**Climate Change Corner**

**Adaptation to Climate Change for Drainage Systems in Hong Kong**

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Climate change is a continuous challenge. More severe rainstorm together with rising sea level is foreseen. There is a need for drainage systems in Hong Kong to adapt to climate change.

Since 1989, Drainage Services Department (DSD) has been working wholeheartedly to ensure Hong Kong’s safety against the risk of flooding. About ten drainage master plan (DMP) studies have been undertaken between 1994 and 2010 to formulate drainage improvement measures, including drainage upgrading, flood storage schemes and rainwater diversion tunnels for implementation in the territory.

In the past 20 years, DSD spent on average over $1 billion per year on building drainage infrastructure. The Hong Kong West Drainage Tunnel is one of the recently completed rainwater diversion tunnels hitting the newspaper headlines. The number of flooding blackspots in Hong Kong has dropped from 90 in 1995, to 13 in 2013.

Since 2007, DSD has commenced a new round of DMP review studies, revisiting the previously completed DMP studies in the light of the latest climate change development and land use change. Advanced numerical analysis technologies are being deployed to carry out more sophisticated hydraulic modelling and simulation.

The Happy Valley Underground Stormwater Storage Scheme currently under construction is a landmark example of sustainable drainage infrastructure taking into account the effect of climate change ranging from design, appearance to operation

Furthermore, DSD acknowledged the importance to “go green” in striving a low carbon future, and has embraced the eco-hydraulics and eco-city concepts in planning. DSD made much effort in preserving the natural environment while implementing the river channel projects, like Ho Chung River in Sai Kung.

Every opportunity was taken to install green roofs and vertical greening, and has planted thousands of trees within pumping stations and sewage treatment plants. Other sustainable drainage designs under testing include rain water harvesting and porous pavement. In future drainage planning, DSD will aim at a more sustainable “green/blue infrastructure” concept such as stormwater storage, reuse and diversion.

Climate change will no doubt be one of the greatest human challenges in the 21st century. It will require the collaboration of all to work towards a future low-carbon eco-city.

For more information, please visit DSD’s website at [www.dsd.gov.hk](http://www.dsd.gov.hk).

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