















Points to Note A comprehensive Slope Safety System is in place to deal with the landslide problems. The overall landslide risk from old substandard man-made slopes to the community has been reduced significantly in the last 28 years. The scale and severity of the landslide problems in Hong Kong have been much decreased.

Points to Note Rapid advancement in geotechnical and information technology will continue and that open up more opportunity for its application in geotechnical engineering. Rising landslide risk from natural hillsides deserves increasing attention. The aesthetics of slopes are being enhanced.

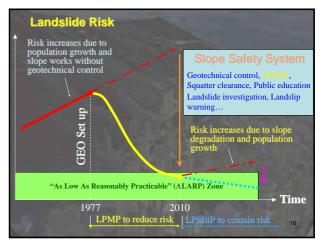
Points to Note

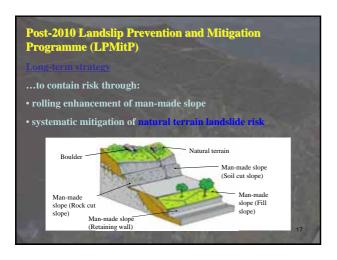
- Integration of slope upgrading works and provision of landscape treatment and bioengineering at the design and construction stage.
- The Government has taken the lead in pioneering research and application of landscape treatment and bio-engineering on man-made slopes.
- Extension of implementing bio-engineering measures on natural terrain landslide scars

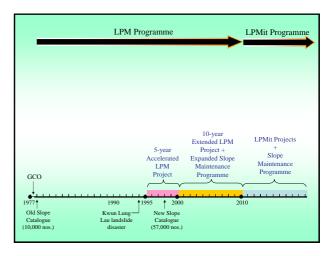
Points to Note

- There is still more room for improvement.
- We have several relatively dry years and there were no significant landslides.
- It is hard to maintain public awareness of landslide risk at time of relatively calm period.
- Do not be complacent on landslide risk.
- The Government, profession and the public need to be alert and continue to be vigilant.

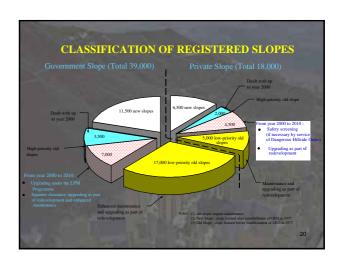








Current Committed Programme In 1998, pledged to ExCo/LegCo to deal with all old (pre-1977), high-priority man-made slopes (i.e. high risk slopes affecting major roads and developments) between 2000 and 2010 via: (a) 10-year Extended LPM Project under LPM Programme (b) integrated action under development projects (c) enhanced maintenance programme (EMP) (d) non-development clearance (NDC) of vulnerable squatters



Scope of 10-year Extended LPM Project 2000 – 2010

Government Man-made Slopes

- detailed study and upgrading works where found necessary

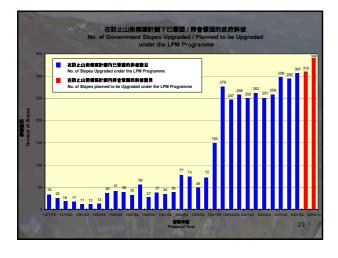
Private Man-made Slopes

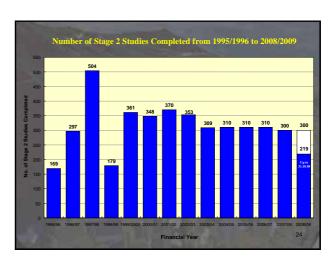
 detailed study (safety-screening); and enforcement of Dangerous Hillside Orders under the Buildings Ordinance where found necessary

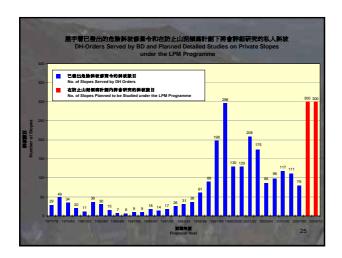
Landslip Investigation

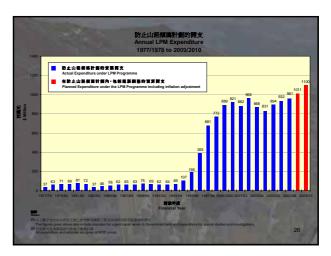
On-going LPM Targets 2000 - 2010

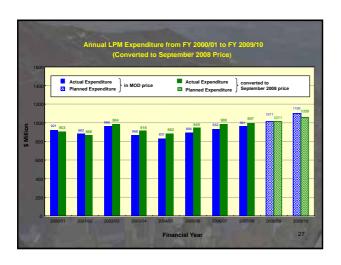
- To upgrade 250 Government man-made slopes per year
- To complete safety-screening studies of 300 private man-made slopes per year
- To landscape every slope upgraded under the LPM Programme
- To reduce the overall landslip risk arising from old substandard man-made slopes by 2010, to less than 25% of the level in 1977

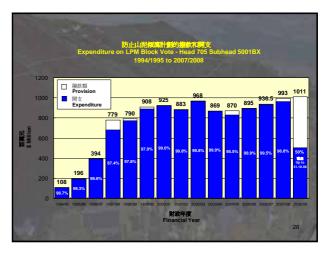












Expenditure Control in FY2008/09

- Approved provision: \$953M
- Expenditure up to end of September: \$424M (44%)
- Forecast of expenditure: \$1,011M
- Estimated shortfall: \$58M
- Supplementary provision of \$58M endorsed by LegCo Development Panel on 28 October 2008, endorsed by PWSC on 7 November 2008, and approved by Finance Committee on 21 November 2008

Delivery of the 10-year (2000-2010) Extended LPM Project

- Upgrading of Government slopes (80% outsourced; 20% by in-house staff)
- Safety-screening of private slopes (100% outsourced)
- Separate consultancies for upgrading works to government slopes and study of private slopes
- Consultants run GI, SOR and BOQ works contracts as required for slope upgrading works

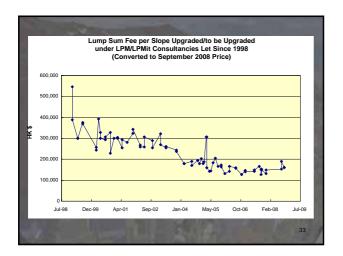
Technical Experience Sharing for LPM Projects

- Liaison Meetings with LPM Consultants and Contractors
- GEO Seminars
- 28th Annual Seminar of the Geotechnical Division of HKIE held on 2 May 2008

Delivery of the 10-year (2000-2010) Extended LPM Project

- After the last Slope Safety Technical Review Board (SSTRB) meeting in 2007, the last two consultancies for slope upgrading have been awarded
- Total numbers for the 10-year LPM Project:
- 71 consultancies have been awarded for detailed study and upgrading of Government man-made slopes (80%)
- 17 LPM works packages by in-house teams (20%)
- 20 consultancies have been awarded for safetyscreening of private man-made slopes (100%)

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Delivery of the 10-year (2000-2010) Extended LPM Project

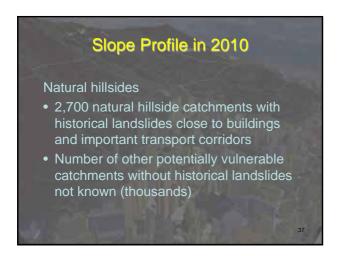
- For FY 2008/09, 15 LPM works contracts for upgrading of Government man-made slopes are planned to be let
- 11 have been awarded to date
- 4 have been tendered/are to be awarded

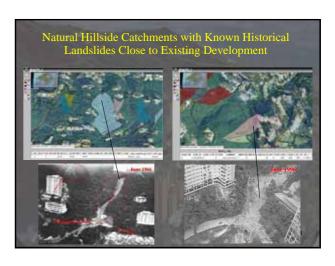
Post - 2010 Landslip Prevention and Mitigation Programme

Slope Profile in 2010

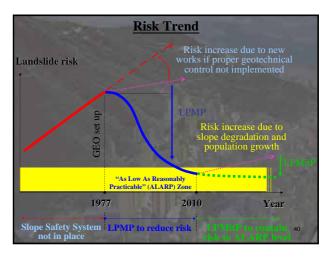
Man-made slopes

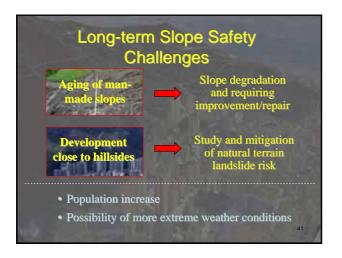
- 3,000 slopes affecting squatters
- 10,000 moderate-risk old slopes
- 5,000 moderate-risk 'old technology' slopes
- 38,000 low-risk slopes
 - including 14,000 old slopes and 4,000 old technology slopes of Consequence-to-life Cat. 3, and 20,000 robust technology slopes











Action to contain Landslide Risk Man-made Slopes * • Upgrading moderate-risk government slopes under LPMitP • Regular maintenance of all government slopes • Safety-screening of moderate-risk private slopes • Sustain public education to maintain public awareness of landslide risk and issue Landslip Warnings * slopes affecting squatters to be considered separately

Action to contain Landslide Risk Natural Hillsides Risk mitigation measures under LPMitP Sustain public education to maintain public awareness of landslide risk and issue Landslip Warnings

Landslide Investigation and LPMitP

 Systematic landslide investigations will continue to form an integral part of the future landslide prevention and mitigation programme on a rolling basis



Long-term Strategy of LPMitP

Contain risk through

- Rolling enhancement of man-made slopes
- Systematic mitigation of natural terrain landslide risk

Annual Targets for LPMitP on rolling basis from 2010 onwards

- Upgrade 150 government man-made slopes
- Conduct safety-screening studies for 100 private man-made slopes
- Implement risk mitigation works for 30 natural hillside catchments

LPMitP Consultancies planned to be let in FY 2008/2009

- 2 consultancies for data updating for manmade slopes
- 6 consultancies for upgrading of government man-made slopes
- 4 consultancies for natural terrain hazard studies & mitigation works
- 1 consultancy for safety-screening of private man-made slopes

LPMitP Consultancies awarded since December 2007

Agreement No.	Scope of Work	Date of Award
CE 20/2008 (GE)	Data updating for man-made slopes	14.8.2008
CE 16/2008 (GE)	Natural Terrain Hazard Mitigation Works	21.8.2008
CE 17/2008 (GE)	Natural Terrain Hazard Mitigation Works	21.8.2008
CE 18/2008 (GE)	IDC for 35 government man-made slopes	21.8.2008
CE 19/2008 (GE)	IDC for 35 government man-made slopes	21.8.2008
CE 27/2008 (GE)	IDC for 35 government man-made slopes	6.10.2008
CE 28/2008 (GE)	IDC for 35 government man-made slopes	6.10.2008
CE 21/2008 (GE)	Data updating for man-made slopes	10.10.2008

More LPMitP Consultancies to be awarded in 2009

LPMitP Consultancies to be injected in early 2009 as a result of the June 2008 rainstorm

- 2 consultancies for natural terrain hazard studies & mitigation works
 - one for regional approach for study of hazards in the western part of Lantau Island
 - one for five landslide cases in other areas

based on the 'react-to-known-hazard' principle

LPMitP Consultancies planned to be let in FY 2009/2010

- 5 consultancies for upgrading of government man-made slopes
- 4 consultancies for natural terrain hazard studies & mitigation works
- 1 consultancy for safety-screening of private man-made slopes

Challenges for Natural Terrain Hazard Studies & Mitigation Works

- Expertise and experience available ? Hazard Assessment based on Design Event & QRA,
 Debris Mobility Modeling, Mitigation Works Design
- Environmental Impact & Ecological Assessment
- Difficult Access & Mobilization
- Capitalize the knowledge gained from the landslide incidents in June 2008
- Innovative/Prescriptive Measures Design
- Landscaping Measures and Greening Techniques shotcrete, barriers and check dams

Review Mechanisms

- SSTRB to undertake an overview of the LPMitP on an annual basis and continue to benchmark the slope safety work of the HKSAR Government with that of other developed countries
- GEO will conduct a comprehensive review of the progress and effectiveness of the LPMitP in 2015



