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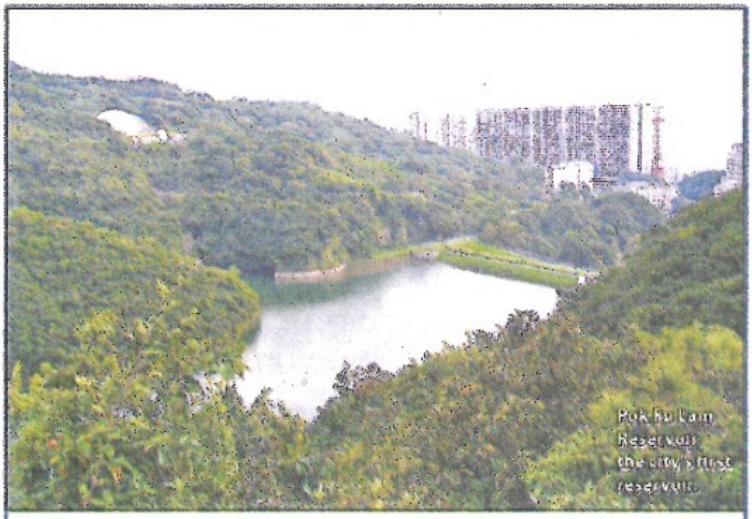

WE'VE COME A LONG WAY WITH WATER SUPPLY

Of all the public utilities we enjoy in a city, water must be the most important.

We should be able to live without electricity and oil for days, deal with our sewage and waste, and can certainly do without electronic communication, but no one can survive without water for a few days.

When Hong Kong was a fishing village up to a few generations ago, the streams provided adequate freshwater, as the population was small.

As villages grew and people moved to the waterfront, they dug wells as the streams became too far to go to fetch water for drinking and cleaning on a daily basis.

As the population increased in the past century, and the fishing villages evolved into a city, it was obvious that streams and well water would not meet the growing demand, and some method of storing rainwater became necessary.

The reservoir system came into being.

That is essentially formed by building a dam at the lower end of a river valley, so that water can be stored in the valley.

Building a reservoir requires some engineering study, as ground conditions in the valley must be solid to allow water to stay without excessive seepage.

Fortunately, there is no shortage in Hong Kong of hard granite, which is impervious.

The technology for building dams had become common two centuries ago, thanks to its widespread application in Western countries, where cities were formed much earlier than Hong Kong.

Most dams are made of concrete and designed to withstand the high water pressure at the bottom.

Hence, they have a wider base and a slimmer top.

In many cases, the top of a dam can be used as a road or a footpath, providing access to pedestrians or vehicles across the valley.

Reservoirs need a much larger area to collect water for storage. This area is called the catchment area.

To ensure that rainwater can be collected without too much contamination, the catchment area has to be controlled so that there are neither dwellings nor farming activities.

This is indeed the origin of the country park areas for us.

The original zoning for country parks was not decided by the scenery, and seldom for the preservation of flora and fauna, but by physics to ensure a clean environment for clean water collection.

According to my limited research, Pok Fu Lam Reservoir was the first in a series of reservoirs we built to supply water to the residents of our city.

As the population grew, the volume of water required became larger, and more reservoirs had to be built.

So, Tai Tam Reservoir was built, quickly followed by the Wong Nai Chung Reservoir.

When some people moved over to Kowloon, a series of reservoirs were built, starting from Shing Mun Reservoir, then Shek Pik Reservoir.

A cross-harbor piping system was also built to allow better distribution of water in winter times, as our rainy season is mainly in summer.

The New Territories also has a larger potential area of land to allow larger reservoirs to be built.

As our economy grew, and our living standards became higher, soon these reservoirs reached capacity, and water-supply restrictions became necessary.

I shall explain in the next articles how Hong Kong coped with the rapid growth in water demand.

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