The Standard

About time we cleaned up our act in sewage

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I have alluded in past columns to the kind of locations that humans favor for habitation.

As populations grew, men moved from caves to plains, and near river estuaries or ocean shores, taking advantage of the flat land to farm and catch fish.

Human bodily waste, in the form of liquids and solids, were left in fields in ancient days.

Decomposed fecal matter was recycled and became fertilizers for farming.

But as population density increased, people soon found it unhygienic to just leave it lying around.

The advantage of living near a river or sea is that such unwanted waste can be dumped and dispersed. Human waste disposal was then solved for many generations.

As civilizations grew and people gathered in cities, there grew a need to direct such unwelcome waste away. Sewage systems were soon developed.

Fast forward to modern days, and all cities have sewage systems.

The most primitive of these would be by a system that drained the waste directly to a river by gravity.

But with population increases, the volume of waste discharged into rivers soon causes problems downstream.

In worse cases, they cause diseases, or even plagues.

The most primitive sewage system consists of septic tanks.

An underground tank is built to collect waste. Pebbles and stones of increasing sizes are placed in it so solids can be trapped and allowed to decompose, while liquids can be drained, either directly into the ground below, or into a sewerage piping system.

Microorganisms will decompose the living organisms in the waste and turn them into harmless material before they are discharged to the sewage, thus protecting others downstream.

This system is still used in village houses in Hong Kong, as in many parts of the world, as it is simple and almost maintenance free. As cities grow and people live in multistory blocks, the septic tank system reached its limit and was replaced by something more sophisticated.

In Hong Kong, over many decades, waste was collected by an underground sewerage system and discharged into the harbor without filtering or treatment.

You can imagine the damage it has caused to our fragrant harbour over the years, and it soon became unacceptable for a modern hygienic city.

In the 1990s, the drainage services department developed a strategic sewage disposal scheme.

It collected the contents of the sewage system from our city and pumped it along a long submersed pipe to be discharged much further away to the mouth of the Pearl River estuary.

It might have solved the problem for Hong Kong, but affected inhabitants living further downstream.

This was certainly unacceptable and soon a comprehensive sewage treatment system, called the Harbour Area Treatment Scheme, was developed.

The modern version consists of primary and secondary treatment systems. In principle, it entails a physical and a biological system, ensuring that sewage discharged into the sea will be of a quality acceptable to others.

As cities grow, not only do we have transport needs, hygiene issues may become even more vital, as we have suddenly noticed in the recent coronavirus pandemic. We cannot afford to live selfishly, as very soon the chickens may come home to roost.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over Hong Kong's iconic infrastructure