MESSAGE

Hong Kong's mountainous terrain, heavy rain and dense development make us prone to risk from landslides. Whilst we cannot eliminate risks completely, we can do much to reduce the risks. We have already significantly enhanced slope safety through the implementation of a comprehensive Slope Safety System that is highly regarded by the international geotechnical engineering community. Our geotechnical standards are similarly well respected throughout the world.

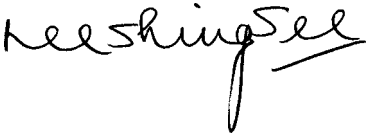
With the completion of the five-year Landslip Preventive Measures (LPM) Programme in March 2000, we have already reduced the landslide risk from old man-made slopes to less than 50% of the level which existed in 1977. We will continue to upgrade substandard slopes, and have started a 10-year extended LPM Programme in April 2000. Upon the completion of the extended LPM Programme in 2010, we expect to further reduce the overall landslide risk to below 25% of the level in 1977.

These major programmes do not come cheap. We will spend some $1.4 billion each year in upgrading and maintaining government slopes. We are also sensitive to the aesthetics of slopes, and are introducing new measures to make our slopes greener and better landscaped.

Private slopes are ultimately the responsibility of their owners. We will take further steps to ensure that owners take responsibility for their own slopes. We will do this by sustaining public education and providing assistance and advice wherever possible. Nonetheless, we will enforce the legislation where owners refuse to take their responsibilities seriously. People's lives are at stake.

Government alone cannot solve Hong Kong's slope safety problems. We need the continuing support and participation of the community to meet

Hong Kong's needs for the highest standards of slope safety. I appeal for your positive response and action on our slope safety initiatives. Any comments and suggestions, which will help us attain an even higher standard in our services, are most welcome.



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Slope Safety for All

Policy Objective and Key Result Areas

Slope Safety for All

Our Policy Objective is to meet Hong Kong's needs for the highest standards of slope safety by ensuring the safety of new slopes, enhancing the safety of existing slopes, promoting proper maintenance of slopes and providing public education, publicity and information services on slope safety.

Overall Target

"Slope Safety" is a long-term programme of sustained effort on all fronts to achieve the quickest possible reduction in landslide risk to the community. Our overall target is to reduce by September 2010 the landslide risk arising from old substandard man-made slopes to less than 25% of the risk that existed in 1977.

Progress

In the past 12 months, we continued to deliver results in all six Key Result Areas under this Policy Objective. We have achieved satisfactory progress towards all the targets set out in previous years.

In the past 12 months, we had two targets at the Policy Objective level.

Our first target was to reduce by September 2000 the landslide risk arising from old substandard man-made slopes to less than 50% of the risk that existed in 1977 when comprehensive geotechnical control was first established. That has been achieved.

Our second target was to further reduce the landslide risk to less than 25% of the 1977 level by September 2010. In early 2000, we commenced the 10-year extended Landslip Preventive Measures (LPM) Programme. Under this Programme, we will upgrade an average of 250 man-made government slopes per year, and carry out safety screening of 300 private

slopes per year. We have completed upgrading of 200 government slopes affecting schools, and have commenced a programme to upgrade over 200 slopes affecting public housing estates by September 2001.

We also achieved the following progress in our six Key Result Areas (KRAs).

1 Improve slope safety standards, technology, and administrative and regulatory frameworks

In the past 12 months, we have completed a number of key tasks in improving slope safety standards, technology and the regulatory framework. We have completed the three-year trial on the integrated approach to slope stability assessment and formulated the long-term strategy for implementation from 2000 onwards. We have examined all landslides reported during the year and identified lessons to learn to improve slope engineering practice. For geotechnical standards and guidelines, we have published a guidance document for an extended scope of prescriptive maintenance measures; Technical Guidelines on Landscape Treatment and Bio-Engineering for Man-made Slopes and Retaining Walls; a design guide for landslide debris barriers; and a report on rainfall return periods.

On the advancement in technology, we have introduced two geophysical investigation techniques: the gamma density and gamma spectroscopy methods, for identifying weaknesses in the ground. We have conducted a one-year field trial of three practical means of automatic acquisition of ground water information and the results are being analysed. We have also made satisfactory progress in the preparation of the Highway Slope Manual and a new reinforced fill design guide for Hong Kong.

For enhancing our geotechnical control on private slopes and developments, we have successfully introduced amendments to the Buildings Ordinance by including a requirement for performance review of geotechnical works. We are also reviewing the statutory geotechnical controls on private slopes and developments, and the work will be completed by December 2000.

2 Ensure safety standards of new slopes

We have been maintaining a quality-assured geotechnical control system to ensure safety standards of new slopes both in the private and the public sectors. We have stepped up our inspections of active construction sites to ensure that geotechnical works are adequately supervised. With regard to overall geotechnical control, we have maintained a success rate of over 99.8% in preventing major landslides in slopes checked as conforming to the current safety standards.

In the past 12 months, we have been actively developing a computerised District Information System to enhance the effectiveness of checking of new slopes. The System will be set up for all sites on Hong Kong Island by December 2000 and be extended to cover the remainder of Hong Kong by June 2002.

3 Rectify substandard government slopes

We have successfully launched the 10-year extended LPM Programme to upgrade 250 substandard government slopes each year. We have completed rectifying 200 government slopes affecting schools to reduce the landslide risk to students. We have also completed the study and necessary improvement works to 81 slopes affecting public housing estates, and are progressing well on another 140 slopes. The integrated approach to government roads and development projects to include slope safety aspects has been successfully implemented, with all appropriate slopes identified at the Preliminary Project Feasibility Study stage for inclusion into public works projects for upgrading. Other slope improvement works include improvement to some 90 roadside government slopes each year not covered by the LPM Programme to reduce landslide risk to road users.

4 Maintain all government man-made slopes

A number of key tasks on slope maintenance have been completed. We have systematically identified the maintenance responsibility of the 54 000 sizeable man-made slopes in Hong Kong - the owners of each slope have been identified and recorded in the Register on Slope Maintenance Responsibility, which has been disclosed to the public as from December 1999. To enhance efficiency and effectiveness in

the disclosure, a computerised Slope Maintenance Responsibility Information System with Internet version will be completed in late 2000.

We are progressing satisfactorily on the systematic inspection and repair of all government water pipes, sewers and drains affecting slopes. We are also reviewing the overall maintenance of government slopes, with the results scheduled to be available by December 2000. Maintenance departments are actively arranging for Engineer Inspection of the slopes under their responsibility, and over 17 000 Engineer Inspections have so far been completed.

5 Ensure that owners take responsibility for slope safety

In the past 12 months, we have completed safety-screening of over 300 private slopes and initiated necessary actions on the private owners to rectify substandard slopes. We have also completed screening studies of underground services affecting 500 slopes, and served Section 27C Orders under the Buildings Ordinance, where necessary, for investigation and repair of suspected services. We are also conducting a review on private slope maintenance, which will be completed by December 2000.

6 Promote public awareness and response in slope safety through public education, publicity, information services and public warnings

We have been working closely with the public, in particular slope owners, to improve the safety of private slopes, from providing slope information and public education to pro-actively giving assistance to slope owners by our Community Advisory Unit (CAU). We have seen fruitful results from all our efforts, in particular, the CAU in successfully assisting owners to arrange for maintenance/upgrading of their slopes. Public awareness of slope safety has been maintained at a high level of over 70% and owners' understanding of their slope maintenance responsibility is over 75%. Through the production of an educational toolkit on slope safety for over 500 secondary schools, the younger generation will have a better understanding of the slope

safety problem, personal safety precautions and the need to maintain slopes. This knowledge will be conveyed by young people to their parents and other family members with the net effect of enhancing the public's understanding on slope safety issues.

Progress on each previously announced initiative under the above KRAs is set out in the "Detailed Progress" section of this report.

Looking Forward

To achieve our overall target this year, we will undertake the following initiatives and targets under each of the KRAs for the coming year.

1 Improve slope safety standards, technology, and administrative and regulatory frameworks

Continuous improvement in technical standards and geotechnical control is needed to meet changing public expectations on slope safety. We will enhance our geotechnical control strategy on building and infrastructure developments, publish geotechnical standards and guidance documents, investigate serious landslides and carry out research and development to apply the latest technology to improve slope safety. In so doing, we will take into account technical advice from local and international experts, and in particular from the Slope Safety Technical Review Board, which was set up in 1995 to advise the Government on technical aspects of slope safety. The Board currently comprises Professor N. R. Morgenstern of Canada, Dr. S. Lacasse of Norway and Professor C. F. Lee of Hong Kong.

We will assess our performance in respect of this KRA against the following indicator –

- The percentage of new standards and guidelines completed within scheduled time. Our target is 90%.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative *	Target
To improve the technology, priority classification systems and performance measurement methods used in slope improvement works and the slope safety system *(Civil Engineering Department (CED))*	• To complete a review of the mobility of landslide debris by March 2001 • To produce a report on the origin, distribution and significance of weak clay-rich seams in weathered rock by September 2001

* the bracketed information denotes the agency with lead responsibility for the initiative

Initiative	Target
To introduce a risk management strategy to combat natural terrain landslide hazards *(CED)*	To publish guidelines on practice and procedures for natural terrain hazard study by December 2001
To enhance the geotechnical control of building developments *(Buildings Department/CED)*	To review the Buildings Ordinance and introduce legislation to the Legislative Council by the 2001-2002 legislative session to establish a Register of Geotechnical Engineers

2 Ensure safety standards of new slopes

Every year, over a thousand new man-made slopes are formed as a result of building and infrastructure developments. The design and construction of new slopes to standards recognised by the geotechnical profession is the essential first step towards ensuring long-term safety and creating a quality environment for our community. Our comprehensive geotechnical control system checks the adequacy of all slope works, site formation works, earth retaining structures and deep excavations that are designed and constructed by the private sector, public authorities and government departments. We maintain an effective quality management system for geotechnical control through compliance with the international standard ISO 9001.

We will assess our performance in respect of this KRA against the following indicators –

- Success in maintaining the checking process for all new slopes in compliance with the ISO 9001 quality assurance requirements. Our target is to have not more than three non-conformances found during independent surveillance audits.
- Success rate in preventing major landslides in slopes checked as conforming to the current safety standards. Our target is 99.8%.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To enhance the standard of supervision of geotechnical works *(Civil Engineering Department (CED))*	To increase the number of inspections of active construction sites by the Geotechnical Engineering Office from 950 to 1 300 per year

Initiative	Target
To enhance the effectiveness of checking new slopes *(CED)*	To extend the computerised District Information System established for Hong Kong Island to cover all sites in Kowloon, New Territories and Outlying Islands by June 2002
To improve the reliability of the geotechnical checking system *(CED)*	To institute a checking certificate system for all new government slopes by September 2001

3 Rectify substandard government slopes

Prior to the setting up of the Geotechnical Engineering Office in 1977, there was very limited geotechnical control of slope formation both in the private and public sectors. The stability of many old slopes is therefore in doubt. Of the 37 000 old slopes in the Government Slope Catalogue, about 70% (i.e. 25 000) are government owned and about 10 000 of these affect developments and major roads. We will maintain an on-going Landslip Preventive Measures Programme up to the year 2010 to upgrade more substandard slopes. Through the systematic screening of substandard government slopes in such a way, slopes with higher risks would be upgraded in priority, thereby achieving maximum risk reduction in the shortest possible time and progressively reducing the risk from slopes which affect the community directly.

We will assess our performance in respect of this KRA against the following indicators –

- The number of substandard government slopes upgraded. Our target is 250 in 2000-2001.
- Success rate in preventing major landslides in upgraded government slopes. Our target is 99.8%.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To reduce the landslide risk posed to the public *(Civil Engineering Department (CED))*	To upgrade 250 government slopes close to buildings and major roads under the Landslip Preventive Measures (LPM) Programme in 2001
To improve the aesthetic aspects of upgraded government slopes *(CED)*	To landscape every slope upgraded under the LPM Programme in 2001

4 Maintain all government man-made slopes

Regular maintenance is essential to the continued stability of all man-made slopes. In addition to regular maintenance, we will also carry out enhanced maintenance using prescriptive measures to achieve quick improvement to the stability of older slopes. To this end, we will clearly and systematically identify the maintenance responsibility of all man-made slopes, government or private, and disclose the information to concerned parties and the public at large. For government slopes, we will ensure that the responsible government departments will carry out the necessary regular maintenance as well as enhanced maintenance. We will also increase the inspection and repair of public drains and water supply pipes which may affect slope stability.

We will assess our performance in respect of this KRA against the following indicators –

- The percentage of government slopes in an improved state of maintenance. Our target is 85% by September 2002.
- The percentage of government slopes having received a comprehensive inspection by a professional engineer on a five-year cycle. Our target is 95% by September 2002.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To improve the maintenance of government slopes *(Agriculture, Fisheries and Conservation Department (AF&CD)/Architectural Services Department (Arch SD)/Drainage Services Department (DSD)/ Highways Department (HyD)/ Housing Department (HD)/Lands Department (Lands D)/Water Supplies Department (WSD))*	To complete the routine maintenance inspections and necessary maintenance works on the additional slopes identified through the new slope cataloguing exercise by March 2002

Initiative	Target
To improve government slopes not covered by the Landslip Preventive Measures Programme to reduce the landslide risk posed to the public *(AF&CD /Arch SD/DSD/HyD/HD/ Lands D/WSD)*	To improve the stability of 300 government slopes by prescriptive measures by March 2002
To improve aesthetic aspects of government man-made slopes *(Works Bureau/AF&CD/Arch SD/ Civil Engineering Department (CED)/DSD/HyD/HD/Lands D/ WSD)*	To effect control and update technical guidelines on the use of shotcrete in slope maintenance works to progressively improve the appearance of slopes in the course of maintenance by December 2000
To enhance training of slope maintenance staff in the maintenance departments (i.e. AF&CD, Arch SD, DSD, HyD, HD, Lands D and WSD) *(CED)*	To conduct three training seminars and short courses to front-line government maintenance staff in 2001

5 Ensure that owners take responsibility for slope safety

To reduce the landslide risk posed by private slopes, private owners must take up their responsibility to maintain private man-made slopes and to upgrade those which are substandard. We will continue to carry out safety-screening of private man-made slopes to establish prima facie evidence for serving Dangerous Hillside Orders to private owners under the Buildings Ordinance requiring them to upgrade their substandard slopes. We will also continue to take statutory actions under the Buildings Ordinance to require private owners to inspect and repair private underground drains and water pipes which may affect the stability of adjacent slopes. Together with the new public education, publicity and information services outlined in the next KRA, we will ensure that private owners take care of their own slopes, thereby achieving a major reduction in the landslide risk posed by private slopes.

We will assess our performance in respect of this KRA against the following indicators –

- The number of private slopes subject to safety-screening study. Our target is 300.
- The number of Dangerous Hillside Orders issued by Buildings Department on which remedial actions have been taken by the private owners. Our target is 200.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To require owners of private slopes to rectify their substandard slopes *(Civil Engineering Department (CED)/Buildings Department (BD))*	To complete safety-screening studies of 300 man-made private slopes in 2001 and, where necessary, serve orders on the owners to rectify deficiencies

Initiative	Target
To provide assistance to private owners to maintain their slopes *(CED/BD)*	• To provide assistance to owners with financial difficulties to maintain their slopes through a revised loan scheme on building safety improvement to be set up in 2001 • To prepare a training video and model slope maintenance plan for use by private slope owners and property management companies in 2001 • To set up a training course on private slope maintenance on the Internet in 2001
To enhance awareness of slope maintenance responsibilities *(Lands Department)*	To put the computerised Slope Maintenance Responsibility Information System on the Internet by December 2000
To require owners to inspect and repair private underground drains and water pipes which may affect the stability of slopes *(BD)*	To complete screening studies of underground services affecting 500 slopes in 2001 and, where necessary, serve orders on the owners to rectify deficiencies

6 Promote public awareness and response in slope safety through public education, publicity, information services and public warnings

Through publicity and education, private owners are becoming more aware of their slope maintenance responsibilities. But as laymen, many of them may not possess the required information, knowledge or expertise in slope improvement or maintenance works. We will provide the public with comprehensive information on slopes, identify the ownership of each man-made slope in terms of maintenance responsibility, and provide an advisory service on how to tackle slope safety issues. We will step up public education on slope maintenance and enhance our public communication channels on slope safety matters. We will continue to issue Landslip Warnings and to post warning signs. To minimise the adverse consequences of landslips to the community, we will continue to educate the public on slope safety so that they can take personal safety precautions to protect themselves and their families during Landslip Warnings. We will also continue to inspect squatter villages on steep terrain to identify huts at risk, recommend clearance and advise the occupants to seek safe shelter during heavy rain.

We will assess our performance in respect of this KRA against the following indicators –

- The level of public awareness of the slope safety problem in Hong Kong as revealed by independent annual opinion survey. Our target is 70%.
- The percentage of slope owners who understand their maintenance responsibilities as revealed by independent annual opinion survey. Our target is 75% .
- The level of public awareness about the appropriate safety precautions that should be taken during heavy rainstorms as revealed by independent annual opinion survey. Our target is 65%.
- The number of squatter huts inspected and residents warned of potential danger. Our target is to inspect 5 000 huts.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To enhance private owners' acceptance of their responsibility for slope safety through the work of the Community Advisory Unit *(Civil Engineering Department (CED))*	To stage eight roving exhibitions on slope safety by December 2000 and meet private owners and Owners' Corporations to advise them on slope maintenance
To enhance the response of the public to landslip warnings *(CED)*	To step up public education on signs of landslip danger in 2001
To reduce the extent of unauthorised cultivation on hillsides *(CED)*	To step up public education on the risks of unauthorised cultivation in 2001
To review the public education strategy on slope safety *(CED)*	To complete a review report by March 2001
To identify squatter huts at high risk from landslides so that clearance actions can be initiated *(CED)*	To inspect an additional 5 000 squatter huts by September 2001, make clearance recommendations and advise residents on safety precautions

Slope Safety for All

Detailed Progress

1 Improve slope safety standards, technology, and administrative and regulatory frameworks

To achieve results in this area, various initiatives have been undertaken in the past years. Details are set out below –

Initiative *	Target #	Present Position +
To investigate serious landslides in 1999 and derive improvement measures *(Civil Engineering Department (CED))*	• To complete examination of all reported landslides by April 2000 • To complete by December 2000 a report on improvements to slope engineering practice based on investigations of landslides in 1999 *(1999)*	• Examination of all reported landslides was completed in April 2000. *(Action Completed)* • Preparation of the report on improvements to slope engineering practice based on investigation of the landslides in 1999 is in progress. *(Action in Progress: On Schedule)*
To introduce improved means of site characterisation *(CED)*	To conclude a trial of practical means of automatic acquisition of ground water information by December 2000 *(1999)*	A one-year field trial of three methods has been conducted. The results are being analysed, and a report with recommendations will be completed for reference by the profession by December 2000. *(Action in Progress: On Schedule)*

* the bracketed information denotes the agency with lead responsibility for the initiative

\# the bracketed information denotes the year in which the target was set

\+ the bracketed information denotes the status of the target

Initiative	Target	Present Position
To enhance the aesthetic aspects of slope works *(CED)*	To produce guidelines on blending man-made slopes and retaining walls with their surroundings by September 2000 *(1999)*	Technical Guidelines on Landscape Treatment and Bio-Engineering for Man-Made Slopes and Retaining Walls were completed in September 2000. *(Action Completed)*
To publish a new reinforced fill design guide for Hong Kong *(CED)*	To publish the new design guide by December 2002 *(1999)*	Drafting of the new design guide is in progress. *(Action in Progress: On Schedule)*
To improve the technology, priority classification systems and performance measurement methods used in slope improvement works and the slope safety system *(CED)*	● To produce a design guide for landslide debris barriers by June 2000 ● To prepare a report on rainfall return periods at specific raingauge locations by June 2000 *(1999)*	● The design guide for landslide debris barriers was completed and published for use by the profession in January 2000. ● A report on rainfall return periods was completed for reference by designers in June 2000. *(Action Completed)*
To complete a three-year trial on the integrated approach to slope stability assessment as recommended by Professor Morgenstern *(CED)*	To complete a three-year trial and formulate a long-term strategy in 1999 *(1998)*	The three-year trial was completed at the end of 1999. A long-term strategy has been formulated, and is being implemented from 2000 onward. *(Action Completed)*

Initiative	Target	Present Position
To improve the technology, priority classification systems and performance measurement methods used in slope improvement works and the slope safety system *(CED)*	To complete a guidance document for an extended scope of prescriptive maintenance measures by December 1999 *(1998)*	The Second Edition of the Geotechnical Engineering Office Report No. 56 covering extended scope of prescriptive maintenance measures was completed and issued for use by the profession in December 1999. *(Action Completed)*
To introduce improved means of site characterisation *(CED)*	To introduce a practical geological and optical method to identify weaknesses in the ground in Hong Kong by September 2000 *(1998)*	Two geophysical investigation techniques: the gamma density and gamma spectroscopy methods, have been found to be useful for identifying weak materials in the ground. The methods have been included in CED's ground investigation term contracts to facilitate their use; and commencing from September 2000, they will also be adopted in selected landslides and slope studies under the Landslip Preventive Measures Programme. *(Action Completed)*
To produce a Highway Slope Manual *(CED)*	To publish the Highway Slope Manual by December 2000 *(1998)*	Comments on the second draft of the Highway Slope Manual have been incorporated into the final version, which is being compiled for publication. *(Action in Progress: On Schedule)*

Initiative	Target	Present Position
To review and amend the Buildings Ordinance to enhance the geotechnical control of building developments *(CED)*	• To make interim amendments to the Buildings Ordinance to enhance geotechnical control of building developments by July 2000 • To complete a comprehensive review of statutory geotechnical controls in private slopes and developments by December 2000 *(1998)*	• The Buildings (Amendment) Bill 2000 was enacted in June 2000 to require performance review of geotechnical works. *(Action Completed)* • A comprehensive review report on statutory geotechnical controls on private slopes and developments is being drafted for completion by December 2000. *(Action in Progress: On Schedule)*

2 Ensure safety standards of new slopes

To achieve results in this area, various initiatives have been undertaken in the past year. Details are set out below –

Initiative	Target	Present Position
To enhance the standard of supervision of geotechnical works *(Civil Engineering Department (CED))*	To increase the number of inspections of active construction sites by the Geotechnical Engineering Office from 890 to 950 *(1999)*	A total of 1 300 inspections of active construction sites were conducted from April 1999 to March 2000, which was 35% more than the 1999 target. This will be adopted as the new target. *(Action Completed)*
To enhance the effectiveness of checking of new slopes by setting up a computerised District Information System *(CED)*	To set up the System for all sites on Hong Kong Island by December 2000 *(1999)*	The information layers are being set up and the prototype system has been in trial use since June 2000. *(Action in Progress: On Schedule)*

3 Rectify substandard government slopes

To achieve results in this area, various initiatives have been undertaken in the past years. Details are set out below –

Initiative	Target	Present Position
To upgrade slopes affecting public housing estates to reduce the landslide risk to residents *(Civil Engineering Department (CED)/ Housing Department)*	To complete by September 2001 the study and necessary improvement works for about 200 slopes affecting public housing estates *(1999)*	The study and necessary improvement works for 81 slopes affecting public housing estates have already been completed. Works on another 140 slopes are being carried out for completion by September 2001. *(Action in Progress: On Schedule)*
To upgrade roadside government slopes not covered by the Landslip Preventive Measures (LPM) Programme to reduce the landslide risk posed to road users *(Highways Department (HyD))*	To improve in 2000 the stability of 95 government slopes by prescriptive measures *(1999)*	Slope selection, works planning and design are being carried out, and in satisfactory progress. *(Action in Progress: On Schedule)*
To adopt an integrated approach to government road and development projects to ensure that slopes affecting or affected by the projects are upgraded to current safety standards as part of the implementation of the project *(All project departments)*	To ensure all appropriate slopes are identified at the Preliminary Project Feasibility Study (PPFS) stage for inclusion into public works projects for upgrading *(1999)*	CED is vetting all PPFS reports to ensure that appropriate slopes are included for upgrading. *(Action in Progress: On Schedule)*

Initiative	Target	Present Position
To accelerate the LPM Programme for the upgrading of large substandard government slopes to cope with the increased number of slopes identified through the new slope cataloguing exercise, and extend the Programme up to 2010 *(CED)*	To increase the current LPM output by 40% by upgrading 250 man-made slopes per year from 1999 onwards *(1998)*	Upgrading works for 251 high priority slopes were completed in 1999. We are on programme to upgrade another 250 high priority slopes by end-2000. *(Action in Progress: On Schedule)*
To upgrade smaller roadside government slopes not covered by the LPM Programme to reduce the landslide risk posed to road users *(HyD)*	To upgrade an additional 90 smaller roadside government man-made slopes every year from 1999 onwards *(1998)*	Upgrading works on 90 roadside slopes were completed in 1999. *(Action Completed)*
To rectify government slopes affecting schools to reduce the landslide risk to students *(CED)*	To complete by mid-1999 the study and necessary improvement works for 200 government man-made slopes affecting schools *(1998)*	The study and necessary improvement works for 198 government man-made slopes affecting schools were completed by September 1999, and the works for the remaining two slopes were completed in December 1999 and June 2000 respectively. *(Action Completed)*

4 Maintain all government man-made slopes

To achieve results in this area, various initiatives have been undertaken in the past years. Details are set out below –

Initiative	Target	Present Position
To enhance efficiency and effectiveness in the disclosure to the public and upkeeping of the database on slope maintenance responsibility *(Lands Department (Lands D))*	To set up a computerised Slope Maintenance Responsibility Information System by September 2000 *(1999)*	The computerised Slope Maintenance Responsibility Information System was set up in September 2000. *(Action Completed)*
To carry out Engineer Inspections for maintenance of government slopes in the Government Slope Catalogue *(Agriculture, Fisheries and Conservation Department/ Architectural Services Department/Drainage Services Department/ Highways Department/ Housing Department/ Lands D/Water Supplies Department)*	To complete the Engineer Inspections on 12 000 government slopes by March 2001 *(1999)*	In the past 12 months, we have already completed 8 500 Engineer Inspections on government slopes. *(Action in Progress: On Schedule)*

Initiative	Target	Present Position
To complete the systematic identification of the maintenance responsibility for the 54 000 man-made slopes in Hong Kong *(Lands D)*	To complete the task by end-1999 *(1998)*	The maintenance responsibility of the 54 000 slopes has been identified and the information was put on computer for public access in December 1999. *(Action Completed)*
To disclose the slope maintenance responsibility to the public and to upkeep the database and handle appeal cases *(Lands D)*	To disclose the slope maintenance responsibility to the public by end-1999 *(1998)*	Since December 1999, members of the public have been able to check the maintenance responsibility of slopes through the computers installed in the Slope Maintenance Information Centre in North Point Government Offices. The database is being continuously updated, and appeal cases handled. *(Action Completed)*
To enhance the capability of the six government departments responsible for the maintenance of government slopes to cope with the increased number of slopes identified through the new slope cataloguing exercise *(Works Bureau (WB))*	To complete a thorough review of slope maintenance by 2000 *(1998)*	The review of government slope maintenance is in progress, and will be completed by December 2000. *(Action in Progress: On Schedule)*

Initiative	Target	Present Position
To complete the systematic inspection and repair of all government underground drains and water pipes which may affect the stability of adjacent slopes *(WB)*	● To complete the systematic inspection and necessary repair works of underground water pipes, sewers and drains within public housing estates and affecting slopes by 2000	● Leakage detection of all buried water carrying services adjacent to slopes within public housing estates has been completed by the Housing Department. Major repair works on the identified leaking buried services have been substantially completed, and the remaining works are in good progress.
	● To complete the systematic inspection and necessary repair works of underground water pipes, sewers and drains within government buildings and affecting slopes by 2001	● Leakage detection and necessary repair works are being carried out by the Architectural Services Department for the targeted water pipes, sewers and drains.
	● To complete the systematic inspection and necessary repair works of underground water pipes affecting slopes near buildings and major roads by 2002	● Leakage detection and necessary repair works are being carried out by the Water Supplies Department for the targeted watermains sections.

Initiative	Target	Present Position
	● To complete the systematic inspection and necessary repair works of underground sewers and drains affecting slopes near buildings and major roads by 2004 *(1998)*	● Inspection of the underground drains and the necessary repair works are being carried out by the Drainage Services Department. *(Action in Progress: On Schedule)*

5 Ensure that owners take responsibility for slope safety

To achieve results in this area, various initiatives have been undertaken in the past years. Details are set out below –

Initiative	Target	Present Position
To carry out a review of maintenance of private slopes *(Civil Engineering Department (CED))*	To complete a review report by end-2000 *(1999)*	The review of private slope maintenance is in progress, and will be completed by December 2000. *(Action in Progress: On Schedule)*
To carry out more safety screening studies of private slopes to require owners to rectify their substandard slopes *(CED/Buildings Department (BD))*	To complete safety-screening studies of 300 private man-made slopes per year from 1999 onwards *(1998)*	Safety-screening studies of 304 private slopes were completed in 1999. We will complete studies on another 300 private slopes by end-2000. *(Action in Progress: On Schedule)*
To enforce more vigorously the provisions of the Buildings Ordinance to require owners to inspect and repair private underground drains and water pipes which may affect the stability of adjacent slopes *(BD)*	To complete screening studies of underground services affecting 500 slopes per year and serve Section 27C Orders where necessary for investigation and repair of suspected services from 1999 onwards *(1998)*	In 1999, screening studies of underground services affecting 500 slopes were completed, resulting in six Section 27C Orders being served. We will complete studies of underground services affecting another 500 slopes by end-2000. *(Action in Progress: On Schedule)*

6 Promote public awareness and response in slope safety through public education, publicity, information services and public warnings

To achieve results in this area, various initiatives have been undertaken in the past years. Details are set out below –

Initiative	Target	Present Position
To develop the Chinese language version of the Slope Information System for access by the public through the Internet *(Civil Engineering Department (CED))*	To establish the Chinese language version by March 2000 *(1999)*	The Chinese language version of the Hong Kong Slope Safety Website and the Slope Information System were launched in March 2000. *(Action Completed)*
To further improve the Geotechnical Engineering Office (GEO) Landslip Emergency Service *(CED)*	To introduce a new computerised system for more rapid and efficient handling of landslip incident reports by April 2000 *(1999)*	The computerised Landslip Information Handling System has been developed for use when the GEO Emergency Control Centre is mobilised. The System has been in operation during the 2000 wet season. *(Action Completed)*
To provide information to the public through the Internet on the natural hillside processes of landslides, rockfalls and erosion *(CED)*	To develop a new section on the Hong Kong Slope Safety Website by June 2000 *(1999)*	A new section on the natural hillside processes of landslides, rockfalls and erosion was launched on the Hong Kong Slope Safety Website in June 2000. *(Action Completed)*

Initiative	Target	Present Position
To provide geological information to the public and the profession *(CED)*	To prepare memoirs on the Geology of Hong Kong by September 2000 *(1999)*	Two memoirs were published in September 2000 (one on the Quaternary, and the other on the Paleozoic, Mesozoic and Tertiary) which together describe the complete geology of Hong Kong. *(Action Completed)*
To identify squatter huts at high risk from landslides so that clearance actions can be taken *(CED)*	To inspect 3 800 squatter huts by September 2000, and to make clearance recommendations and warn residents *(1999)*	In the past 12 months, 5 000 squatter huts were inspected, clearance recommendations made, and advice issued to residents on safety precautions. *(Action Completed)*
To enhance and reinforce private owners' acceptance of their responsibility for slope safety *(CED)*	To set up a Community Advisory Unit (CAU) in the GEO in April 1999 to – ● organise seminars and talks for private slope owners on matters relating to slope safety and maintenance ● provide a meet-the-public service to answer queries and provide information on slope safety matters	Since its establishment in April 1999, the CAU has been organising public seminars and meet-the-public sessions, meeting Owners' Corporations and Mutual Aid Committees, and making direct contact with owners who have received Dangerous Hillside Orders to offer advice. Since April 1999, the CAU has conducted a total of 120 public out-reach sessions. A review report on its first year of operation was published in April 2000, which indicates that there is a continuing public demand for the service. *(Action Completed)*

Initiative	Target	Present Position
	• meet private owners' representatives who have received Dangerous Hillside Orders to advise them on how to proceed with the necessary slope upgrading works • meet Owners' Corporations and Mutual Aid Committees to advise them on how to proceed with the necessary slope maintenance works *(1998)*	
To step up publicity on emergency preparedness and personal precautionary action during landslide warnings *(CED)*	• To prepare an educational kit on slope safety by December 1999	• The teaching kit on "Understanding and Preventing Landslides in Hong Kong" was prepared in September 1999 and distributed to 544 secondary schools by June 2000, and an introductory seminar for teachers was held in June 2000.
	• To stage eight roving exhibitions on slope safety issues in 1999 *(1998)*	• Eight slope safety exhibitions were held in MTR stations, shopping centres and universities throughout 1999. *(Action Completed)*