

**Shenzhen Reservoir plays a vital role in Hong Kong's water supply.** XINHUA



## ROLLING WITH TIMES WHY WE'RE AWASH IN SUPPLY

As previously explained, even with extensive use of seawater for flushing, we still need to import almost 60 percent of our water from Dongjiang, or 75 percent if we only count freshwater.

While this has ensured we no longer need to suffer from water restrictions even in years of drought, this can only be achieved with a lot of planning and effort.

The Dongjiang-Shenzhen water supply scheme starts at Shenzhen Reservoir.

Along the 80-kilometer distance from Dongjiang to the reservoir, the terrain is hilly and requires four stations in Dongguan and Shenzhen to pump water to Muk Wu in Hong Kong.

To ensure a steady supply, the supply scheme has undergone four stages of expansion from initially supplying only 68.2 million cubic meters to the current capacity, which is capable of supplying an annual amount of 1,100 mcm.

Though the infrastructure was designed to supply this quantity, with our industrial activities having gone north due to natural economic developments, the recent increase in the use of freshwater is only due to population growth and ever-improving living standards, and has been less than that originally projected.

The current agreement is based on a "package deal lump sum" approach, which allows us to import water on an "as needed" basis but up to a ceiling figure.

This ensures we do not receive excess water that we do not actually need.

However, to maintain security of supply, an annual ceiling of 820 mcm is procured to ensure adequate supply even under extreme drought conditions.

We are fortunate that this water supply plan started in the 1960s, when Shenzhen was hardly developed, and infrastructural projects were easily implemented.

Over the past half-century, with rapid development bringing in some industrial activities, continuous improvement projects were necessary to maintain the cleanliness of the water quality in Shenzhen Reservoir and the supply system.



### Nuts and bolts

Edmund Leung

Also, to ensure the cleanliness of the supply, a series of other infrastructural improvements were implemented.

Open channels, used in the early stages of supply, soon needed to be converted to dedicated aqueducts, at substantial costs.

The neighboring area has also been under stringent development control to ensure there is no contamination, even in adverse weather conditions.

To ensure that waste from domestic activities in the area do not enter the reservoir, interception and diversion facilities had been built to bypass it.

The reservoir was originally designed to also allow Shawan River water to discharge into it. This was duly redirected.

At Shima River, a rubber dam holds and diverts water during storms.

Such improvements ensured minimal contamination risks to the reservoir.

These huge enhancement works and the need for pumping stations to negotiate the hills add up to the substantial capital and operation expenses.

It is therefore not difficult to understand that a major part of these costs had to be paid by consumers, the people of Hong Kong, who are the priority consumers of this water.

With this flexible supply deal, there has been no recent record of Hong Kong discharging freshwater into the harbor due to excess supply from Dongjiang.

The people of Hong Kong can now enjoy good quality freshwater supply without any interruption, commensurate with Hong Kong being an international city with high standard of living.

Our public utility service is second to none, thanks to good planning and continuous improvements, monitoring and control.

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