計劃概況

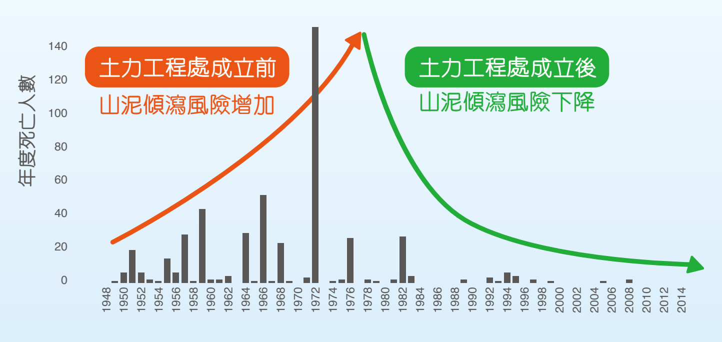
計劃背景

香港多雨、多山、人口稠密，山泥傾瀉對公眾構成相當程度的風險。香港亦有一段慘痛的山泥傾瀉歷史。自1977年起，改善斜坡安全一直是土力工程處的重要工作目標。經過多年的努力，我們已成功降低香港的人造斜坡山泥傾瀉風險。

可是，極端天氣近年在世界各地帶來不少山泥傾瀉災害，釀成重大傷亡和經濟損失。一旦香港遇上特大降雨事件，也有可能發生造成多人死亡及其他嚴重後果的山泥傾瀉。因此，我們需要繼續防治山泥傾瀉的工作，提高抗災能力以應對極端天氣的潛在影響。

成效顯著

1948年至2014年因山泥傾瀉而死亡的人數



「長遠防治山泥傾瀉計劃」成效顯著，國際間引以為範。

每年目標

- 鞏固150個不合乎標準的政府人造斜坡
- 為100個私人人造斜坡進行安全篩選研究
- 為30幅有風險的天然山坡進行研究及施行必需的風險緩減工程

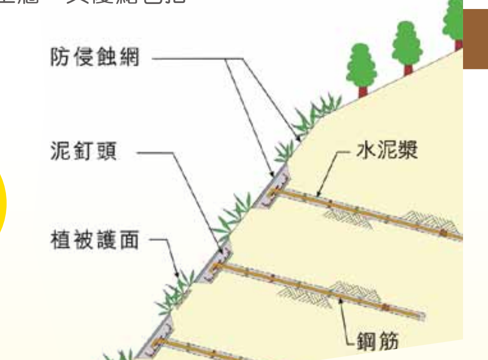
創新技術

透過自行研發及引進技術等渠道，土力工程處於「長遠防治山泥傾瀉計劃」應用各種創新的技術去減低山泥傾瀉對公眾的威脅。

泥釘技術

泥釘技術透過為土體加上鋼筋及灌漿增強泥土抗剪力。自90年代起，我們已廣泛應用泥釘來鞏固斜坡及擋土牆。其優點包括：

- 提高抗暴雨能力
- 避免砍伐樹木
- 具成本效益
- 維修簡易
- 縮短施工期

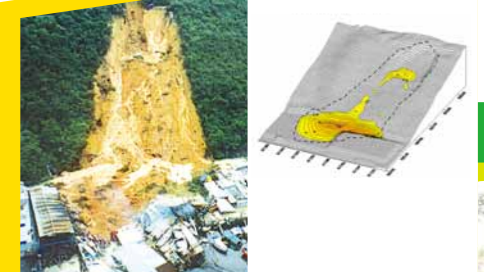


時域反射法

我們於2004年自行研發「時域反射法」，在不對泥釘造成任何破壞的情況下，測量泥釘的長度和水泥漿的質量，確保施工水平。

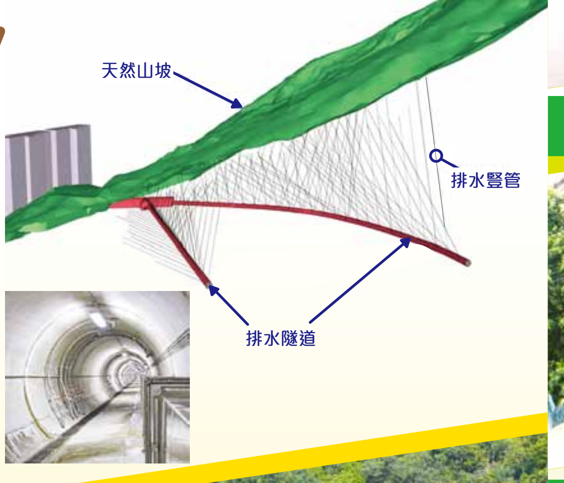
三維電腦模擬

我們利用先進的三維電腦模擬協助設計防治山泥傾瀉的方案及研究嚴重山泥傾瀉。



天然山坡排水隧道

我們於半山區寶珊地段一幅高風險天然山坡的防治工程中採用創新方法。該項目利用地下排水隧道結合172條排水豎管來提高山坡的穩定性，榮獲工程創意獎項。



柔性防護網

我們近年應用柔性防護網來攔截天然山坡山泥傾瀉的泥石。這種防護網更能融入自然環境，進一步減少對環境的影響。

美化環境

在「長遠防治山泥傾瀉計劃」下，土力工程處不僅改善了斜坡安全，亦同時於斜坡進行園境綠化工程，建設一個更安全、更綠化的生活環境。

保留具文物價值的砌石牆和石牆樹

保留樹木並為斜坡提供植被

將斜坡工程與周圍的天然環境融合

加入專業園境設計

廣種本土植物以優化生態

以民為本

土力工程處致力減低斜坡工程對鄰近市民的影響。

減少塵土飛揚

豎立隔音屏障

保持工地附近環境清潔

我們透過各種渠道與可能受影響的市民緊密溝通。

防治山泥傾瀉計劃的順利進行有賴市民的支持。我們會繼續用心聆聽你的意見。

聯絡我們 Contact Us

如欲查詢更多有關「長遠防治山泥傾瀉計劃」的資料，請瀏覽「香港斜坡安全網頁」：
You may visit the Hong Kong Slope Safety Website for more information about the Landslip Prevention and Mitigation Programme.

hkss.cedd.gov.hk

如你對我們的工作有任何疑問或意見，歡迎隨時與我們聯絡：
Should you have any questions or suggestions on our work, please feel free to contact us:

電郵 / Email ： hkss@cedd.gov.hk
電話 / Hotline ： 1823

致力斜坡安全 你我防患未然
Concerted efforts in slope safety
Enhanced resilience against landslides

土木工程拓展署
Civil Engineering and Development Department

長遠防治山泥傾瀉計劃

致力斜坡安全 你我防患未然

Landslip Prevention and Mitigation Programme

Concerted efforts in slope safety
Enhanced resilience against landslides

The Geotechnical Engineering Office of the Civil Engineering and Development Department is implementing a long-term rolling programme, known as the Landslip Prevention and Mitigation Programme, to reduce systematically the landslide risks of man-made slopes and natural hillsides affecting existing facilities. Over the years, we strive to contain the landslide risks in Hong Kong at a reasonably low level.

Overview

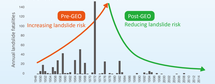
Background

Hong Kong has had a history of tragic landslides. Landslides risks are posed by the combined factors of our climate, dense population and vulnerable setting of a hilly terrain. Improving slope safety has been the primary objective of the Geotechnical Engineering Office (GEO) since 1977. As a result of our efforts in the past decades, we have significantly reduced the landslide risk of man-made slopes in Hong Kong.

In recent years, however, extreme weather has brought about many landslide disasters worldwide causing major casualties and economic losses. Landslides with multiple fatalities and dire consequences may occur in Hong Kong if we are hit by extreme rainfall. Hence, we need to continue our work on landslip prevention and mitigation in enhancing the resilience against serious landslides that may be caused by extreme weather events.

Notable achievements

Landslide fatalities from 1948 to 2014



With its notable achievements, the Landslip Prevention and Mitigation Programme (LPMitP) is hailed as a model by numerous organisations worldwide.

Annual targets

- Upgrade 150 substandard government man-made slopes
- Conduct safety-screening studies on 100 private man-made slopes
- Study and implementation of necessary risk mitigation works for 30 vulnerable natural hillsides

Innovative technology

Through in-house technical development and introduction of new technology, GEO has been applying a range of innovative techniques to mitigate landslide risk.

Soil nailing technique

Soil nailing improves the shear strength of the soil mass by means of steel bars and grouting. We use soil nails extensively to stabilise slopes and retaining walls since 1990s. The merits include:

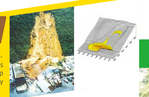
- Enhance resilience against severe rainstorms
- Shorten construction period
- Avoid tree felling
- Ease of maintenance
- Cost effective

Time Domain Reflectometry (TDR)

In 2004, GEO successfully developed TDR as a non-destructive testing method to check the length and grout integrity of soil nails for quality control.

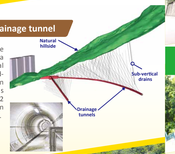
Three-dimensional debris mobility modelling

We have established state-of-the-art three-dimensional debris mobility model to design landslip mitigation works and to study serious landslides.



Natural hillside drainage tunnel

We adopted innovative measures to stabilise a highly vulnerable natural hillside at Po Shan, Mid-levels. The construction of drainage tunnels with a total of 172 sub-vertical drains is an award-winning project.



Flexible barrier

We have applied flexible barriers in recent years to intercept landslide debris from natural hillsides. Such barriers blend in better with the natural environment and minimise environmental impact.

Landscape enhancements

Under the LPMitP, we integrate landscape greening with slope safety works to create a safer and greener living environment.

Preserve old masonry walls and wall trees of heritage value

Preserve trees and provide a vegetated slope cover

Blend slope works with natural landscape

Adopt landscape architects' input

Plant native species to enhance the ecology

People foremost

GEO seeks to minimise disturbances of slope works to the public.

Suppression of dust

Erection of noise barriers

Keeping areas near construction sites clean and tidy

We communicate closely with the public through numerous channels.

Public support is vital for the LPMitP to succeed. We will continue to listen to your comments.

土木工程拓展署轄下的土力工程處正推行「長遠防治山泥傾瀉計劃」，有系統地持續處理影響現存設施的人造斜坡和天然山坡，務求將香港的山泥傾瀉風險長遠控制在合理的低水平。