



# Roadside Slopes

In Hong Kong, the mountainous terrain, heavy rain and dense development make us prone to landslides, causing loss of lives and properties. Highways Department (HyD) compiled a Roadside Slope Inventory, which contains about 13,480 man-made roadside slope features (including cut, fill and retaining wall) under its maintenance responsibility. Approximate distribution of these features in the SAR is:

<b>3,560 no.</b>	<b>in Hong Kong Island</b>
<b>1,090 no.</b>	<b>in Kowloon</b>
<b>8,830 no.</b>	<b>in New Territories (including Outlying Islands)</b>

Under the new government strategy to reduce landslide risk, departments are requested to step up their slope maintenance efforts. HyD has responded to the challenge with new resources. A Slope Maintenance Committee, with representatives from Regional Offices, was formed to coordinate efforts of the Department. A Geotechnical Advisory Unit was also set up to give in-house technical support on slope maintenance and upgrading works. The average annual expenditure on slope works (including upgrading and maintenance works) is about \$110M.

## Slope Maintenance

HyD is maintaining roadside slopes in accordance with the standards stipulated in the "Geoguide 5 - Guide to Slope Maintenance" published by the Geotechnical Engineering Office. This requires a regular routine maintenance inspection and maintenance works, and a regular Engineer Inspection (EI) for every slope feature. Dedicated slope teams charged with slope inspection duties are formed in the Regional Offices. They undertake routine maintenance inspections and arrange maintenance works to be carried out by Term Contractors. Works include clearing/repair of the slope surface drainage system, repair of cracked/damaged surface protection and removal of loose debris and undesirable vegetation. Since 1995, an on-going EI programme for roadside slopes is implemented for HyD slopes and any repair



*Cleaning blocked weepholes and repairing cracked surfacing on a roadside slope*

works identified in the EI are carried out as soon as possible. Other preventive maintenance works are progressively being carried out.

Buried drains affecting downhill slopes along roads are inspected and any leakage repaired. Surface drainage at certain sections of roads is being improved to avoid water overflowing onto the downhill slopes.

In rainy seasons, HyD staff and contractors would be busy in debris clearance and urgent repair works at landslide sites affecting roads. HyD is also responsible for emergency works due to landslides on unallocated government land affecting public safety. The number of these sites could be up to a few hundred during major rainstorms.

## Slope Upgrading

In order to achieve the government's aim of landslide risk reduction, the GEO has a long-term Landslip Preventive and Mitigation Measures (LPMit) Programme, which includes upgrading of some large roadside slopes. HyD is upgrading smaller roadside slopes by prescriptive and conventional measures to complement the LPMit Programme. Prescriptive measures are well-used types of slope improvement works based on Hong Kong experience, and their use is promulgated by the GEO. Since 1999, HyD has completed slope upgrading and improvement works on over 1200 roadside slopes, with an average annual expenditure of \$80M.