

## LCQ13: Coping with extreme weather

Following is a question by the Hon Stanley Ng and a written reply by the Secretary for Development, Ms Bernadette Linn, in the Legislative Council today (May 29):

Question:

During the once-in-a-century torrential rain in September last year, a severe landslide occurred on a natural slope above a section of Yiu Hing Road near Yiu Tung Estate in Shau Kei Wan, resulting in the need for temporary full closure of the section of the carriageway fronting Yiu Ming House of Yiu Tung Estate, with one traffic lane only being reopened on March 23 this year. In addition, during the onslaught of rainstorms on the 4th of this month, which was particularly heavy in Tseung Kwan O and Sai Kung, the authorities received as many as 17 reports of landslides. There are views that extreme weather will become more frequent as Hong Kong has entered the typhoon and rainstorm seasons. In this connection, will the Government inform this Council:

(1) of the specific contents and procedures of the recovery work in relation to extreme weather; whether it has set a target for such work (e.g. the time for completion of work) and designated a government department or team to undertake the work; if so, of the scope of work and responsibilities; if not, how the work is being arranged;

(2) of the new measures in place to step up prevention of landslides during extreme weather, such as proactively inspecting hillsides/slopes in locations which are more prone to extreme weather and taking corresponding measures as early as possible; and

(3) whether it will explore the factors contributing to the vulnerability of Siu Sai Wan to severe flooding under extreme weather, and take such factors into consideration when formulating policies and measures to cope with sea level rise and storm surges?

Reply:

President,

My respective replies to the various parts of the Hon Ng's question are as follows:

(1) In response to the impact of extreme weather on Hong Kong last year, the Hong Kong Special Administrative Region Government has summed up the experience, formulated and implemented a number of enhanced measures in four aspects, including advance emergency preparedness, enhanced early warning, decisive emergency response and speedy recovery, with a view to continuously strengthening the overall ability to respond to extreme weather, protecting

people's safety as the first priority, as well as minimising the damage and impact of extreme weather so as to allow people's lives to return to normal as soon as possible. The Chief Secretary for Administration earlier (May 16) led the relevant policy bureaux and departments to hold a press conference to explain the relevant arrangements.

(2) In relation to landslides, the Government has been implementing an effective slope safety system to improve slope safety in Hong Kong and has kept enhancing the capability in coping with landslide risk. For government man-made slopes, government departments responsible for their maintenance (for example, roadside slopes are generally maintained by the Highways Department) should conduct routine inspection and maintenance annually, and to engage geotechnical engineers to conduct inspection every five years according to the Guide to Slope Maintenance published by the Geotechnical Engineering Office (GEO) under the Civil Engineering and Development Department (CEDD) to ensure proper maintenance of slopes and reduce the chance of landslides. Private owners should also follow the same requirements to carry out inspection and maintenance for man-made slopes for which they are responsible. Before every wet season, the GEO will remind private owners to complete all regular slope inspections and the necessary slope maintenance before the onset of wet season through letters, social media posts, television promotional videos, radio broadcasts, media briefings, etc.

In addition to routine inspection and maintenance, the GEO has been further systematically strengthening the slopes against inclement weather according to a risk-based approach. For government man-made slopes, all slopes with relatively high potential impacts (e.g. locating near residential buildings, hospitals and schools) and moderate potential impacts (e.g. locating near major infrastructures, heavily used roads and footpaths) have been upgraded in the early years. At present, the GEO continues the Landslip Prevention and Mitigation Programme to mainly deal with remaining government man-made slopes with moderate potential impacts. In addition, the GEO carries out safety screening studies for private slopes. Based on the slope condition, the GEO will recommend relevant owners to carry out proper maintenance works or, when private man-made slopes are found to have major signs of distress or be liable to become dangerous, recommend the Buildings Department to issue Dangerous Hillside Orders to the relevant owners.

For natural hillside catchments, the GEO has identified those relatively close to existing buildings and important transport corridors, and carries out systematic investigation and studies and implements risk mitigation measures for them in an orderly manner, based on their potential impacts to the surroundings. In response to the extreme weather brought by climate change, the GEO has further identified approximately 500 government man-made slopes adjacent to sole accesses to community or important livelihood facilities, and has required relevant slope maintenance departments to complete special inspections for these slopes, on top of the regular inspection and maintenance, before the wet season so as to minimise the potential impact on people's lives due to incidents on these slopes. The special inspection before the wet season this year has been substantially completed.

Furthermore, the Government will adopt a more pre-emptive and strategic approach to continuously enhance the prevailing slope engineering design standard and preventive measures and to support relevant work on slope safety risk management through the application of innovation and new technologies (e.g. remote sensing technology and smart barriers). The Government will also explore ways to use big data, artificial intelligence and other technologies to improve our landslide risk assessment capabilities.

(3) The Government has been monitoring the situation in various districts under extreme weather conditions. Past serious flooding incidents in Siu Sai Wan mostly occurred during passage of tropical cyclones and were mainly caused by the rise in sea level by storm surge and waves approaching shores surpassing the coping level of seawall, resulting in seawater inundation at coastal areas.

The CEDD has updated the design parameters, such as storm surge increase and sea level rise, in the Port Works Design Manual taking into account the data from super typhoons, the Sixth Assessment Report by the United Nations' Intergovernmental Panel on Climate Change, and the relevant research findings. Moreover, the Drainage Services Department has made reference to the Sixth Assessment Report and updated the Stormwater Drainage Manual to provide the latest data and guidelines, including updating the design requirements for the rainfall increase and sea level rise associated with climate change, for designing and planning of stormwater drainage infrastructure.

In response to sea level rise and storm surges caused by climate change, in respect of short and medium-term measures, the CEDD completed a coastal hazards study in end-2021, which identified coastal low-lying or windy residential areas with higher risks for formulation of improvement works and management measures to safeguard public safety. The improvement works have been progressively taken forward and are anticipated to be completed in an orderly manner by 2027. In the long term, the CEDD has also commenced a study on Shoreline Management Plan with an aim to providing guidelines on planning and implementing urban coastal development and protection measures, and formulating the related long-term strategies and preventive measures in order to enhance the Government's and relevant stakeholders' capacities to combat climate change. It is expected that the study will be completed in the fourth quarter this year.