraordinary efforts in maintaining safety, reopening roads and railways and maintaining power and water supplies to enable the city to keep operating after the torrent.

That Wong Tai Sin station reopened a day after looking like a swimming pool is incredible and deserves special praise.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over features of modern life