

## LCQ4: Flood prevention measures

Following is a question by the Hon Wong Kwok-kin and a reply by the Secretary for Development, Mr Michael Wong, in the Legislative Council today (June 24):

Question:

The Hong Kong Observatory issued the first Black Rainstorm Signal of this year on the 6th of this month. It has been reported that on that day, flooding occurred in extensive areas in Hong Kong which were affected by rainstorms. The flooding in Kowloon East, especially in the vicinity of Hoi Yuen Road and Tsui Ping Road, was particularly serious, and the Kwun Tong Road Underpass was even inundated for several hours, thereby severely affecting the traffic there. In this connection, will the Government inform this Council:

- (1) of the details of the investigations conducted into the flooding reports received during the aforesaid rainstorms, and other follow-up work carried out; given that Kowloon East was not a flooding blackspot in the past, of the measures in place to prevent the recurrence of flooding in that district;
- (2) of the designed flood discharge capacity of the aforesaid roads and underpass, as well as whether it has examined the need to enhance such capacity; and
- (3) given that the rainy season has begun, of the new measures in place to ensure that the various flood prevention measures, drainage systems, seawalls and breakwaters can function properly to prevent the occurrence of severe flooding; whether it will step up its efforts such as clearing the blocked drains in the urban areas?

Reply:

President,

During the rainy season, Hong Kong is from time to time threatened by inclement weather such as prolonged heavy rains and typhoons. The average annual rainfall of Hong Kong is about 2 400 millimetres, making Hong Kong one of the highest rainfall cities in the Pacific Rim. The Drainage Services Department (DSD) and the relevant government departments have been taking multi-pronged measures as well as constructing and maintaining the public stormwater drainage facilities according to their respective responsibilities to reduce the risk of flooding and eliminate flooding blackspots. Among the facilities, those serving the public roads are mainly constructed and maintained by the Highways Department (HyD).

On June 6 this year, Hong Kong was affected by a trough of low pressure, resulting in continuous heavy rains. High rainfall was generally recorded in the widespread of the territory during the period. In the districts of Tsuen Wan, Sha Tin, Tai Po, Sai Kung and Kowloon East, the rainfall exceeded 200mm,

accounting for almost 10 per cent of the average annual rainfall. In the period that the Black Rainstorm Signal was in force, the maximum hourly rainfall recorded by the rain gauge at Clear Water Bay Road in East Kowloon was 139mm, which was far higher than the level of hourly rainfall of 70mm for issuing the Black Rainstorm Signal.

On that day, the DSD activated the Emergency Control Centre according to the established mechanism to monitor the flooding situations in different districts. It deployed more than 40 emergency teams to inspect areas in a number of districts where the drainage systems were prone to blockage by debris and obstacles washed down from the upstream, and also took emergency actions for the 25 flooding cases received. The affected locations resumed to their normal conditions shortly after the completion of the emergency actions.

After consultation with relevant government departments, I provide the reply to the three parts of the question raised by Hon Wong as follows:

(1) On June 6, the DSD and HyD received a total of six flooding cases that took place at East Kowloon. Their locations include Kwun Tong Road Underpass, Kwun Tong Road near Tsui Ping Road and Tsui Ping Road near Fuk Ning Road. The more serious case occurred at the Kwun Tong Road Underpass. After inspection, the HyD unveiled that the gullies and the associated drains alongside the underpass were blocked by a large amount of sands and washout deposits, coupled with the continuous heavy rains, flooding took place at the underpass. With the joint efforts of the HyD and DSD on clearing the blocked road drainage facilities, the affected road sections were reopened on the same day.

To reduce the risk of flooding in East Kowloon, the DSD and HyD specifically re-examined the flood prone areas immediately, including the road drainage facilities affected on this occasion to ensure clearance of drainage channels. With a view to reducing the flood risk and the associated traffic impact, the HyD will also deploy manpower to conduct targeted inspections and clearance during heavy rains for the road sections with higher flood risk.

The DSD will also conduct investigations into flooding cases and formulate appropriate improvement measures in accordance with the findings of the investigations. Improvement measures being considered include the study on the installation of monitoring sensors at the drainage system of Kwun Tong Road and Tsui Ping Road, and the optimisation of the operation of the stormwater storage tank at On Sau Road in the upstream with a view to enhancing the flood resilience and flood prevention capability of the areas concerned.

In parallel, the DSD and the Civil Engineering and Development Department (CEDD) are implementing in phases various public works projects conducive to the enhancement of the flood prevention capability of East Kowloon. Under the project Development of Anderson Road Quarry Site, the CEDD is constructing a flood retention lake and a stormwater storage tank. It is anticipated that the date of operation would be in 2023-2024; and the surface

runoff could be greatly reduced and the burden of the downstream drainage system relieved. As scheduled to commence construction works by 2020, the DSD's project Revitalisation of Tsui Ping River will improve certain bottlenecks at Tsui Ping Nullah. In addition, the DSD has commenced an investigation study on "Drainage Improvement Works in Kwun Tong" in 2018, which mainly includes the construction of stormwater storage tanks at Sau Nga Road Playground, Hoi Bun Road Park and Kwun Tong Ferry Pier Square; and the addition of stormwater drains within the district. The DSD plans to commence the detailed design work within this year for implementing the long-term improvement scheme the soonest possible.

(2) The roads and underpasses under HyD are designed with due consideration of the drainage requirements of individual circumstance and the required drainage facilities are constructed in accordance with the design standard. To cope with the drainage demand under heavy rains, a pumping system has been installed at the affected underpass at Kwun Tong Road. Under normal situation, the gullies in the underpass will collect the rainwater flowing in through the road surface. The rainwater will then be pumped out by the pumps and discharged into the sea through the nearby nullah at King Yip Street.

(3) After the subject flooding incident, the DSD, HyD and other works departments have stepped up the precautionary measures for typhoons and heavy rains, including clearing and maintaining the drainage channels, coastal seawalls and breakwater facilities. The DSD will strengthen the inspection of the drainage in the vicinity of different construction sites and require the responsible persons of the sites to take effective measures to prevent muddy water from being discharged to the public drainage systems and roads.

To manage the risk of road flooding, the HyD has arranged contractors to inspect all the road drains and drainage systems of highway structures under their jurisdiction, and worked with the relevant government departments to strengthen the inspection and clearance works of the outfalls and drains of public roads to ensure that they are free from blockage. With the aim of reopening the affected roads within the shortest period of time to minimise the inconvenience caused to the public and ensure the safety of road users, the HyD will also enhance the cleansing of drainage facilities such as the roadside gullies and pumping systems in road underpasses. Besides, it will deploy additional resources to strive to inspect public roads before and after rainstorms for cleaning up the flooding and blockages that may occur due to rainstorms.

Apart from deploying emergency teams to handle flooding cases under emergency situations, the DSD will also endeavour to deploy manpower to make arrangements for "just-in-time clearance", inspecting the about 200 locations which are susceptible to blockage by litter or debris from surface runoff so as to ensure that drains can be cleared in a "in-time" and targeted manner.

Further, government departments have set up storm surge early alert systems for a number of low-lying areas prone to seawater inundation. Upon the issuance of storm surge early alerts by the Hong Kong Observatory, the DSD will deploy pumping facilities and install flood barriers at the areas concerned, and provide sandbags to the residents and merchants in need in

order to relieve the flood risk brought by storm surges.

Thank you, President.