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Collection of Rainwater and Reservoir Operations in Hong Kong

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Abstract:

It has always been a difficult task to provide an adequate water supply for Hong Kong because there are no natural lakes, substantial rivers or underground water sources. The annual rainfall averages 2 214 millimetres but this is insufficient to meet our current demand which stood at a daily average of 2.64 million cubic metres in 2007. Despite the healthy, though erratic, rainfall, the mountainous nature of much of the territory's land has made collection and storage of the precious rainwater a great challenge to water engineers.

Against this background, the practice over the first hundred years or so of Hong Kong's development was to construct large water schemes to collect and store water. There are now 17 impounding reservoirs, 21 treatment works, networks of pumping stations, service reservoirs, about 6 000 kilometres of water mains, 300 kilometres of catchwater and tunnel. Operation of this intricate and complex system requires tact, experience and judgment. Reservoir draw-off has to be carefully designed to take a balanced account of the storage position, the yield received and expected as well as the anticipated demand. A monthly draw-off pattern is prepared to provide guidance for the operation staff to cope with the water demands of the treatment works located throughout the territories.

In this presentation, the speaker will introduce briefly the development of existing rainwater collection system and throw some light into the control measures on reservoir operation in order to optimise the operation costs with due regards to minimising the chances of individual reservoirs overflowing and the risks of local or territory-wide water shortage while taking into account the maintenance requirements of the water transfer systems.