GREENING

Greening works contribute to the improvement of air quality in addition to the aesthetic of an area. They are essential to the protection, rehabilitation and enhancement of our landscape and ecological environment, which helps create sustainable environmental outcomes. Apart from fulfilling the functional requirements of the development projects, the Civil Engineering and Development Department (CEDD) has been actively promoting greening through a wide range of initiatives, including (1) development and implementation of the Greening Master Plans (GMPs) and other greening initiatives; (2) greening works associated with infrastructure projects; (3) greening works associated with the Landslip Prevention and Mitigation works; (4) greening works for quarry rehabilitation; (5) soil erosion control planting on natural hill slopes; and (6) tree risk assessment and management within works sites.

DEVELOPMENT AND IMPLEMENTATION OF GREENING MASTER PLANS AND OTHER GREENING INITIATIVES

A Greening Master Plan (GMP) seeks to define comprehensively the greening framework of an area by studying its characteristics and particular needs, and providing a guide to the planning, design and implementation of greening works. To ensure high-level commitment to the GMPs, each GMP is approved by the Greening Master Plan Committee chaired by the Director of Civil Engineering and Development, and endorsed by the Steering Committee on Greening, Landscape and Tree Management chaired by the Permanent Secretary for Development (Works).
We promote public participation in the GMP formulation process and adopt the “Enhanced Partnering Approach” whereby each relevant District Council forms a District Participation Group (DPG) to partner with us in reviewing the contents of the GMPs and to advise us on the greening of the districts. The successful implementation of greening measures is made through expertise and coordination of multiple disciplines, including landscape architecture, town planning, civil and traffic engineering and even public relations. We organise community planting ceremonies and school talks and invite local residents to participate in our planting activities. We believe that public participation not only enables us to tap into valuable local knowledge but also creates a sense of ownership of the GMPs in the community. We have received very encouraging responses and appreciation of our works from the public.

Following the successful completion in 2011 of the GMPs for the urban areas, we commenced the greening works in the GMPs for Sha Tin, Sai Kung, Tuen Mun and Yuen Long in 2014, and completed them in 2017. We have planted about 4,000 trees and 2.6 million shrubs in the four aforementioned districts. We are planning for the implementation of GMPs for New Territories in Tsuen Wan, Kwai Tsing, Islands, Tai Po and North District. Subject to funding approval, we plan to commence the greening works by 2020.

Here are photos of some of the completed greening works in urban areas and the New Territories:

**Landscape Improvement Works in Ngong Ping**

The Sustainable Lantau Blueprint announced in June 2017 by the Government dedicated part of Lantau Island to be used for conservation with sustainable leisure and recreational purposes. In view of the cool climate, good transport connectivity as well as the synergy with the existing tourist attractions in Ngong Ping, we have planted around 400 cherry trees and native spring-flowering trees in Ngong Ping for visitors’ enjoyment during the blossoming season.

We commenced the landscape improvement works in Ngong Ping in January 2018 and completed the planting works in Q3 2018. Establishment works for the newly planted trees are now in progress.
GREENING WORKS ASSOCIATED WITH INFRASTRUCTURE PROJECTS

To fulfill the community’s growing need for well-being and quality of living, most of our infrastructure projects include the provision of planting schemes serving as landscape/ecological enhancement and impact mitigation measures. Such greening works involve planting in a variety of settings like roadsides, footbridges and flyovers, podiums, slopes, river channels and promenades.

In our major infrastructure projects with planting schemes (including Heung Yuen Wai Highway, Kai Tak Development and Central-Wan Chai Bypass, etc.), approximately 460,000 plants were planted in 2018.

GREENING WORKS ASSOCIATED WITH LANDSLIP PREVENTION AND MITIGATION WORKS

While our primary objective is to safeguard the public from slope failures, we have always given priority attention to blend in the engineering works with the surrounding environment by making them look as natural as possible, aiming to achieving the overall objective of creating a visually acceptable and ecologically sustainable slope environment. Vegetation is used as slope surface cover and existing vegetation is preserved wherever possible in the upgrading of existing slopes and in the mitigation of natural terrain hazards under the Landslip Prevention and Mitigation Programme (LPMitP). On average, we plant about 270,000 plants each year in connection with our landslip prevention and mitigation works, and most of the plants are native species.

We have issued the GEO Publication No. 1/2011 “Technical Guidelines on Landscape Treatment for Slopes”, presenting guidance on good practice of landscape treatments for man-made slopes and engineering works on natural terrain and landslide repairs. We also published the album “Greener Slopes Better Cityscape” to illustrate various types of engineering works and landscape treatments employed on 23 slopes in the Hong Kong Island, Kowloon, New Territories and Lantau over the past few decades which showcases our endeavor to create robust, cost-effective and eco-friendly vegetation covers for slopes around Hong Kong.

The GEO has been conducting studies and trials to improve the technology of landscape treatment on slopes, with due regard to safety, cost, aesthetic quality, and long-term maintenance requirements. Based on the research results, we will publish guidelines on good practices of landscape treatment for slope works.

Greener Slopes Better Cityscape
GREENING WORKS FOR QUARRY REHABILITATION

The plan to rehabilitate quarries was formulated in 1989 as an outcome of the Metroplan Landscape Strategy for Urban Fringe and Coastal Areas, which identified quarries as areas of degraded landscape requiring rehabilitation. The rehabilitation works typically involve major recontouring and extensive planting. Upon completion of the quarry rehabilitation works, attractive greened areas will be formed for a variety of uses beneficial to the community.

Under an innovative scheme developed by the Government and the quarrying industry, we completed the rehabilitation works at Lamma Quarry at the end of 2002, Shek O Quarry in early 2011 and Anderson Road Quarry in mid 2017 and are currently managing the quarry rehabilitation contract at Lam Tei. In the course of quarry rehabilitation, slopes are revegetated extensively in order to blend with the surrounding natural environment and provide favourable habitats for wildlife. In 2018, we planted about 600 trees and shrubs in connection with our quarry rehabilitation project.

SOIL EROSION CONTROL PLANTING ON NATURAL HILL SLOPES

Under the soil erosion control planting programme on natural hill slopes, we establish primary vegetation covers on the eroded or erosion-prone slopes on unleased or unallocated land outside country park. The objectives are to control soil erosion and enhance the ecological and landscape value of the degraded land. The planting of about 12,000 seedlings in Shui Chuen O, Shatin was completed in early 2019.

In the planting schemes, we adopt a mixture of plant species, which includes native species to promote vegetation diversity and pioneer species to arrest any further soil erosion. We also continue to exchange knowledge and experience with other government departments to further enhance our effective greening works for different soil erosion situations.

TREE RISK ASSESSMENT AND MANAGEMENT

To ensure public safety and for sustainable development and tree care, we conducted an annual tree risk assessment and management exercise for approximately
30,000 trees located in a variety of works sites in early 2019 prior to onset of the rainy season, according to the guidelines promulgated by the Greening, Landscape and Tree Management Section of the Development Bureau. The tasks include conduction of tree inspections, tree risk assessments, appropriate mitigation tree works and the related tree audits.

**MANAGEMENT OF CONSTRUCTION WASTE**

The composition of construction waste varies, depending on the nature of the construction works. In general, about 90% of it is inert construction materials, also known as public fill, which is suitable for reuse in reclamation and earth filling works, or recycle for use in other construction works. The remaining non-inert construction waste, subject to recovery of reusable/recyclable items, is disposed of in landfills.

The local construction industry annually generates a large quantity of public fill. While part of the public fill are directly reused in local construction projects, the rest are delivered to the two temporary fill banks located in Tseung Kwan O Area 137 and Tuen Mun Area 38 for storage and future reuse in reclamation or earth filling projects. As local reuse could not absorb all the public fill generated in Hong Kong in recent years, as at December 2018, we stockpiled about 20 million tonnes of public fill in the temporary fill banks.

In managing this huge volume of construction waste, our objective is to promote the reduction, reuse and recycling of public fill and to prevent public fill from being disposed of in landfills, which are designed primarily for putrescible waste. Specific measures include:

• Avoiding and minimising construction waste generation at sources through better planning, design and construction management
• Implementing Construction Waste Disposal Charging Scheme to provide an economic incentive for waste producers to reduce construction waste that requires disposal
• Processing/recycling public fill
• Setting up sorting facilities to facilitate the reuse of inert materials
• Establishing temporary fill banks to stockpile surplus public fill temporarily to facilitate later reuse
• Setting up barging facilities for collection of surplus public fill and delivery to the fill banks
• Reusing surplus public fill in Mainland/local reclamation projects

To ensure proper disposal of public fill arising from local construction activities, we are operating the temporary fill banks and construction waste sorting facilities at Tseung Kwan O and Tuen Mun and the barging facilities at Chai Wan and Mui Wo.
REUSE OF SURPLUS PUBLIC FILL IN THE MAINLAND

Since the reclamation projects in Hong Kong are unable to absorb all the public fill generated by local construction, excavation, renovation, demolition and road works, we are currently relying on two fill banks for temporary storage of public fill. Notwithstanding different management measures taken to reduce fill generation at source and to promote its reuse and recycling, we still face the problem of surplus public fill.

To tackle the problem, we continue to explore opportunities to reuse our surplus public fill in Mainland. We signed a Cooperation Agreement with the State Oceanic Administration (SOA) in March 2004. It provides a foundation for delivery of our public fill in Mainland waters. We further reached an agreement with the South China Sea Branch of the State Oceanic Administration (SOA(SCSB)) in June 2005 on the implementation details, including the material specifications, delivery requirements, inspection and control measures, to ensure that the use of public fill in the Mainland’s reclamation projects will not cause insurmountable environmental problems.

In January 2006, SOA(SCSB) designated a trial reclamation site in Guang Hai Wan (廣海灣) of Taishan (台山) to receive public fill from Hong Kong. Contracts were subsequently awarded for the cross-boundary delivery of surplus public fill to the reclamation site concerned. The delivery of public fill to Taishan commenced in July 2007 and about 128 million tonnes of public fill have been delivered up to May 2019.

This arrangement helps alleviate our pressure in accommodating surplus public fill and enables reuse of our public fill in the Mainland. In the absence of the scheme, the fill banks would have already been filled up and any surplus public fill would have to be disposed of in landfills, of which the capacity is fast depleting.

CONSERVATION WORK

Upholding firmly the planning principle of “development for the north, conservation for the south” for Lantau Island, we will carry out infrastructure and development projects along the direction of “conservation to precede development”. We are preparing to set up a $1 billion Lantau Conservation Fund to promote conservation of rural Lantau and to improve the rural environment.

We are conducting an ecological study to review the existing ecological information of South Lantau and explore appropriate conservation measures. We have also set up expert group (e.g. “Expert Group on Ecological Conservation of Pui O, Shui Hau and Tai O”) for respective specific topics with a view to achieving concrete results through discussion and consolidation of experts’ views. Apart from encouraging non-profit making organisations’ participation in conservation projects by leveraging the funding resources, we strive to promote conservation in Lantau through community activities (e.g. ecological guided tours, workshops, roving exhibitions, etc.).

On sustainable recreation and leisure, we have formulated the Tai O Leisure and Recreation Plan that provides guidance on different routes outside Tai O town centre to encourage visitors to get to know more about the place. We completed the sustainable waterless toilets at Tsin Yu Wan and Lo Kei Wan campsites respectively and upgrading of the beach volleyball court at Silvermine Bay in Mui Wo. We plan to commission the study on the Lantau Trails and Recreation Plan in early 2020 to improve the associated facilities. We tentatively schedule to substantially complete the expansion of mountain bike trail networks in Mui Wo and Chi Ma Wan and the provision of a practice ground in Mui Wo in 2019.

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