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**Legislative Council**

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**Panel on Development**

**Meeting on 26 May 2020**

**Updated background brief on  
Government's efforts on landslide prevention**

**Purpose**

This paper provides background information on Government's efforts on landslide prevention and summarizes the major views and concerns expressed by Members of the Legislative Council on the subject.

**Background**

2. Following a number of landslide disasters in the 1970s, the former Geotechnical Control Office (now the Geotechnical Engineering Office ("GEO") of the Civil Engineering and Development Department ("CEDD")) was set up in 1977 to tackle the slope safety problem. To manage slope safety work, the Administration maintains records of man-made slopes in Hong Kong in its Catalogue of Slopes. It also implemented the Landslip Preventive Measures ("LPM") Programme for over 30 years, from 1977 to 2010<sup>1</sup>, to deal with man-made slopes at relatively high risk in the Catalogue.

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<sup>1</sup> The Landslip Preventive Measures ("LPM") Programme was launched in 1977. In response to the Kwun Lung Lau landslide of July 1994, the then Works Branch conducted a Slope Safety Review which recommended, inter alia, speeding up the upgrading of substandard slopes and maintenance of slopes. This led to the 5-year accelerated LPM Programme from 1995 to 2000. A territory-wide review conducted between 1994 and 1998 registered more than 40 000 sizeable man-made slopes which had not been previously included in the Catalogue of Slopes. In view of the additional number of slopes identified in 1998, the Administration drew up an expanded 10-year LPM Programme to deal with the high-risk man-made slopes for commencement in 2000 and completion in 2010.

## **Landslip Prevention and Mitigation Programme**

3. In late 2007, the Administration launched a rolling Landslip Prevention and Mitigation Programme ("LPMitP") to dovetail with the LPM Programme which was due for completion in 2010. Under LPMitP, which has an expanded scope covering also natural hillside catchments, the most deserving man-made slopes and natural hillside catchments are selected for studies each year in accordance with a risk-based priority ranking system. The necessary landslip prevention and mitigation works, as identified by the studies, are implemented under the programme. The then pledged annual outputs of LPMitP were (i) to upgrade 150 government man-made slopes; (ii) to conduct safety-screening studies on 100 private man-made slopes; and (iii) to implement risk mitigation works for 30 natural hillside catchments.

4. The Administration completed a review of LPMitP in 2015. Based on the review, LPMitP was found to be in satisfactory progress and delivering the pledged outputs in an effective manner. The Administration considered that the pledged annual delivery targets of LPMitP were appropriate in balancing the need to contain landslide risk against public disturbance, and having regard to the capacity of the geotechnical engineering profession and workforce. For the sake of public safety, the Administration considered it necessary to continue with the implementation of LPMitP, with the pledged annual outputs remaining unchanged.

5. In conjunction with the implementation of LPMitP, the Administration would continue to exercise geotechnical control on new slopes by auditing their design and the standard of site supervision of their construction, undertake regular maintenance of government slopes to prevent deterioration, provide public education to maintain public awareness of landslide risk, and issue landslip warning during heavy rainfall to warn the public of the likelihood of landslides.

## **Views and concerns expressed by Members**

6. The major views and concerns expressed by Members on landslide prevention at the meetings of various committees since the 2007-2008 legislative session are summarized in the ensuing paragraphs.

## Effectiveness of the Landslip Prevention and Mitigation Programme

7. In deliberating LPMitP at meetings of the Panel on Development ("the Panel") in 2007 and 2015<sup>2</sup>, members expressed concern about how the Administration would identify problematic slopes. Taking into consideration that LPMitP would deal with landslide risks from a considerable number of man-made slopes and natural hillside catchments<sup>3</sup>, but the risk prevention and mitigation works would only be implemented for a limited number of them each year, some members opined that it would take a long time to complete the works under the programme. Some members enquired how new technologies would be applied to further enhance the effectiveness of the Administration's work in slope safety management. They also considered that the Administration should maintain public awareness of landslide risks and alert the public to the likelihood of landslides at appropriate places.

8. The Administration explained that a risk-based priority ranking system was used under LPMitP to determine the rankings of man-made slopes and natural hillsides, and landslide prevention works would be carried out in accordance with the priorities on the ranking list. The Administration had been conducting on an ongoing basis researches on the latest technologies and overseas practices for enhancing slope safety in Hong Kong. The Slope Safety Technical Review Board<sup>4</sup> had conducted annual reviews in order to benchmark the work carried out under LPMitP and other aspects of the slope safety system against international best practices. In conjunction with LPMitP, the Administration would continue to provide public education to maintain public awareness of landslide risks. Information about the natural hillside catchments with previous failure would be uploaded on the slope safety websites. Warning signs would continue to be erected at appropriate places, which included slopes already included in the list for implementation of risk mitigation works and slopes in respect of which Dangerous Hillside ("DH") orders had been issued to the private owners concerned.

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<sup>2</sup> The meetings were held on 18 December 2007 and 10 November 2015 to discuss the details and review of the Landslip Prevention and Mitigation Programme respectively.

<sup>3</sup> According to the Legislative Council Brief ([File Ref.: DEVB\(CR\)\(W\) 1-150/72](#)) discussed by the Panel in December 2007, upon completion of the LPM programme in 2010, the remaining landslide risks would mainly arise from about 15 000 man-made slopes and 2 700 natural hillside catchments.

<sup>4</sup> The Slope Safety Technical Review Board appointed by the Director of Civil Engineering and Development was established since 1995 to advise the Government on technical aspects of the slope safety system. The tenure of each Board is 4 years. The current Board is the seventh Board, which commenced in July 2018.

### Maintenance responsibilities for private slopes

9. While LPMitP targets mainly at slopes in public areas, the maintenance of private slopes is the responsibility of the owners. When a private slope is found to be dangerous, the Buildings Department ("BD") will serve a DH order to require the slope owner to investigate and if necessary to rectify the slope. In view that private slope owners might face financial or technical difficulties in maintaining their slopes, some members enquired about the assistance provided by the Government to these owners.

10. The Administration advised that to help private slope owners comply with DH orders, the Government had been providing both financial assistance and technical advice. Of the schemes concerned, BD administered the Building Safety Loan Scheme to assist owners to improve the safety of their building and slopes. The Integrated Building Maintenance Assistance Scheme administered by the Hong Kong Housing Society and the Urban Renewal Authority also provided assistance to owners who were in need of financial assistance for carrying out maintenance or improvement works of slopes for which they were responsible. The Community Advisory Unit under GEO of CEDD offered free-of-charge technical advice and assistance in regard to the related geotechnical works. The Unit had also published a guide entitled "Simple Guide to Dangerous Hillside Orders" which provided a simple step by step approach for private slope owners to fulfill the requirements of the DH order promptly and effectively.

11. Some members expressed concern about the number of outstanding DH orders for owners of private man-made slopes to comply with, and that some DH orders had been long overdue. They called on the Administration to formulate policies/measures to clear the backlog of outstanding DH orders in a more effective and efficient way.

12. The Administration advised that where a DH order had not been complied with after a specified period, BD would issue a reminder and, if appropriate, warning letter to the slope owner to comply with the DH order before instigating prosecution. Prosecution would be initiated if the owner failed to comply with the DH order without a reasonable ground. BD might also consider engaging its consultants and contractors to carry out the required works in the owners' default, and recover the costs of works and supervision charge and surcharge from the owners afterwards.

### Landscape treatment of slopes

13. When discussing a funding proposal on landslip preventive works at a meeting of the Public Works Subcommittee in 2009, members opined that the Administration should select suitable tree species for planting on slopes and

should avoid the use of sprayed concrete to stabilize the slopes. The Administration advised that sprayed concrete was used only as a last resort for slope safety reasons and mainly as emergency repairs. Under LPMitP, landscaping works would be carried out alongside upgrading works for man-made slopes and risk mitigation measures for natural hillsides. Vegetation cover would be used as far as possible to make their appearance more natural and blend with the environment.

14. As regards the measures that the Administration took to encourage private owners to carry out greening work on their slopes, the Administration advised that CEDD had an on-going public education programme to promote safe and green slopes through measures such as operating a public enquiry hotline, publishing education materials, etc. CEDD had also published guidelines which included the methods and requirements of slope maintenance works for reference by private slope owners.

### **Council questions**

15. Questions relating to landslide prevention and maintenance of slopes were raised at various Council meetings. The relevant hyperlinks are in the **Appendix**.

### **Latest development**

16. At the meeting of the Panel on 26 May 2020, the Administration will brief the Panel on the Government's efforts to address the landslide threat brought about by more frequent extreme rainfall events in the light of climate change.

### **Relevant papers**

17. A list of relevant papers with their hyperlinks is in the **Appendix**.

## Government's efforts on landslide prevention

## List of relevant papers

| Date of meeting  | Committee                 | Papers/Minutes of meeting   |
|------------------|---------------------------|---|
| 18 December 2007 | Panel on Development      | <a href="#">Legislative Council Brief on Post-2010 Landslip Prevention and Mitigation Programme</a><br><br>Minutes of the meeting [ <a href="#">Minutes</a> ]   |
| 4 November 2009  | Public Works Subcommittee | Administration's paper on Head 705 — Civil Engineering — Public Safety — Landslide Prevention — Subhead 5001BX — Landslip Preventive Measures [ <a href="#">Paper</a> ]<br><br>Minutes of the meeting [ <a href="#">Minutes</a> ] |
| 10 November 2015 | Panel on Development      | Administration's paper on "Review of Landslip Prevention and Mitigation Programme" [ <a href="#">Paper</a> ]<br><br>Minutes of meeting [ <a href="#">Minutes</a> ]<br><br>Follow-up paper [ <a href="#">Paper</a> ]               |

## Hyperlinks to relevant Council questions:

| Date             | Council question  |
|------------------|---|
| 24 February 2010 | Question raised by Dr Hon David LI on " <a href="#">Extended landslip preventive measures</a> "                                 |
| 20 October 2010  | Question raised by Hon CHAN Hak-kan on " <a href="#">Factors of consideration in selecting the tree species to be planted</a> " |

| <b>Date</b>      | <b>Council question</b>   |
|------------------|---|
| 11 May 2011      | Question raised by Hon CHEUNG Hok-ming on " <a href="#">Landslide risk of slopes in Hong Kong</a> "               |
| 15 February 2012 | Question raised by Hon Alan LEONG on " <a href="#">Landslip preventive measures programme</a> "                   |
| 27 April 2016    | Question raised by Hon IP Kwok-him on " <a href="#">Measures to prevent landslides</a> "                          |
| 25 October 2017  | Question raised by Dr Hon Priscilla LEUNG on " <a href="#">Contingency plans to cope with natural disasters</a> " |