

CHAPTER 2

**Development Bureau
Civil Engineering and Development Department
Leisure and Cultural Services Department**

Management of Greening Master Plans

**Audit Commission
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MANAGEMENT OF GREENING MASTER PLANS

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MANAGEMENT OF GREENING MASTER PLANS

Executive Summary

1. It is the Government's greening policy to uplift the quality of the living environment through active planting, proper maintenance and preservation of trees and other vegetation. In pursuance of a general direction announced by the Chief Executive of the Hong Kong Special Administrative Region in the 2000 Policy Address to green up Hong Kong by planting more trees and flowers in the urban areas, the Steering Committee on Greening, Landscape and Tree Management (Steering Committee on GLTM) has been established to formulate related strategies and supervise implementation of major greening programmes. The Greening Master Plan Committee (GMP Committee) has been set up under the Steering Committee on GLTM to provide a better focus and achieve better coordination of the greening efforts, including formulating Greening Master Plans (GMPs) and overseeing the implementation of short-term greening works arising from GMPs.

2. A GMP serves as a guide for all parties involved in planning, design and implementation of greening works. It defines comprehensively the overall greening framework of a district by establishing the greening themes, proposing suitable planting species and identifying suitable planting locations to promote a clear district identity, and thus paves the way for continuous and consistent results in enhancing the green environment, as follows: (a) the greening themes of each district-specific GMP take account of factors such as the local landscape and cultural characteristics; (b) the "right-species-at-the-right-place" principle is adopted when selecting plant species, and apart from matching the district-specific greening theme, the recommended plant palette is drawn up having regard to factors such as the local soil conditions and the micro-climate; and (c) suitable locations for planting are identified after site investigations and local consultations.

3. GMPs for urban areas embody a full spectrum of short, medium and long-term measures. According to the Development Bureau (DEVB), GMPs for the New Territories (NT) only have short-term measures (referred to as priority greening works) and the key considerations were that: (a) as learnt from GMPs for urban areas,

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medium and long-term measures involved a prolonged time span during which changes to the site situations and community sentiments could be frequent and major. Planning such measures at a too early stage could just be a waste of efforts and money; and (b) as NT had lots of development and re-development projects in the pipeline, greening measures planned and considered under individual projects would be more cost-effective and time relevant.

4. DEVB has the overall policy responsibility for greening, landscape and tree management. The Greening, Landscape and Tree Management Section (GLTMS) has been established under DEVB to take up the overall policy responsibility for formulating and coordinating landscape and tree management strategy and initiatives in Hong Kong. The Civil Engineering and Development Department (CEDD) is responsible for the development and implementation of GMPs, and serves as the executive arm of the GMP Committee. CEDD handed over the greening works completed under GMPs mostly to the Leisure and Cultural Services Department (LCSD) for maintenance.

5. As of December 2018, CEDD had developed 11 GMPs for urban areas and 9 for NT, incurring a total of \$734.7 million (with total approved funding of \$1,124.1 million) on development and implementation of GMPs. Regarding GMPs for: (a) urban areas, the short-term greening measures were completed in three phases by June 2011, and a total of about 25,000 trees and 5.1 million shrubs were planted; (b) Southeast and Northwest NT, the related greening works were completed in October 2017, and a total of about 4,000 trees and 2.6 million shrubs were planted; and (c) Northeast and Southwest NT (approved by the GMP Committee in February 2014), DEVB plans to consult the Panel on Development of the Legislative Council (LegCo) in second half of 2019 on upgrading the project for implementation of the relevant greening works to Category A under the Public Works Programme. The actual planting quantities (i.e. about 29,000 trees and 7.8 million shrubs) exceeded the planting targets of 20,000 trees and 5.6 million shrubs stated in the related papers seeking funding approval from the Public Works Subcommittee (PWSC) of the Finance Committee of LegCo. The Audit Commission (Audit) has recently conducted a review to examine the Government's efforts in managing GMPs.

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Development and implementation of Greening Master Plans

6. Between September 2004 and February 2012, CEDD awarded 9 consultancy agreements for development of GMPs and supervising implementation of the greening works under the works contracts. Between May 2006 and December 2014, CEDD awarded 11 works contracts for implementation of greening measures under GMPs. The greening works under these works contracts were completed between 2007 and 2017 (works under 10 contracts were completed about 1 to 6 months later than the respective original contract completion dates). GMPs set out, among others, planned planting locations, focal points for planting (which are for realising the greening themes) and theme plants. The works contracts for implementing GMPs set out, among others, the number of trees and shrubs to be planted with the contract drawings showing “potential trees” and “potential planting areas” (paras. 2.2 to 2.4).

7. ***Considerable number of trees and shrubs not planted at potential planting areas under works contracts for GMPs.*** For the works contracts for Phase 3 of urban areas, 45% of trees and 16% of shrubs had not been planted at certain potential planting areas (i.e. no planting at these areas at all). The reasons for not planting at potential areas were underground utilities, objections and interfacing projects. According to CEDD, to overcome the related hurdles for not being able to plant at planned locations under GMPs, it had stepped up efforts when developing GMPs for Southeast and Northwest NT (e.g. carrying out more investigation works during the design stage to detect underground utilities). Audit noted that while CEDD had stepped up efforts in development of GMPs for Southeast and Northwest NT, considerable number of trees and shrubs had not been planted at potential planting areas, as follows: (a) overall, 42% of trees and 26% of shrubs had not been planted at potential planting areas; and (b) the deviations from the contract for Southeast NT were more significant (e.g. for Sha Tin, about 59% for trees and 40% for shrubs were not planted at potential planting areas). According to CEDD, it had not made specific analysis on the reasons for not planting at potential planting areas under the works contracts for Southeast and Northwest NT (paras. 2.7, 2.8, 2.10 and 2.11).

8. ***Percentages of theme trees planted lower than internal reference rates and those under works contracts.*** According to CEDD, theme tree species are selected to reflect the greening themes for each district in order to create a strong character for each district. Under GMPs for Southeast NT (Sha Tin and Sai Kung) and Northwest NT (Tuen Mun and Yuen Long), the consultant (with its initiative and noted by CEDD) set internal reference rates for planting 20% to 30% theme trees in

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each of the four districts. Audit noted that: (a) in all the four districts, the numbers and percentages of theme trees planted were lower than those under the related works contracts; and (b) in three (i.e. Sha Tin, Sai Kung and Tuen Mun) of the four districts, the percentages of theme trees planted (8% to 10%) did not meet the internal reference rates (paras. 2.15, 2.17 and 2.18).

9. ***Theme trees not planted at most focal points.*** According to CEDD, the greening themes of a GMP will be realised by identifying key planting areas that are representative of the area and can be easily identifiable as the focal points of the area. Audit noted that the two GMPs for Southeast NT (Sha Tin and Sai Kung) had specified a total of 23 focal points, of which greening works for 10 (43%) focal points were not implemented and only 2 (9%) focal points were planted with theme trees (paras. 2.21, 2.22 and 2.24).

10. ***Percentages of native plant species planted lower than estimated and those under works contracts.*** In March and June 2014, CEDD informed LegCo Panel on Development and PWSC of the Finance Committee of LegCo respectively that regarding GMPs for Southeast and Northwest NT, it was estimated that 35% of the trees and shrubs would be native species. Audit noted that: (a) in terms of both numbers and percentages, the native trees planted for all the four districts and the native shrubs planted for two districts (Tuen Mun and Yuen Long) were lower than those under the related works contracts; and (b) except for the planting of native shrubs in Sha Tin (49%), the native trees and shrubs planted in all the four districts (ranging from 9% to 23%) were lower than the estimated rate of 35% (paras. 2.29 and 2.30).

Handover and maintenance of greening works under Greening Master Plans

11. After the one-year establishment period under the works contracts for GMPs, CEDD will hand over the trees and shrubs to the relevant departments (mainly LCSD) for maintenance. Subject to the satisfactory establishment of the planting works, LCSD will formally take over the maintenance of all related plantings with effect from the final joint inspection date. Maintenance of vegetation on landscape area is to ensure the healthy establishment and growth of plants, which in general includes watering, fertilising, pruning, pest control and replacement. LCSD maintains the trees and shrubs planted under GMPs together with other trees and

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vegetation under its purview by its in-house staff and/or contractors (paras. 3.2, 3.3 and 3.14).

12. ***Scope for enhancing handover records to meet the different recording needs of CEDD and LCSD.*** Audit reviewed the handover arrangement from CEDD to LCSD of the trees and shrubs planted under GMPs for Phase 3 of urban areas and Southeast and Northwest NT for maintenance. According to CEDD and LCSD, they had different definitions of trees and different measurement bases for shrubs, leading to differences in planting quantities for trees and shrubs between CEDD handover records and LCSD inventory records, as follows: (a) CEDD adopted the “Check List of Hong Kong Plants” published by the Agriculture, Fisheries and Conservation Department to determine whether a plant should be classified as a tree (based on its species irrespective of size and trunk diameter). LCSD adopted DEVB Technical Circular for “Tree Preservation”, which classified a plant as a tree if its trunk diameter measured 95 millimetres or more at a height of 1.3 metres above the ground level; (b) CEDD adopted the number of shrubs as the unit for the quantity of shrubs. LCSD adopted the size of planting area as the unit for measuring landscape works after taking over the vegetation for horticultural maintenance; and (c) based on CEDD handover records, the planting quantities of 16,490 trees and 3,434,260 shrubs under GMPs for Phase 3 of urban areas and 3,965 trees and 2,570,219 shrubs under GMPs for Southeast and Northwest NT were mostly handed over to LCSD. Based on LCSD records, the planting quantities taken over by LCSD were 3,080 trees and 74,699 square metres (m²) of planting areas for shrubs under the former GMPs and 3,273 trees and 65,313 m² of planting area for shrubs under the latter GMPs. Audit noted that CEDD handover records showed the number of trees planted without details about their height and trunk diameter measures. It would be difficult for LCSD to reconcile the planting quantities in the handover records with its inventory records due to different definitions of trees and different measurement bases for shrubs between CEDD and LCSD. There is merit for CEDD and LCSD to work out handover records in order to meet their different recording needs (paras. 3.6 to 3.8).

13. ***Removal of some trees planted under GMPs for urban areas.*** Of the 3,827 trees (classified by LCSD as trees) taken over by LCSD for maintenance under GMPs for urban areas, 958 trees (25%) had been removed as of October 2018. Of these 958 trees: (a) 682 trees were removed due to inclement weather and tree failure, and only 113 trees (12% of 958) had been replanted in the locations where the original trees were removed. According to LCSD, there were no replanting plan for some of these locations due to dense planting conditions; and (b) 227 trees were removed due to traffic consideration, 37 trees transplanted to other locations and 12 trees removed

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due to provision of universal access facilities. In Audit's view, LCSD needs to take measures to ensure timely replanting of replacement trees as appropriate, and to share its tree maintenance experiences with CEDD with a view to assisting CEDD's development of GMPs (paras. 3.16 and 3.17).

14. ***Room for improvement in maintenance of trees and shrubs.*** In December 2018 and January 2019, to ascertain the conditions of the trees and shrubs planted under GMPs after handing over to LCSD for maintenance, Audit conducted site visits to a total of 81 locations under GMPs for urban areas and referred those locations with suspected deficiencies to LCSD for examination. LCSD's examination confirmed that 44 locations had deficiencies (a location might have more than one deficiency) involving: (a) removal of some trees and shrubs (32 locations); (b) unsatisfactory conditions of some shrubs (14 locations); and (c) replanting of some trees and shrubs with other plant species (17 locations) (paras. 3.18 and 3.19).

Overseeing and public engagement of Greening Master Plans

15. The Steering Committee on GLTM and the GMP Committee are tasked to oversee and monitor the greening measures under GMPs. In December 2009, in preparing the establishment of GLTMS, DEVB informed the Steering Committee on GLTM that there was merit in retaining the GMP Committee, particularly with respect to the formulation of GMPs and the implementation of the short-term measures, and the implementation of the medium and long-term measures under GMPs could be handled more effectively by GLTMS, with steer from the Steering Committee on GLTM as appropriate. According to DEVB, apart from the Government's greenery works, the wide participation of public organisations and the private sector is crucial to the success of greening efforts (paras. 4.2, 4.3 and 4.22).

16. ***Progress and results in implementing greening works under GMPs for NT not reported to GMP Committee and GLTMS.*** For GMPs for urban areas, CEDD had from time to time reported the progress and results in implementing greening works to the GMP Committee and the Steering Committee on GLTM. For GMPs for Southeast and Northwest NT, CEDD had not reported the implementation progress to the two Committees for the related greening works. According to GLTMS, since the establishment of GLTMS in March 2010, the greening targets, planting figures and progress of contracts under GMPs had been reported to GLTMS

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instead of the Steering Committee on GLTM, and only problematic cases would be escalated to the Steering Committee on GLTM for resolution but there was no such need in the recent past years. Audit noted that there was scope for CEDD to provide further information to GLTMS (e.g. experience gained from GMP implementation) (paras. 4.5 to 4.8).

17. ***Need to monitor progress of medium and long-term measures under GMPs for urban areas.*** In 2011, GLTMS commenced a tracking exercise to keep track of the medium and long-term measures under GMPs for urban areas (see para. 3) with a view to identifying those which would remain feasible and could be taken forward as well as the parties responsible for implementation. In December 2015, GLTMS completed the tracking exercise and identified a total of 288 medium and long-term measures which needed to be followed up by GLTMS (for 67 measures which required private sector/public organisations participation) and by government departments (for 221 measures under their purview). While GLTMS had taken certain follow-up actions with the responsible departments on the implementation progress of the 221 measures under their purview, it had not taken specific follow-up actions with private sector/public organisations on the 67 measures requiring their participation (paras. 4.11, 4.12 and 4.14).

18. ***Scope for reviewing plant species under GMPs.*** In December 2018, GLTMS published the Street Tree Selection Guide with the purpose to improve the resilience of the Territory's urban forest by maximising species diversity. Audit noted that GMPs for urban areas had been developed and approved by GMP Committee more than 10 years ago and for NT more than 5 years ago. Audit considers that there is scope for CEDD to review the plant species under GMPs for urban areas and NT, taking into account the additional tree species recommended by the newly published Street Tree Selection Guide (paras. 4.16 and 4.17).

19. ***Need to provide updated GMP information on website.*** For GMPs for urban areas, CEDD had uploaded information on theme species and plant palettes in different districts onto its website for reference by the public. However, while GMPs for NT were approved by GMP Committee in March 2013 (for Southeast and Northwest NT) and February 2014 (for Northeast and Southwest NT), CEDD only uploaded the related GMP information onto its website about five to six years later in January 2019 (para. 4.23).

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Audit recommendations

20. Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Government should:

Development and implementation of Greening Master Plans

- (a) review the reasons for the considerable number of trees and shrubs not planted at the potential planting areas under the works contracts for GMPs for NT and take into account Audit's findings and recommendations on the matter with a view to better setting out the planting locations when developing GMPs (para. 2.13(a));
- (b) consider setting target rates for planting theme trees in order to better realise the greening themes for each district under GMPs and endeavour to meet the target rates when implementing GMPs (para. 2.25(a));
- (c) take measures to enhance the assessment of feasibility of planting at focal points under GMPs (para. 2.25(b));
- (d) plant theme trees at focal points under GMPs to realise the district-specific greening themes as far as practicable (para. 2.25(c));
- (e) consider setting target rates for planting native plant species and endeavour to meet the target rates when implementing GMPs (para. 2.33);

Handover and maintenance of greening works under Greening Master Plans

- (f) to ensure that all greening works completed under GMPs are properly handed over and such works are properly and accurately recorded, work out handover records showing the greening works handed over at the handover date in order to meet the different recording needs of CEDD and LCSD arising from their different definitions of trees and different measurement bases for shrubs (para. 3.9);

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- (g) **in preparing the handover records, take measures to ensure that all greening works completed under GMPs as agreed to be taken over by LCSD are accurately and completely included therein (para. 3.10);**
- (h) **properly record in LCSD's inventory records the greening works taken over based on the handover records (para. 3.11);**
- (i) **take measures to ensure timely replanting of replacement trees as appropriate (para. 3.20(a));**
- (j) **share LCSD's experiences in maintenance of plants with CEDD with a view to assisting CEDD's development of GMPs (para. 3.20(b));**
- (k) **strengthen measures in maintaining trees and shrubs planted under GMPs to ensure the healthy establishment and growth of plants (para. 3.20(c));**

Overseeing and public engagement of Greening Master Plans

- (l) **ensure the periodic reporting of the progress and results in implementing greening works under GMPs for NT to the GMP Committee and GLTMS (para. 4.18(a));**
- (m) **review the plant species under GMPs for urban areas and NT, taking into account the additional tree species recommended by the newly published Street Tree Selection Guide (para. 4.18(b));**
- (n) **monitor the progress of the to-be-followed-up medium and long-term measures under GMPs for urban areas on a more regular and systematic basis (para. 4.19(a)); and**
- (o) **provide updated GMP information on CEDD's website with a view to facilitating the public's understanding of GMPs and engaging their participation in greening works (para. 4.28).**

Response from the Government

21. The Government agrees with the audit recommendations.

PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

Background

1.2 The Government has been actively promoting greening in order to improve the living environment of Hong Kong. In particular, there is a close relationship between greening and improvement in air quality (Note 1). It is the Government's greening policy to uplift the quality of the living environment through active planting, proper maintenance and preservation of trees and other vegetation.

1.3 In pursuance of a general direction announced by the Chief Executive of the Hong Kong Special Administrative Region in the 2000 Policy Address to green up Hong Kong by planting more trees and flowers in the urban areas, the then Environment, Transport and Works Bureau (now the Development Bureau (DEVB — Note 2)) established the Steering Committee on Greening in December 2002 to formulate related strategies and supervise implementation of major greening programmes. Upon the establishment of the Greening, Landscape and Tree Management Section (GLTMS — see para. 1.8) under DEVB in March 2010, the Committee was renamed the Steering Committee on Greening, Landscape and Tree Management (Steering Committee on GLTM — Note 3). The Steering Committee on GLTM is chaired by the Permanent Secretary for Development (Works) (see Appendix A for membership of the Committee) and supported by GLTMS to

Note 1: *Green plants can help act as a sponge by sequestering carbon dioxide in the atmosphere while releasing oxygen. They can also improve air quality by intercepting particulate matters and absorbing gaseous contaminants such as sulphur dioxide and nitrogen oxides in the atmosphere as well as help lower urban temperature.*

Note 2: *DEVB was formed in July 2007 to take up, inter alia, the policy matters on greening works from the former Environment, Transport and Works Bureau. For simplicity, the former Environment, Transport and Works Bureau is referred to as DEVB in this Audit Report.*

Note 3: *For simplicity, the then Steering Committee on Greening is referred to as the Steering Committee on GLTM in this Audit Report.*

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formulate the strategic direction and oversee the implementation of major greening programmes. The responsibilities of the Steering Committee on GLTM include:

- (a) considering and approving greening targets and programmes submitted by its working committees; and
- (b) overseeing departmental efforts on greening, landscape and tree management.

According to DEVB, the Government's greening programmes include developing and implementing Greening Master Plans (GMPs — see para. 1.5), incorporating planting elements into works projects and increasing planting along roadside amenity areas and expressways.

Greening Master Plans

1.4 ***Greening Master Plan Committee (GMP Committee).*** In August 2004, in order to provide a better focus and achieve better coordination of the greening efforts, the GMP Committee was set up under the Steering Committee on GLTM. The GMP Committee, chaired by the Director of Civil Engineering and Development (see Appendix B for membership of the Committee), is tasked to:

- (a) formulate GMPs (including short-term, medium-term and long-term measures) to guide the implementation of greening works on a district basis across the territory (see paras. 1.5 to 1.7);
- (b) oversee and monitor the implementation of short-term greening works arising from GMPs as endorsed by the Steering Committee on GLTM;
- (c) secure public support for GMPs; and
- (d) resolve inter-departmental interface issues arising from the formulation of GMPs and the implementation of the short-term greening works.

1.5 **GMPs.** One key component in the pursuit of greening is the development and implementation of GMPs. A GMP serves as a guide for all parties involved in planning, design and implementation of greening works. It defines comprehensively the overall greening framework of a district by establishing the greening themes, proposing suitable planting species and identifying suitable planting locations to promote a clear district identity, and thus paves the way for continuous and consistent results in enhancing the green environment, as follows:

- (a) **Greening themes.** The greening themes of each district-specific GMP (see Appendix C for a list of greening themes under all GMPs developed) take account of factors such as the local landscape and cultural characteristics, the public's perception and the future development of the district;
- (b) **Plant palettes.** The “right-species-at-the-right-place” principle is adopted when selecting plant species. Apart from matching the district-specific greening theme, the recommended plant palette is drawn up having regard to the local soil conditions, the micro-climate, reliability in the supply of plant species, as well as the functional and performance requirements that the species need to achieve (e.g. the desired visual effect and maintenance requirements); and
- (c) **Planting locations.** Suitable locations for planting are identified after site investigations and local consultations, with due consideration to greening opportunities and site constraints. Maps showing locations where greening works would be implemented form part of GMPs.

1.6 According to DEVB, in recognition of the fact that greening opportunities arise under different time frames, GMPs for urban areas (see para. 1.11(a)) embody a full spectrum of short, medium and long-term measures, as follows:

- (a) **Short-term measures.** These are measures conforming to the district layout and posing no direct conflict with land use or traffic arrangements and can be implemented within one to two years;
- (b) **Medium-term measures.** These are greening measures which have to be implemented in association with other projects or which require private sector participation; and

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- (c) ***Long-term measures.*** These measures depict the ultimate greening vision and include proposals such as tree corridors along major roads which can only be achieved in conjunction with urban renewal.

1.7 Under GMPs for the New Territories (NT — see para. 1.11(b)), the greening measures are referred to as “priority greening works” (Note 4). According to GLTMS and the Civil Engineering and Development Department (CEDD — see para. 1.9):

- (a) the priority greening works under GMPs for NT are equivalent to short-term measures under GMPs for urban areas. Accordingly, the terms of reference for the GMP Committee cover priority greening works under GMPs for NT;
- (b) it was a conscientious decision not to include medium and long-term greening measures in GMPs for NT. The key considerations were that:
 - (i) as learnt from GMPs for urban areas, medium and long-term measures involved a prolonged time span during which changes to the site situations and community sentiments could be frequent and major. Planning such measures at a too early stage could just be a waste of efforts and money; and
 - (ii) as NT had lots of development and re-development projects in the pipeline (e.g. Northeast NT, Hung Shui Kiu and Yuen Long South), greening measures planned and considered under individual projects would be more cost-effective and time relevant; and

Note 4: *According to the paper seeking funding approval from the Finance Committee of the Legislative Council in April 2014:*

- (a) *the greening measures under GMPs for NT with relatively high greening effect and public aspirations would be implemented as priority greening works; and*
- (b) *funding for the remaining greening works in NT would be sought later when they were ready for upgrading to Category A under the Public Works Programme (a project is upgraded to a Category A project when funding approval is granted by the Finance Committee of the Legislative Council).*

- (c) to ensure that the greening theme in each district could be realised even without the guided medium and long-term measures, DEVB promulgated a technical circular in 2012 advising that relevant departments should make reference to GMP themes for projects which involved design for greening on new roads as far as possible.

Responsible bureau and departments

1.8 DEVB has the overall policy responsibility for greening, landscape and tree management. In March 2010, GLTMS was established under the Works Branch of DEVB to take up the overall policy responsibility for formulating and coordinating landscape and tree management strategy and initiatives in Hong Kong. GLTMS is underpinned by the Greening and Landscape Office and the Tree Management Office (Note 5). The two offices work in close cooperation to promote a holistic approach, embracing adequate space allocation for new planting, proper selection of planting species, as well as quality landscape design and planting practices in the upstream, and proper vegetation maintenance in the downstream, with protection of public safety as a priority consideration (Note 6). The Greening and Landscape Office is responsible for central coordination of the Government's greening and landscape planning and design efforts. Its work includes overseeing the development and implementation of GMPs.

Note 5: *The Tree Management Office is responsible for advocating the adoption of a professional approach to tree management among tree management departments and in the community at large.*

Note 6: *The Audit Commission had conducted a review of the Government's efforts in enhancing tree safety, the results of which were included in Chapter 6 of the Director of Audit's Report No. 63 of October 2014.*

Introduction

1.9 CEDD is responsible for the development and implementation of GMPs. It serves as the executive arm of the GMP Committee. CEDD handed over the greening works completed under GMPs mostly to the Leisure and Cultural Services Department (LCSD — Note 7) for maintenance.

Procedures in development and implementation of GMPs and maintenance of greenings works under GMPs

1.10 The procedures in developing and implementing a GMP for a district and maintaining greening works completed under GMP (summarised in Figure 1) are, in general, as follows:

Development of GMPs

- (a) ***Background study, consultation and approval of GMP.*** CEDD will engage a consultant to develop a GMP, including conducting background study and site investigation works, and consulting the public, relevant government departments and the relevant District Council (DC). GMP will then be submitted to the GMP Committee for approval and the Steering Committee on GLTM for endorsement;
- (b) ***Detailed design and funding application.*** Upon approval by the GMP Committee, the consultant will commence the detailed design of the greening measures under the approved GMP. The relevant funding application will then be submitted to the Finance Committee of the Legislative Council (LegCo) for approval;

Note 7: *According to DEVB Technical Circular (Works) No. 6/2015 and its superseded version No. 2/2004 “Maintenance of Vegetation and Hard Landscape Features”, vegetation on landscaped area along non-expressway public roads (both versions of the Circular) and trees on unleased and unallocated government land within 10 metres from the kerb of public roads (prevailing version only) are maintained by LCSD while vegetation within the boundary of expressways are maintained by the Highways Department (both versions). According to CEDD, as the greening measures of GMPs mostly involve greening of pavements or roadside verges, the related greening maintenance is mostly undertaken by LCSD. For example, according to CEDD, of the 1,134 trees and 863,113 shrubs planted under GMP for Sha Tin, except for 15 (1%) trees and 62,263 (7%) shrubs handed over to the Highways Department, the remaining 1,119 trees and 800,850 shrubs were handed over to LCSD for maintenance.*

Implementation of GMPs

- (c) ***Tendering and implementation of greening works.*** After obtaining funding approval from the Finance Committee of LegCo, CEDD will conduct a tender exercise for the implementation of greening works and award the works contract to a contractor. The contractor, under the supervision of a consultant, will implement the greening works under the contract. Following completion of implementation of greening works under the works contract for a GMP, there is a one-year establishment period during which CEDD's contractor is responsible to carry out post-planting caring as establishment works (Note 8); and

Maintenance of greening works completed under GMPs

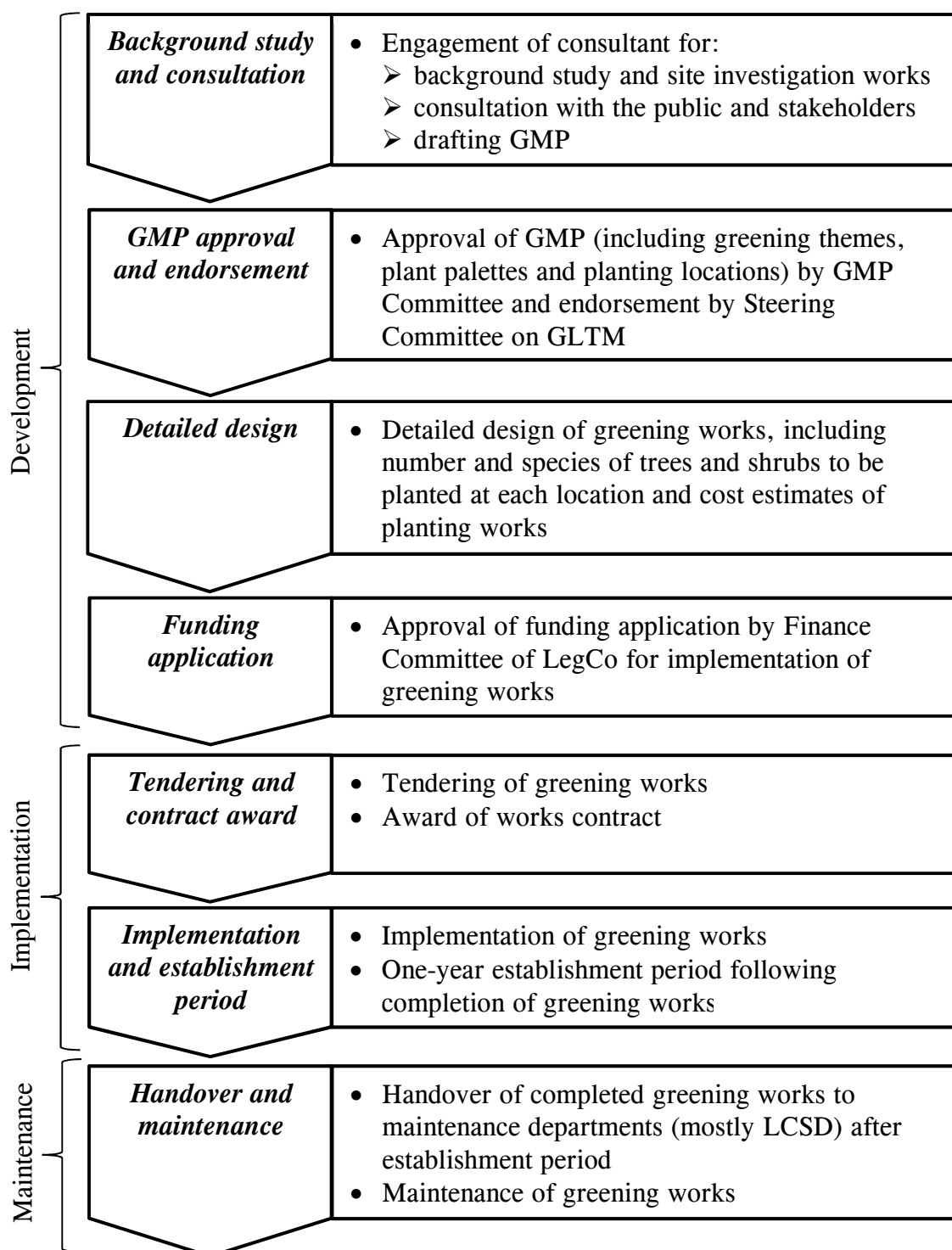
- (d) ***Handover and maintenance of greening works.*** After the establishment period, CEDD will hand over the greening works mostly to LCSD for maintenance (see Note 7 to para. 1.9).

Note 8: *According to CEDD:*

- (a) *unlike general construction products, trees and shrubs have a life cycle (i.e. grow, become weak and die) like other living organisms. Newly planted trees and shrubs are subject to various challenges from nature; and*
- (b) *abuse by external factors (regardless by nature or human activities) can adversely affect health condition of trees and shrubs and they may die as a result of serious abuse.*

Figure 1

**Procedures in development and implementation of GMPs
and maintenance of greening works completed under GMPs**



Source: Audit analysis of CEDD records

GMPs for urban areas and NT

1.11 As of December 2018, CEDD had developed 11 GMPs for urban areas and 9 for NT. The development and implementation of these GMPs are shown in Table 1 and summarised as follows:

- (a) ***Urban areas.*** The Government embarked on the development of GMPs in September 2004 and selected Tsim Sha Tsui as a pilot district. By June 2011, CEDD had completed the short-term greening measures of the 11 GMPs for all urban areas (Note 9) in three phases. According to CEDD, a total of 24,890 trees and 5.1 million shrubs were planted under GMPs; and
- (b) ***NT.*** According to DEVB, the public had been supportive of GMP projects and there was a strong demand for extending GMPs to NT. In 2009, the Government embarked on preparation for the development of GMPs for NT. According to CEDD, in view of the extensive area of NT, GMP studies would focus primarily on the more densely populated areas (e.g. town centres), major transportation routes and tourist attraction locations, in order to effectively enhance the greening effect and improvement to the environment. The 9 GMPs for NT (Note 10) are developed and implemented in four areas, namely Southeast, Northwest, Northeast and Southwest. CEDD started formulating GMPs for:
 - (i) ***Southeast and Northwest NT in May 2011.*** The related greening works were completed in October 2017. According to CEDD, 3,980 trees and 2.6 million shrubs were planted under GMPs; and

Note 9: *The 11 GMPs are for 9 urban DC districts (i.e. Central and Western, Eastern, Kowloon City, Kwun Tong, Sham Shui Po, Southern, Wan Chai, Wong Tai Sin and Yau Tsim Mong), with two DC districts (i.e. Central and Western, and Yau Tsim Mong) each having two GMPs.*

Note 10: *The 9 GMPs are for 9 NT DC districts (i.e. Islands, Kwai Tsing, North, Sai Kung, Sha Tin, Tai Po, Tsuen Wan, Tuen Mun and Yuen Long).*

- (ii) *Northeast and Southwest NT in February 2012.* GMPs were approved by the GMP Committee in February 2014. According to DEVB, it plans to consult the Panel on Development of LegCo in the second half of 2019 on upgrading the project for implementation of the relevant greening works to Category A under the Public Works Programme. The greening works are tentatively scheduled to commence in the first half of 2020 for completion in mid-2023.

Table 1

**Development and implementation of GMPs for urban areas and NT
(June 2005 to December 2018)**

GMP		Date of approval by GMP Committee	Commencement date of greening works	Completion date of greening works	No. of trees planted	No. of shrubs planted
(a) Urban areas						
Phase 1						
1	Tsim Sha Tsui	6/2005	5/2006	9/2007	680	145,000
2	Central	9/2005			570	155,000
Phase 2						
3	Causeway Bay, Sheung Wan and Wan Chai	11/2007	8/2008	12/2009	2,230	520,000 (Note 1)
4	Mong Kok and Yau Ma Tei				4,170	860,000
Phase 3						
5	Southern	9/2008	12/2009	4/2011	1,440	255,500
6	Western			5/2011	900	96,500
7	Wong Tai Sin	12/2008	8/2009	6/2011	1,670	463,000
8	Kwun Tong		9/2009	3/2011	5,230	1,255,100
9	Kowloon City			6/2011	2,690	442,000
10	Sham Shui Po		3,210		540,000	
11	Eastern		12/2009		2,100	400,000
Subtotal of Phase 3					17,240	3,452,100
Subtotal (a)					24,890	5,132,100
(b) NT						
Southeast NT						
12	Sha Tin	3/2013	12/2014	10/2017	1,134	863,113
13	Sai Kung				838	386,475
Northwest NT						
14	Tuen Mun	3/2013	12/2014	10/2017	910	536,389
15	Yuen Long				1,098	846,505
Northeast NT						
16	North	2/2014	(Note 2)			
17	Tai Po					
Southwest NT						
18	Islands	2/2014	(Note 2)			
19	Kwai Tsing					
20	Tsuen Wan					
Subtotal (b)					3,980	2,632,482
Total (c)=(a)+(b)					28,870	7,764,582

Source: CEDD records

Table 1 (Cont'd)

- Note 1: According to CEDD, for Causeway Bay, Sheung Wan and Wan Chai: (a) the 520,000 shrubs included those planted by other contracts under GMP ambit for the same district; and (b) the expenditure incurred was charged to the approved funding for development and implementation of GMPs.*
- Note 2: According to DEVB, it plans to consult the Panel on Development of LegCo in the second half of 2019 on upgrading the project for implementation of the relevant greening works to Category A under the Public Works Programme.*

Expenditure incurred on GMPs

1.12 As of December 2018, the Government had incurred a total of \$734.7 million on development and implementation of GMPs, as follows:

- (a) ***Urban areas.*** The development of GMPs and implementation of short-term greening measures for all urban areas had been completed by June 2011 and the related accounts were subsequently finalised at \$489 million;
- (b) ***Southeast and Northwest NT.*** The development and implementation of GMPs had been completed by October 2017. As of December 2018, a total of \$227.7 million had been incurred, but the related accounts were yet to be finalised; and
- (c) ***Northeast and Southwest NT.*** GMPs were approved by the GMP Committee in February 2014. As of December 2018, a total of \$18 million had been incurred (on consultancy studies and site investigation works).

Table 2 shows the approved funding and the actual expenditure for development and implementation of GMPs as of December 2018.

Table 2

**Approved funding and actual expenditure
for development and implementation of GMPs
(December 2018)**

Region	Nature (Note)	Approved funding (\$ million)	Actual expenditure (\$ million)
(a) Urban areas			
<u>Phase 1</u> Central and Tsim Sha Tsui	Consultancy studies and site investigation works	4.3	3.4
	Greening works	38.4	25.2
<u>Phase 2</u> Causeway Bay, Mong Kok, Sheung Wan, Wan Chai and Yau Ma Tei	Consultancy studies and site investigation works	18.1	11.0
	Greening works	126.0	101.7
<u>Phase 3</u> Eastern, Kowloon City, Kwun Tong, Sham Shui Po, Southern, Western and Wong Tai Sin	Consultancy studies and site investigation works	51.5	24.4
	Greening works	466.0	323.3
Subtotal (a)		704.3	489.0
(b) NT			
Southeast and Northwest NT (Sha Tin, Sai Kung, Tuen Mun and Yuen Long)	Consultancy studies and site investigation works	35.3	23.5
	Greening works	350.0	204.2
Subtotal		385.3	227.7
Northeast and Southwest NT (Tai Po, North, Tsuen Wan, Islands and Kwai Tsing)	Consultancy studies and site investigation works	34.5	18.0
Subtotal (b)		419.8	245.7
Total (c)=(a)+(b)		1,124.1	734.7

Source: CEDD records

Note: The consultancy studies and site investigation works for GMPs for urban areas under Phase 1 and NT were funded under a block allocation for Category D projects in the Public Works Programme under the Capital Works Reserve Fund, which was set up in April 1982 for financing the Public Works Programme and the acquisition of land. The consultancy studies and site investigation works for GMPs for urban areas under Phases 2 and 3 and all the greening works were covered under Category A projects in the Public Works Programme.

Introduction

1.13 LCSD is responsible for the maintenance of the greening works completed under GMPs together with other trees and vegetation under its purview by its in-house staff and/or contractors. According to CEDD, it had handed over the greening works under GMPs for urban areas by December 2013 and those for Southeast and Northwest NT by December 2018 to LCSD. According to LCSD, its total in-house staff cost and contract cost for maintenance of all plants under its purview for 2017-18 were about \$190 million and \$241 million respectively, and no breakdown of the cost solely for maintenance of greening works under GMPs was available.

Audit review

1.14 In November 2018, the Audit Commission (Audit) commenced a review to examine the Government's efforts in managing GMPs. The audit review has focused on the following areas:

- (a) development and implementation of GMPs (PART 2);
- (b) handover and maintenance of greening works under GMPs (PART 3); and
- (c) overseeing and public engagement of GMPs (PART 4).

Audit has found room for improvement in the above areas, and has made a number of recommendations to address the issues.

Acknowledgement

1.15 Audit would like to acknowledge with gratitude the full cooperation of the staff of DEVB, CEDD and LCSD during the course of the audit review.

PART 2: DEVELOPMENT AND IMPLEMENTATION OF GREENING MASTER PLANS

2.1 This PART examines CEDD's actions in the development and implementation of GMPs, focusing on:

- (a) planting locations (paras. 2.4 to 2.14);
- (b) planting of theme trees (paras. 2.15 to 2.26); and
- (c) planting of native plant species (paras. 2.27 to 2.34).

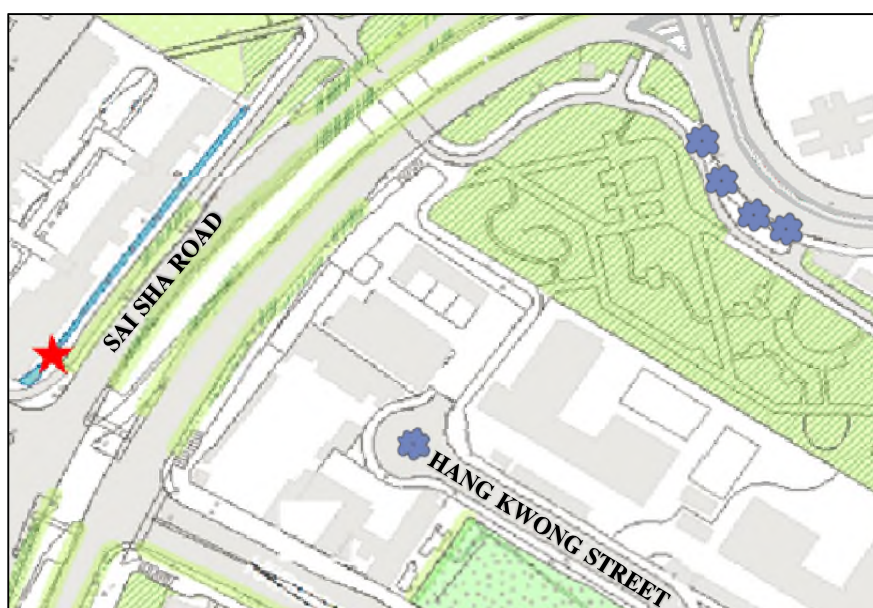
2.2 ***Consultancy agreements for development and supervising implementation of GMPs.*** Between September 2004 and February 2012, CEDD awarded 9 consultancy agreements for development of GMPs for urban areas (two agreements for each of Phases 1 and 2 and one for Phase 3, with actual expenditure totalled \$38.8 million) and GMPs for NT (one agreement for each of the Southeast, Northwest, Northeast and Southwest NT, with actual expenditure totalled \$41.5 million as of December 2018) and supervising implementation of the greening works under the works contracts. The responsibilities of the consultants mainly include:



- (a) ***Background study.*** In developing a GMP for a district, the consultant will conduct studies and site investigation works, including detailed background study and site inspections of the district to collect information such as land use/planning, existing landscape/greening features, records of underground utilities, traffic and pedestrian conditions, and relevant on-going studies which would have a bearing on GMP studies;
- (b) ***Draft GMP.*** Based on the detailed background study and site inspections, the consultant will investigate the greening opportunities and constraints within the district. The consultant is required to propose representative greening theme for each GMP, suitable plant species which can reflect the greening theme of each GMP and greening measures for implementation. The consultant is also required to identify suitable locations for planting (known as planned planting locations), including at least 10 key planting areas that are representative of the district and can be easily identifiable

for realising the greening themes of a GMP (known as focal points for planting). Figure 2 shows an example of planned planting locations and a focal point for planting under a GMP;

Figure 2

An example of planned planting locations and a focal point for planting under Sha Tin GMP



Legend:  A focal point for planting
 Planned planting locations

Source: CEDD records

- (c) **Consultation and approval.** The consultant is required to identify stakeholders, including government bureaux/departments, public or private organisations, relevant DC and/or its sub-committees and working groups, and conduct consultation to solicit their support to the recommendations of the draft GMP. The draft GMP (including greening theme, theme tree species, plant palette, planned planting locations and focal points for planting) will be presented to the relevant DC or its sub-committees for support. After GMP is supported by DC, it will be submitted to the GMP Committee for approval and the Steering Committee on GLTM for endorsement;

Development and implementation of Greening Master Plans

- (d) **Detailed design.** Based on the approved GMP, the consultant will carry out detailed design of greening works, including consulting and obtaining agreement from relevant maintenance departments on the detailed design (including number and species of trees and shrubs to be planted at each location) and preparing cost estimates of the related planting works; and
- (e) **Tender preparation and supervision of contract works.** After obtaining funding approval from the Finance Committee of LegCo for implementation of greening works under GMP, the consultant will prepare tender documents for the works contract, arrange for tendering, and undertake contract administration and site supervision of the greening works after awarding the contract.

2.3 **Works contracts for implementation of GMPs.** The details of the works contracts for implementation of GMPs for urban areas and Southeast and Northwest NT are as follows:

- (a) **Award of contracts.** Between May 2006 and December 2014, CEDD awarded 11 works contracts for implementation of greening measures under GMPs, comprising 9 contracts for urban areas (one for each of Phases 1 and 2 and one for each of the 7 GMPs under Phase 3) and 2 contracts for NT (one for Southeast NT and another for Northwest NT);
- (b) **Completion of contracts.** The greening works under 9 contracts for urban areas for Phases 1, 2 and 3 were completed in 2007, 2009 and 2011 respectively, and those under the 2 contracts for Southeast and Northwest NT completed in 2017. For 10 of the 11 works contracts, the greening works were completed about 1 to 6 months later than the respective original contract completion dates (see Appendix D). According to CEDD, the extensions of contract periods were mainly due to inclement weather and additional planting works;
- (c) **Greening works completed.** According to CEDD, a total of about 29,000 trees and 7.8 million shrubs were planted under GMPs (see Table 1 in para. 1.11). The actual planting quantities exceeded the planting targets of 20,000 trees and 5.6 million shrubs stated in the related papers seeking funding approval from the Public Works Subcommittee (PWSC) of the Finance Committee of LegCo. Details are shown in Appendix E; and

- (d) **Contract expenditure.** For the 9 contracts for urban areas (the accounts for 2 contracts for NT not yet finalised as of December 2018), the respective expenditure for 6 contracts was less than the contract sum by 1% to 19% while that for 3 contracts exceeded the contract sum by 12% (\$4.5 million), 15% (\$5.4 million) and 24% (\$4.4 million) respectively (see Appendix F). According to CEDD, the excess was mainly due to the fact that more trees and shrubs had been planted under the contracts.

Planting locations

2.4 GMPs set out, among others, planned planting locations, focal points for planting (which are for realising the greening themes) and theme plants (see para. 2.2(b)). The works contracts for implementing GMPs set out, among others, the number of trees and shrubs to be planted with the contract drawings showing “potential trees” and “potential planting areas” (Note 11).

2.5 According to CEDD:

- (a) for general engineering projects, the site boundaries are well defined and site investigations are conducted at selected areas to facilitate detailed design to minimise changes during construction. For GMP projects, there is considerable amount of potential planting areas scattered widely in each district. As such, it is not practical nor cost-effective to conduct extensive trial pits and trenches to cover all potential planting areas during detailed design stage; and
- (b) therefore, the potential planting areas might have to be adjusted to address actual site conditions, local comments and maintenance concerns during implementation. As a result, a high chance for changes during implementation is unavoidable due to the special nature of GMP projects.

Note 11: *According to the works contracts, the number, size, species and location of potential trees as well as the layout, planting pattern and species of potential planting areas are indicative only on the drawings. The planting of potential trees and potential planting areas will be confirmed after considering various criteria (e.g. no objection received regarding the potential trees and potential planting areas, and no conflict with underground obstruction or interface project).*

2.6 **Phase 3 of urban areas.** In the course of implementing the works contracts for Phase 3 of urban areas (see Appendix D), in April 2010, CEDD and the consultant concerned discussed the issue of not implementing some planting works in the works contracts, and the consultant agreed that any planting works not implemented would be properly documented and with justifications provided. At the Steering Committee on GLTM meeting of June 2010, in view of the fact that some greening works could not be implemented at specific locations under GMPs for urban areas, DEVB stated that a more realistic planting programme should be drawn up under GMPs in future so as to avoid raising local expectations. Starting from July 2010, the consultant prepared and submitted to CEDD monthly summaries on the planting quantities with analysis of justifications for not planting at the potential planting areas.

2.7 For the works contracts for Phase 3 of urban areas, Audit noted that 45% of trees and 16% of shrubs had not been planted at certain potential planting areas (i.e. no planting at these areas at all — see Table 3). According to CEDD, the reasons for not planting at potential areas were underground utilities, objections and interfacing projects (see Table 4).

Table 3
Trees and shrubs not planted at potential planting areas
for Phase 3 of urban areas
(July 2013)

Plant	No. of trees/shrubs		Percentage of trees/shrubs not planted at potential planting areas (c) = (b) ÷ (a) × 100%
	According to contracts (Note 1) (a)	Not planted at potential planting areas (Note 2) (b)	
Trees	14,672	6,644	45 %
Shrubs	2,738,913	433,800	16 %

Source: CEDD records

Note 1: A total of 17,240 trees and 3,452,100 shrubs were planted, exceeding the numbers according to contracts by 18% and 26% respectively. In other words, a total of 2,568 (i.e. 17,240 minus 14,672) additional trees and 713,187 (i.e. 3,452,100 minus 2,738,913) additional shrubs were planted.

Note 2: The figures in column (b) were based on the consultant's monthly summaries submitted to CEDD (see para. 2.6).

Table 4**Reasons for not planting at potential planting areas
under works contracts for Phase 3 of urban areas
(July 2013)**

Reason	Tree (No.)	Shrub (No.)
Underground utilities	2,907 (44%)	116,000 (27%)
Objections	1,729 (26%)	81,600 (19%)
Interfacing projects	2,008 (30%)	236,200 (54%)
Total	6,644 (100%)	433,800 (100%)

Source: CEDD records

***Considerable number of trees and shrubs not planted at potential
planting areas under works contracts for GMPs***

2.8 ***Southeast and Northwest NT.*** In the course of developing GMPs for Southeast and Northwest NT, in July and August 2012, CEDD informed the GMP Committee and the Steering Committee on GLTM respectively that, to overcome the related hurdles for not being able to plant at planned locations under GMPs, it had stepped up efforts when developing these GMPs, as follows:

- (a) ***Underground utility detection.*** More investigation works had been carried out during the design stage, including excavating more trial pits (from about 10% in urban areas to about 16% in Southeast and Northwest NT) and applying a no-dig utility detection method to investigate the underground conditions. According to CEDD:
 - (i) the no-dig utility detection method was a hand-held device for scanning the ground surface and was quick, inexpensive and effective in detecting metallic cables or pipes (Note 12). It was used to reveal the existence of underground utilities at planned planting locations which were not covered by trial pit works; and

Note 12: *According to CEDD, the no-dig utility detection method could not guarantee 100% detection rate, with limitation in sensing non-metallic materials such as concrete and plastic pipes and variance due to depth of underground utilities.*

Development and implementation of Greening Master Plans

- (ii) the use of trial pit excavation and the no-dig utility detection method should help eliminate infeasible tree planting proposals at an early stage of GMP development, thus minimising the gap between what were proposed in GMPs and what would finally be achieved; and
- (b) **Consulting DC members.** Instead of meeting DC members as a group to tour around the locations of greening opportunities, CEDD had arranged site walks or meetings with each NT DC member and each member of the Rural Committee individually. According to CEDD:
 - (i) through these site walks and meetings, it was able to discuss the greening proposals with the members in details, who, in return, were able to provide advice on the greening suggestions and concerns of the local residents; and
 - (ii) these interactive activities had significantly enhanced its knowledge of the local conditions, which were conducive to ensuring that GMPs would best serve the needs and expectations of the local residents.

2.9 According to CEDD:

- (a) after understanding that the success rate of planting at potential planting areas in the contracts under GMPs for urban areas was affected by various reasons during implementation, for GMPs for NT, CEDD deployed designer and resident site staff after commencement of contracts to identify opportunities to maximise the greening at potential planting areas and other potential locations in an attempt to boost potential areas, and thus achieving the target planting rates. Generally, despite difficulties encountered on site, CEDD planted more trees than planned in the contracts and achieved targets within the original contract sum;
- (b) for Southeast and Northwest NT, the consultant had strived to maximise the greening opportunities by planting more trees and shrubs at potential planting areas and, after commencement of the contracts, had additionally proposed some trees/shrubs to be planted at these areas; and

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- (c) CEDD had requested the consultant to prepare monthly summaries for the planting at potential planting areas for Southeast and Northwest NT covering those in the contracts and those additionally proposed by the consultant after contracts commenced. Table 5 shows the trees and shrubs not planted at the potential planting areas. In addition, CEDD also conducted an analysis of planting at potential planting areas for Southeast and Northwest NT (see Table 6), while that for urban areas was not readily available.

Development and implementation of Greening Master Plans

Table 5

**Trees and shrubs not planted at potential planting areas
for Southeast and Northwest NT
(October 2018)**

District	No. of trees/shrubs				Percentage of trees/shrubs not planted at potential planting areas (e) = (d) ÷ (c) × 100%
	According to contracts (Note 1) (a)	Additionally proposed to be planted at potential planting areas after contracts commenced (b)	Totally proposed to be planted at potential planting areas (c) = (a) + (b)	Not planted at potential planting areas (Note 2) (d)	
(a) Trees					
Sha Tin	1,055	51	1,106	657	59%
Sai Kung	739	194	933	470	50%
Tuen Mun	727	350	1,077	278	26%
Yuen Long	1,029	90	1,119	379	34%
Overall	3,550	685	4,235	1,784	42%
(b) Shrubs					
Sha Tin	333,733	78,878	412,611	165,022	40%
Sai Kung	333,330	46,625	379,955	218,280	57%
Tuen Mun	506,400	28,264	534,664	87,170	16%
Yuen Long	655,542	—	655,542	38,259	6%
Overall	1,829,005	153,767	1,982,772	508,731	26%

Source: CEDD records

Note 1: A total of 3,980 trees and 2,632,482 shrubs were planted, exceeding the numbers according to contracts by 12% and 44% respectively. In other words, a total of 430 (i.e. 3,980 minus 3,550) additional trees and 803,477 (i.e. 2,632,482 minus 1,829,005) additional shrubs were planted. Audit noted that, in order to meet the planting targets, CEDD had urged the consultant to explore new planting opportunities and sought LCSD's assistance in identifying suitable planting areas.

Note 2: According to CEDD, while it had the number of trees and shrubs not planted at potential planting areas, it could not provide a breakdown of trees/shrubs not planted at potential planting areas that were related to those in the contracts (i.e. column (a)) and those additionally proposed by the consultant (i.e. column (b)).

Table 6

**Planting at potential planting areas under works contracts
for Southeast and Northwest NT
(March 2019)**

District	No. of potential planting areas		
	According to contracts (Note) (a)	With no planting (b)	With planting (c) = (a) – (b)
Sha Tin	112 (100 %)	63 (56 %)	49 (44 %)
Sai Kung	99 (100 %)	41 (41 %)	58 (59 %)
Tuen Mun	85 (100 %)	21 (25 %)	64 (75 %)
Yuen Long	129 (100 %)	23 (18 %)	106 (82 %)
Overall	425 (100 %)	148 (35 %)	277 (65 %)

Source: CEDD records

Note: According to CEDD, additional planting areas were identified and a total of 486 planting areas were with planting, exceeding the 425 planting areas according to contracts by 61 (14%) planting areas.

Remarks: The percentage in brackets represents the number of planting areas as compared with those under the related contracts.

2.10 While CEDD considered that the stepped up efforts could minimise the gap between what were proposed in GMPs for Southeast and Northwest NT and what would finally be achieved (see para. 2.8(a)(ii)), Audit noted that considerable number of trees and shrubs had not been planted at potential planting areas, as follows:

- (a) overall, 42% of trees and 26% of shrubs had not been planted at potential planting areas (see Table 5) and 35% of potential planting areas were without planting (see Table 6); and
- (b) the deviations from the contract for Southeast NT were more significant. About 59% (for Sha Tin) and 50% (for Sai Kung) for trees and 40% (for Sha Tin) and 57% (for Sai Kung) for shrubs were not planted at potential planting areas (see Table 5) and 56% (for Sha Tin) and 41% (for Sai Kung) of potential planting areas were without planting (see Table 6).

Development and implementation of Greening Master Plans

2.11 According to CEDD, it had not made specific analysis on the reasons for not planting at potential planting areas under the works contracts for Southeast and Northwest NT. Audit examined 165 variation orders under the works contract for Southeast NT in order to ascertain the reasons for not planting at the potential planting areas. Based on these variation orders, Audit noted that 150 trees and 14,970 shrubs had not been planted at potential planting areas under the contract. As shown in Table 7, the reasons were, in general, the same as those for Phase 3 of urban areas (i.e. underground utilities, objections and interfacing projects — see para. 2.7). Cases 1 to 3 show room for improvement in dealing with these issues.

Table 7

**Reasons for not planting at potential planting areas
under works contract for Southeast NT GMPs
(January 2019)**

Reason	Tree (No.)	Shrub (No.)
Underground utilities (see Case 1)	111 (74%)	1,306 (9%)
Objections (see Case 2)	24 (16%)	1,901 (13%)
Interfacing projects (see Case 3)	15 (10%)	11,763 (78%)
Total	150 (100%)	14,970 (100%)

Source: Audit analysis of CEDD records

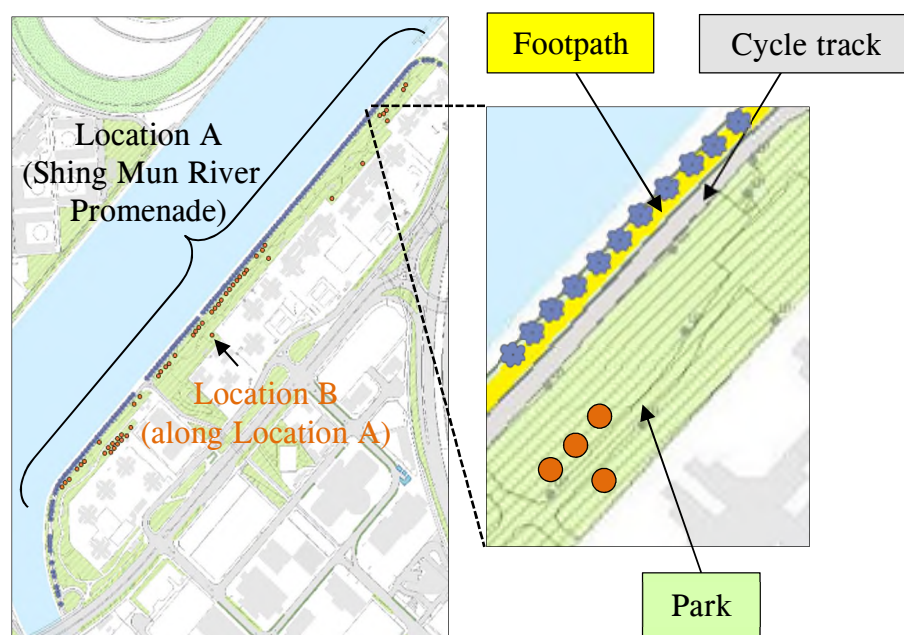
Case 1



Trees not planted at a potential planting area due to underground utilities (March 2013 to March 2019)

1. In March 2013, CEDD submitted the draft GMP of Sha Tin (including planned planting at Shing Mun River Promenade along a cycle track, i.e. Location A — see Figure 3) to the Sha Tin DC for support and then to the GMP Committee for approval. In December 2014, the works contract for greening works in Southeast NT (where Sha Tin is located), which included potential planting of 89 trees at Location A, commenced.

Figure 3

**Map of Locations A and B
(March 2013 and February 2017)**



Legend:  Planned planting locations
  Actual planting locations

Source: *Audit analysis of CEDD records*

Case 1 (Cont'd)

2. In February 2017, CEDD found that tree planting at Location A could not proceed due to obstruction of underground utilities. In April 2017, in order to compensate for the loss of the planned trees at Location A, CEDD decided to accept LCSD's suggestion (see Note 1 to Table 5 in para. 2.9) on enhancing some existing planters at a park in the vicinity along Location A (i.e. Location B — see Figure 3) under the works contract, with planting of 62 trees and 72,544 shrubs.

3. The original estimated cost of planting at Location A was about \$0.43 million and the cost incurred for planting at Location B was about \$1.7 million, resulting in an additional cost of about \$1.27 million. According to CEDD, the additional cost was due to planting of a large number of additional shrubs to enhance the existing planters along Shing Mun River.

4. In March 2019, CEDD informed Audit that:

- (a) there was expectation from local residents to provide greening measures at Location A;
- (b) taking into account the available utilities record drawings and results of three trial pits indicating the presence of underground utilities, the consultant reduced the proposed planting from 147 trees at preliminary design stage to 89 trees at detailed design stage to avoid the identified underground utilities at Location A. The proposal was retained in the tender documents for planting of 89 trees with a view to exploring the opportunities for implementing greening works at Location A; and
- (c) during implementation, CEDD conducted five more trial pits at Location A to ascertain the underground condition and found that tree planting could not proceed due to obstruction of underground utilities.

Case 1 (Cont'd)

Audit comments

5. While CEDD was aware of the presence of underground utilities at Location A, it decided to plant at Location A (with reduced planting to avoid underground utilities) with a view to exploring the opportunities for implementing greening works there (see para. 4(b)). In the event, no tree planting could proceed at Location A due to obstruction of underground utilities (see para. 4(c)). In Audit's view, CEDD needs to explore further measures to enhance the assessment of feasibility of planting at areas with underground utilities with a view to facilitating the development of GMPs.

Source: Audit analysis of CEDD records

Case 2

Shrubs not planted at a potential planting area due to public objections (March 2013 to March 2019)

1. In March 2013, CEDD submitted the draft GMP of Sha Tin (including the planned planting outside a Mass Transit Railway station (Location C)) to the Sha Tin DC for support and then to the GMP Committee for approval. In December 2014, the works contract for greening works in Southeast NT (covering Sha Tin) commenced. The contract included potential planting of 1,901 shrubs at Location C.

2. In June 2016, after construction of a planter for planting shrubs at Location C, CEDD received public objections expressing concerns about the pedestrian capacity of the footpath (which was a main route between the Mass Transit Railway station and nearby estates) as the planter occupied one-third of the footpath. CEDD then requested the related contractor to carry out a pedestrian flow survey at Location C. The results of the survey indicated that, after construction of the planter, the level of services of the remaining footpath was not satisfactory during morning peak hours. In March 2019, CEDD informed Audit that the level of services of the remaining footpath would potentially be reduced due to progressive household intake from a nearby new housing estate during morning peak hours.

3. In the event, CEDD did not proceed with planting shrubs at Location C and the planter at a cost of \$70,000 was subsequently removed. An additional cost of about \$105,000 was incurred under the works contract for demolishing the planter and reinstating the pavement and beam barriers.

Audit comments

4. According to CEDD's related consultancy agreement, when developing the draft GMP, the consultant was required to conduct site surveys to assess feasibility of tree planting qualitatively, such as width of pedestrian pavement, pedestrian flows and conditions. However, CEDD only conducted the pedestrian flow survey at Location C in response to public objections received after construction of the planter, resulting in a total abortive cost of \$175,000 (\$70,000 plus \$105,000 — see para. 3). In Audit's view, CEDD needs to conduct pedestrian flow surveys at critical areas (e.g. planting locations near major new development or re-development projects) where necessary when developing GMPs.

Source: Audit analysis of CEDD records

Case 3

Plants not planted at a potential planting area due to an interfacing project (March 2013 to March 2019)

1. In March 2013, CEDD submitted to the Sha Tin DC the draft GMP of Sha Tin (including the planned planting near a public housing estate (Location D)) for support and then to the GMP Committee for approval. In the same month, detailed design of the greening measures under the approved GMP commenced.
2. In September and October 2013, the Housing Department (HD) presented to the Sha Tin DC a development proposal for Phase 2 of a public housing estate including the associated realignment of a road section (Note), which covered Location D, and obtained its support for the proposal.
3. In June 2014, the detailed design of the greening measures under the Sha Tin GMP was completed. In August and December 2014, CEDD respectively invited tender for the related works contract and awarded the contract. The works contract included potential planting of 15 trees and 11,763 shrubs at Location D.
4. In June 2015, CEDD received an enquiry from a member of the Sha Tin DC expressing concerns that greening works under the Sha Tin GMP might be affected by the development proposal for Phase 2 of the public housing estate and the associated road realignment works. In July 2015, CEDD informed the DC member that, after discussion with HD, which would carry out the future greening works at Location D, planting at that location would not proceed by CEDD.
5. In March 2019, CEDD and HD informed Audit that:
 - (a) **CEDD.** The enquiry from the Sha Tin DC member (see para. 4) had been received through communication as part of the enhanced partnering approach with stakeholders and DC members; and
 - (b) **HD.** HD had agreed to take the holistic approach for implementation of the greening works in an integrated manner with the road realignment works.

Case 3 (Cont'd)

Audit comments

6. According to CEDD's related consultancy agreement, when developing the draft GMP, the consultant was required to identify any proposed, on-going and recently completed studies which would have a bearing on GMP, and consult HD on greening proposals within or adjacent to public housing estates. However, Audit noted that the planned planting at Location D was included in tender invitation for works contract in August 2014 (see para. 3), about one year after the development proposal for Phase 2 of the housing estate had been presented to the Sha Tin DC in September 2013 (see para. 2). In the event, CEDD decided not to proceed with planting at Location D due to the interfacing project. In Audit's view, CEDD needs to strengthen measures to ensure that interfacing projects are taken into account when developing GMPs (e.g. reminding its consultants to identify any proposed, on-going and recently completed studies which would have a bearing on GMPs).

Source: Audit analysis of CEDD records

Note: According to HD, the road realignment works had been entrusted from the Government to the Hong Kong Housing Authority. HD is the executive arm of the Hong Kong Housing Authority.

2.12 Audit noted that while CEDD had stepped up efforts in development of GMPs for Southeast and Northwest NT (see para. 2.8), a considerable number of trees and shrubs were still not planted at potential planting areas (see para. 2.10). According to CEDD, unlike that for Phase 3 of urban areas, it had not made specific review on the reasons for the significant deviations. In Audit's view, CEDD needs to conduct such a review and take into account Audit's findings and recommendations on the matter with a view to better setting out the planting locations when developing GMPs.

Audit recommendations

2.13 Audit has *recommended* that the Director of Civil Engineering and Development should:

- (a) review the reasons for the considerable number of trees and shrubs not planted at the potential planting areas under the works contracts for GMPs for NT and take into account Audit's findings and recommendations on the matter with a view to better setting out the planting locations when developing GMPs;
- (b) explore further measures to enhance the assessment of feasibility of planting at areas with underground utilities with a view to facilitating the development of GMPs; and
- (c) when developing GMPs:
 - (i) conduct pedestrian flow surveys at critical areas (e.g. planting locations near major new development or re-development projects) where necessary; and
 - (ii) strengthen measures to ensure that interfacing projects are taken into account (e.g. reminding CEDD's consultants to identify any proposed, on-going and recently completed studies which would have a bearing on GMPs).

Response from the Government

2.14 The Director of Civil Engineering and Development agrees with the audit recommendations.

Planting of theme trees

2.15 GMPs define comprehensively the greening framework of selected areas with coherent themes and plant species to promote a clear district identity. The greening theme of each district-specific GMP (see Appendix C) takes account of factors such as the local landscape and cultural characteristics, the public's perception and the future development of the district. At the GMP Committee meeting of June 2005, in response to a member's enquiry, CEDD said that the choice of plant species was a fundamental element of GMPs to deliver the greening themes and achieve the intended greening effects. According to CEDD, theme tree species are selected to reflect the greening themes for each district in order to create a strong character for each district. For example, the greening theme and theme trees for the Sai Kung GMP are as follows:

- (a) **Greening theme.** “Fragrant Blossom Paths (萬彩千香)” is adopted as the greening theme for Sai Kung (see Figure 4) to reflect the relaxing atmosphere of Sai Kung Town and its surrounding environment (known as the “Leisure Garden of Hong Kong”) and the sustainable, dynamic urban character of Tseung Kwan O (comprising mainly newly developed residential areas to the north and industrial estates to the south); and

Figure 4

Greening theme for Sai Kung



Source: CEDD records

- (b) **Theme trees.** Fragrant and flowering species are selected as theme trees (i.e. *Elaeocarpus balansae* (大葉杜英), *Michelia chapensis* (樂昌含笑), *Michelia x alba* (白蘭) and *Michelia maudiae* (深山含笑) — see Photographs 1 to 4) to reflect the greening theme of Sai Kung.

Four theme tree species selected for Sai Kung GMP

Photograph 1

Elaeocarpus balansae
(大葉杜英)
(Exotic species)



Photograph 2

Michelia chapensis
(樂昌含笑)
(Native species)



Photograph 3

Michelia x alba
(白蘭)
(Exotic species)



Photograph 4

Michelia maudiae
(深山含笑)
(Native species)



Source: CEDD records

2.16 In March 2013, CEDD informed the GMP Committee that, for GMPs for Southeast and Northwest NT:

- (a) in order to create a strong character for each of the four districts, for each of the greening themes, three to four theme tree species were selected to reflect the greening theme;
- (b) theme tree species would be planted in the area of the district-specific GMP as dominant species if they could match with the surrounding environment/species and cope with the site conditions and design intents (such as providing shade to pedestrians); and
- (c) for locations where the theme tree species were not suitable, alternative species in the plant palettes of the related GMP would be considered.

In March 2019, CEDD informed Audit that it would also plant other suitable species to enrich biodiversity and enhance the greening effect.

Percentages of theme trees planted lower than internal reference rates and those under works contracts

2.17 According to CEDD, under the four district-specific GMPs for Southeast NT (Sha Tin and Sai Kung) and Northwest NT (Tuen Mun and Yuen Long), the greening themes had been arrived at after considering the existing plants and the special features of the districts, and three to four theme tree species had been selected to reflect the greening themes of each district and to create a strong character for the district. The greening works for the four GMPs were implemented under the two works contracts (one for Southeast NT and one for Northwest NT).

2.18 The two works contracts for Southeast and Northwest NT specified the potential planting areas together with the plant species (including theme trees) and their numbers. The consultant (with its initiative and noted by CEDD) set internal reference rates for planting 20% to 30% theme trees (internal reference rates) in each district to facilitate monitoring of greening works implemented under works contracts. The consultant submitted to CEDD monthly summaries on the numbers and percentages of theme trees planted in each district against the internal reference rates of 20% to 30%. Audit examined the achievement of the internal reference

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rates for planting theme trees under the two contracts for Southeast and Northwest NT (Note 13). The results are shown in Table 8 and summarised as follows:

- (a) ***Theme trees under works contracts.*** Audit noted that:
 - (i) 18% to 52% of the trees to be planted under each district were theme trees; and
 - (ii) the percentage of theme trees for Yuen Long (52%) far exceeded the internal reference rates (20% to 30%), that for Sai Kung (22%) met the internal reference rates, and that for Sha Tin and Tuen Mun (18%) was lower than the internal reference rates; and
- (b) ***Planting of theme trees.*** Audit noted that:
 - (i) in each district, theme trees planted ranged from 8% to 34% of the trees planted;
 - (ii) in all the four districts, the numbers and percentages of theme trees planted were lower than those under the related works contracts; and
 - (iii) in three (i.e. Sha Tin, Sai Kung and Tuen Mun) of the four districts, the theme trees planted (8% to 10%) did not meet the internal reference rates (20% to 30%).

Note 13: *According to CEDD, regarding the 11 GMPs for urban areas: (a) no internal reference rate had been set for planting of theme trees for the short-term greening measures; and (b) while it had as-built records showing the planting works completed, it did not separately keep information on the actual numbers and percentages of theme trees planted.*

Table 8

**Achievement of internal reference rates for planting theme trees
under GMPs for Southeast and Northwest NT
(October 2018)**

Particulars	Southeast NT		Northwest NT	
	Sha Tin	Sai Kung	Tuen Mun	Yuen Long
(A) Internal reference rates	20% to 30%			
(B) Rates under works contracts				
No. of trees (a)	1,055	739	727	1,029
No. of theme trees (b)	192	163	129	530
% of theme trees (Note) (c)=(b)÷(a)	18%	22%	18%	52%
(C) Actual rates				
No. of trees planted (d)	1,134	838	910	1,098
No. of theme trees planted (e)	111	68	69	370
% of theme trees planted (f)=(e)÷(d)	10%	8%	8%	34%

Legend: Rates lower than the lower range of the internal reference rates

Source: *Audit analysis of CEDD records*

Note: *The rates were not set out in the works contracts. They were calculated by Audit based on the numbers of trees to be planted according to the works contracts.*

2.19 In March 2019, DEVB and CEDD informed Audit that:

DEVB

- (a) the selection of the theme trees and the suggested plant palette were to reflect the design theme of the district. Specific to the quoted case for Sai Kung for which the greening theme was “Fragrant Blossom Paths (萬彩千香)” (see para. 2.15(a)), the essence was to bring out the olfactory experience of fragrance with colour interest in the greening efforts for the community. Hence, what mattered should be the quality and the effect of the planting design, encompassing the combination of trees, shrubs and groundcovers, which could bring out that experience. The number of theme trees planted needed not be followed dogmatically as long as the locals were happy with the design and its effect. After all, other plants also contributed to the fragrance and colour interest, and in the process of

implementation, adjustments having regard to the micro-climate of the site locations and views of the community should be allowed;

CEDD

- (b) there was no specific design requirement on the percentage of theme trees for GMPs. If actual site condition did not permit, CEDD would replace theme trees by proposing species from the plant palettes or other suitable species. The internal reference on the consultant's initiative on the percentages of theme trees was subject to detailed design, actual site conditions and maintenance concerns; and
- (c) with the change in the potential planting areas during implementation, the proposed species had to be reviewed according to the "right-species-at-the-right-place" principle. Plant species in the plant palettes or other suitable species were used as alternatives for planting to suit the site conditions and maintenance concerns.

2.20 Given that theme tree species are specified in each district-specific GMP to reflect the greening themes for each district in order to create a strong character for each district (see para. 2.15) and CEDD consultant had set internal reference rates of 20% to 30% for planting theme trees (see para. 2.18), Audit considers that too low a percentage of theme trees planted may not be conducive to fully realising the district-specific greening themes. In Audit's view, CEDD needs to consider setting target rates for planting theme trees in order to better realise the greening themes for each district under GMPs and endeavour to meet the target rates when implementing GMPs.

Theme trees not planted at most focal points

2.21 According to CEDD, the greening themes of a GMP will be realised by identifying key planting areas that are representative of the area and can be easily identifiable as the focal points (see para. 2.2(b)) of the area. The consultants are required under CEDD's consultancy agreements to propose at least 10 such focal points for each GMP.

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2.22 Audit noted that the two GMPs for Southeast NT (Sha Tin and Sai Kung) had specified a total of 23 focal points (12 for Sha Tin and 11 for Sai Kung). Audit found that greening works for 10 (43%) of 23 focal points were not implemented (see Table 9), as follows:

- (a) one focal point was not included in the contract and there was no planting;
and
- (b) for the remaining 22 focal points included in the contract:
 - (i) four were specified to be planted with theme trees. For one focal point, there was no planting. Theme trees were planted at two focal points and other plant species at the remaining focal point;
and
 - (ii) 18 were not specified to be planted with theme trees. There was no planting at 8 focal points. Plant species other than theme trees were planted at the remaining 10 focal points.

Table 9

**Planting at focal points
under Southeast NT GMPs (Sha Tin and Sai Kung)
(October 2018)**

Focal point	No. of focal points				
	With planting			With no planting (Note)	Total
	Theme trees planted	Other plant species planted	Subtotal		
	(a)	(b)	(c) = (a) + (b)	(d)	(e) = (c) + (d)
(A) Not included in contract	—	—	—	1	1
(B) Included in contract					
(i) Specified to be planted with theme trees	2	1	3	1	4
(ii) Not specified to be planted with theme trees	—	10	10	8	18
					22
Total	2 (9%)	11 (48%)	13 (57%)	10 (43%)	23 (100%)

Source: Audit analysis of CEDD records

Note: According to CEDD, greening works could not proceed at these focal points due to various reasons, including underground utilities and objections received from the public/stakeholders.

2.23 In March 2019, CEDD informed Audit that:

- (a) some theme tree species were not suitable for planting at focal points and alternative species in the plant palettes or other suitable species were used according to the “right-species-at-the-right-place” principle; and
- (b) theme tree species, plants in the plant palettes or other suitable species could be planted at focal points to enhance the greening effect.

2.24 Although focal points are key planting areas that are representative of the area and can be easily identifiable (see para. 2.21), Audit noted that greening works for 10 (43 %) of 23 focal points under GMPs for Southeast NT were not implemented (see para. 2.22). In addition, only 2 (9 %) of 23 focal points were planted with theme trees (see para. 2.22(b)(i)). In Audit's view, CEDD needs to take measures to enhance the assessment of feasibility of planting at focal points under GMPs. CEDD also needs to plant theme trees at focal points under GMPs to realise the district-specific greening themes as far as practicable.

Audit recommendations

2.25 Audit has *recommended* that the Director of Civil Engineering and Development should:

- (a) **consider setting target rates for planting theme trees in order to better realise the greening themes for each district under GMPs and endeavour to meet the target rates when implementing GMPs;**
- (b) **take measures to enhance the assessment of feasibility of planting at focal points under GMPs; and**
- (c) **plant theme trees at focal points under GMPs to realise the district-specific greening themes as far as practicable.**

Response from the Government

2.26 The Director of Civil Engineering and Development agrees with the audit recommendations.

Planting of native plant species

2.27 According to the Guiding Principles on Use of Native Plant Species in Public Works Projects issued by DEVB in October 2010 (after commencement of greening works under GMPs for urban areas between May 2006 and December 2009):

Development and implementation of Greening Master Plans

- (a) with growing awareness of nature conservation and biodiversity, there is rising demand for achieving ecological functions through the use of native plant species (Note 14) in landscape or rehabilitation works. The use of native plant species would minimise the risk of introducing accidentally invasive exotic species to the ecosystem. Certain local fauna attracted by native plants might act as seed dispersers which further enrich the plant biodiversity and serve as a catalyst for ecological rehabilitation;
- (b) government departments involved in the design of landscape or rehabilitation works in public works projects are encouraged to specify native plant species wherever practicable; and
- (c) as there are constraints on the use of native plant species, the “right-species-at-the-right-place” principle should be adopted in specifying native plant species.

2.28 According to CEDD, the selected exotic species under GMPs have been commonly planted in Hong Kong for many decades and they are neither invasive nor harmful to the local ecosystem. The selected exotic species also have ecological value and are adaptable to urbanised environment with good performance.

Percentages of native plant species planted lower than estimated and those under works contracts

2.29 During the development of GMPs for Southeast and Northwest NT (covering four districts — see para. 2.17), the GMP Committee recommended selecting native species for GMPs as far as practicable. In March and June 2014, CEDD informed LegCo Panel on Development and PWSC of the Finance Committee of LegCo respectively that regarding GMPs for Southeast and Northwest NT, it was estimated that 35% of the trees and shrubs (estimated rate) would be native species (e.g. *Michelia chapensis* (樂昌含笑) and *Michelia maudiae* (深山含笑) — see Photographs 2 and 4 respectively in para. 2.15(b)).

Note 14: *Native plant species are those plant species that have originated in the region without human involvement or that have arrived there without human intervention from an area in which they are native.*

2.30 During the implementation of greening works under the two works contracts (for Southeast NT and Northwest NT), CEDD had repeatedly reminded the consultant engaged for monitoring the contractor's works to plant more native species to meet the estimated rate of 35% reported to LegCo. The consultant submitted to CEDD monthly summaries on the numbers and percentages of native trees and shrubs planted in each district against the estimated rate of 35% reported to LegCo. The results of Audit's examination of the percentages of planting native trees and shrubs as against the estimated rate under the two works contracts for Southeast and Northwest NT are shown in Table 10 and summarised as follows:

(a) *Native species under works contracts.* Audit noted that:

- (i) 20% to 55% of the trees and shrubs to be planted under each district were native species;
- (ii) the percentage of native trees for Tuen Mun (38%) was higher than the estimated rate of 35%, and those for Sha Tin, Sai Kung and Yuen Long (ranging from 32% to 33%) were lower than the estimated rate; and
- (iii) the percentages of native shrubs for Sha Tin (55%) and Yuen Long (45%) far exceeded the estimated rate of 35%, and those for Sai Kung (20%) and Tuen Mun (27%) were lower than the estimated rate; and

(b) *Planting of native species.* Audit noted that:


- (i) the native trees and shrubs planted for each district ranged from 9% to 22% and 12% to 49% respectively;
- (ii) in terms of both numbers and percentages, the native trees planted for all the four districts and the native shrubs planted for two districts (Tuen Mun and Yuen Long) were lower than those under the related works contracts; and
- (iii) except for the planting of native shrubs in Sha Tin (49%), the native trees and shrubs planted in all the four districts (ranging from 9% to 23%) were lower than the estimated rate of 35%.

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Table 10

Percentages of planting native trees and shrubs as against the estimated rate under GMPs for Southeast and Northwest NT (October 2018)

Particulars	Southeast NT		Northwest NT	
	Sha Tin	Sai Kung	Tuen Mun	Yuen Long
<i>(A) Estimated rate of native trees/shrubs reported to LegCo</i>	35%			
<i>(B) Rates under works contracts</i>				
(i) Trees				
No. of trees (a)	1,055	739	727	1,029
No. of native trees (b)	352	237	278	332
% of native trees (Note) (c)=(b)÷(a)	33%	32%	38%	32%
(ii) Shrubs				
No. of shrubs (d)	333,733	333,330	506,400	655,542
No. of native shrubs (e)	184,821	66,980	134,871	296,837
% of native shrubs (Note) (f)=(e)÷(d)	55%	20%	27%	45%
<i>(C) Actual rates</i>				
(i) Trees				
No. of trees planted (g)	1,134	838	910	1,098
No. of native trees planted (h)	104	76	190	237
% of native trees planted (i)=(h)÷(g)	9%	9%	21%	22%
(ii) Shrubs				
No. of shrubs planted (j)	863,113	386,475	536,389	846,505
No. of native shrubs planted (k)	426,482	87,651	65,143	144,779
% of native shrubs planted (l)=(k)÷(j)	49%	23%	12%	17%

Legend:  Rates lower than estimated rate reported to LegCo

Source: Audit analysis of CEDD records

Note: The rates were not set out in the works contracts. They were calculated by Audit based on the number of trees/shrubs to be planted according to the works contracts.

2.31 In March 2019, CEDD informed Audit that:

- (a) the Guiding Principles on Use of Native Plant Species in Public Works Projects issued by DEVB in October 2010 did not specify the percentage requirement for planting native species and there was no specific design requirement on the percentage of native trees under the consultancy agreement. The percentages of native trees and shrubs was subject to detailed design, actual site conditions and maintenance concerns; and
- (b) with the change in the potential planting areas during implementation, the proposed species had to be reviewed according to the “right-species-at-the-right-place” principle. Non-native plant species, plant species in the plant palettes or other suitable species were used as alternatives for planting to suit the site conditions and maintenance concerns.

2.32 In view of the rising demand for achieving ecological functions through the use of native plant species (see para. 2.27(a)), Audit considers that CEDD needs to consider setting target rates for planting native plant species and endeavour to meet the target rates when implementing GMPs.

Audit recommendation

2.33 Audit has *recommended* that the Director of Civil Engineering and Development should consider setting target rates for planting native plant species and endeavour to meet the target rates when implementing GMPs.

Response from the Government

2.34 The Director of Civil Engineering and Development agrees with the audit recommendation.

PART 3: HANDOVER AND MAINTENANCE OF GREENING WORKS UNDER GREENING MASTER PLANS

3.1 This PART examines the handover of the trees and shrubs planted under GMPs from CEDD to LCSD for maintenance (paras. 3.2 to 3.13), and LCSD's efforts in maintaining the trees and shrubs planted under GMPs (paras. 3.14 to 3.21).

Handover of trees and shrubs planted under Greening Master Plans

3.2 *Establishment period.* According to the works contracts for GMPs, in general, there is a one-year establishment period after substantial completion of the soft landscape works during which CEDD's contractors are responsible to carry out post-planting caring. After the one-year establishment period, CEDD will hand over the trees and shrubs to the relevant departments (mainly LCSD — see Note 7 to para. 1.9) for maintenance.

3.3 *Procedures for handing over plants.* According to CEDD and LCSD, procedures for handing over plants under GMPs from CEDD to LCSD (summarised in Figure 5) include:

- (a) *Pre-handover joint inspection.* Before commencement of the establishment period (Note 15), CEDD will arrange a joint site inspection with LCSD. LCSD will examine the completed planting works, including their locations and health condition, with reference to CEDD's record drawings detailing the plant species, sizes (e.g. small, medium and large), spacing, quantities and locations of planting sites. LCSD will identify the required rectifications for CEDD to follow up;

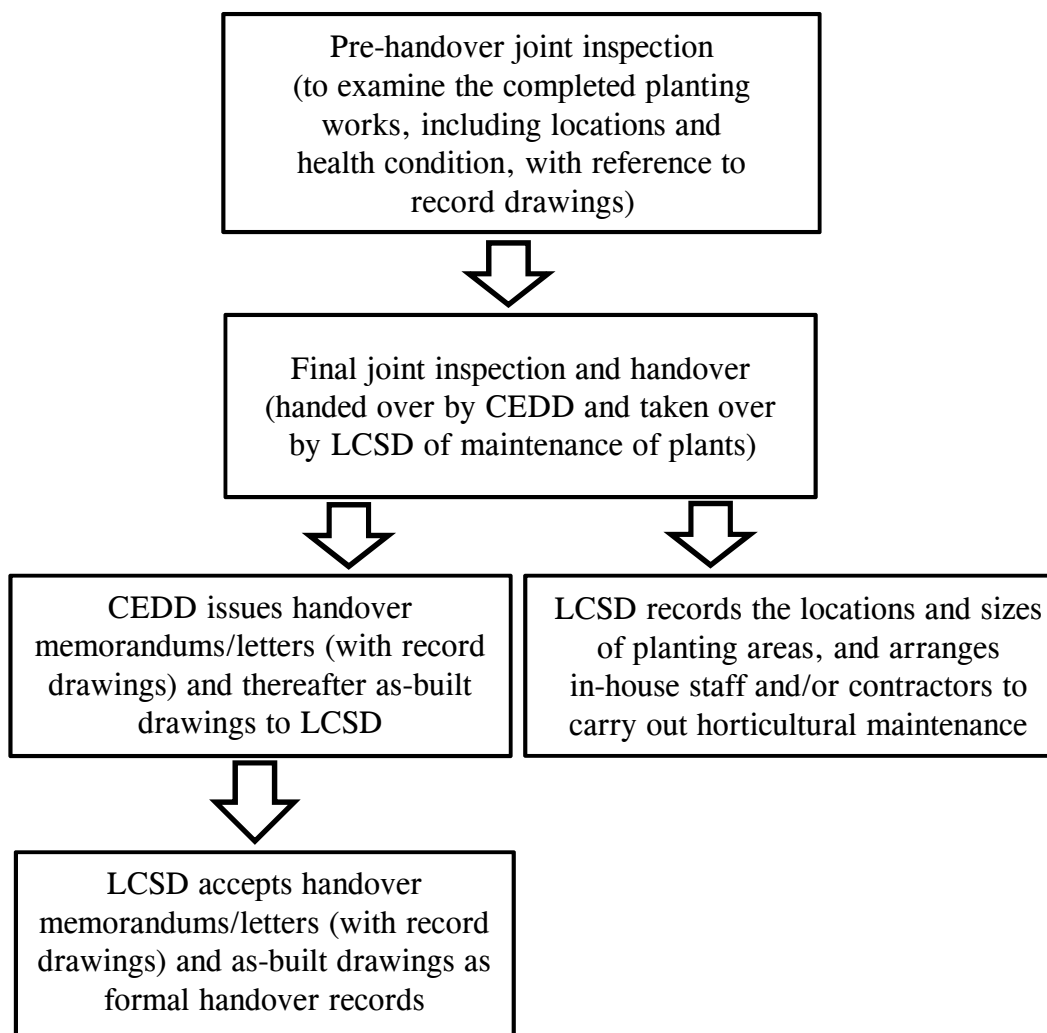
Note 15: *According to LCSD guidelines, prior to commencement of an establishment period, a joint site inspection will be arranged between the works departments and LCSD to assess and examine whether the plants are growing in a healthy condition and in compliance with the required specifications.*

Handover and maintenance of greening works under Greening Master Plans

- (b) ***Final joint inspection and handover.*** At the end of the establishment period, CEDD will arrange final joint inspections with LCSD to re-examine the plants by batch, including their locations and health condition, with reference to CEDD's record drawings detailing the plant species, sizes, spacing, quantities and locations of planting sites. Subject to the satisfactory establishment of the planting works observed in each final joint inspection, LCSD will formally take over the maintenance of all related plantings with effect from the final joint inspection date;
- (c) ***CEDD's handover records.*** CEDD will prepare and issue handover memorandums/letters (with record drawings) to LCSD containing information on the landscaped areas handed over. Thereafter, it will issue as-built drawings (which show the planting works at the end of establishment period) to LCSD for record; and
- (d) ***LCSD's inventory records.*** Upon taking over the GMP works (at the final joint inspection date), LCSD will record the locations and sizes of planting areas. For trees with trunk diameter measured 95 millimetres (mm) or more at a height of 1.3 metres above the ground level (see para. 3.7(b)), the information will be recorded in LCSD's departmental inventory system (namely the Tree Data Bank System — which records the information and location of trees and planting areas). LCSD will then arrange its in-house staff and/or contractors to carry out horticultural maintenance. The handover memorandums/letters (with record drawings) prepared by CEDD (see item (c) above) detail the plant species, quantities and locations of planting sites, and LCSD will inform CEDD to amend the records if any discrepancies are found. Subject to no significant deviations from the agreed record drawings or on-site request from LCSD for amendment/modification, LCSD will accept the record drawings provided by CEDD after final handover as the final planting records which are largely the same as the as-built drawings provided to LCSD at a later stage. LCSD accepts the handover memorandums/letters (with record drawings) and subsequent final as-built drawings as formal handover records.

Figure 5

Procedures for handing over plants under GMPs from CEDD to LCSD



Source: Audit analysis of CEDD and LCSD records

3.4 ***Handover of plants in urban areas.*** In April 2009, CEDD and LCSD agreed that, in order to promote the long-term health of plants planted under GMPs for urban areas, CEDD would maintain the plants for a certain period after establishment period before handing over to LCSD, as follows:

- (a) for Phase 1 greening works (which had been completed in 2007 and handed over to LCSD), CEDD would take over the maintenance for a period of time and hand over them together with those Phase 3 GMP works (see item (c) below);

Handover and maintenance of greening works under Greening Master Plans

- (b) for Phase 2 greening works (which would be completed by the end of 2009), CEDD would maintain the plants for a period of time and hand over them together with those Phase 3 GMP works (see item (c) below); and
- (c) for Phase 3 greening works (which would be completed in June 2011), CEDD would maintain the plants for one year after establishment period (i.e. around mid-2012) and hand over them to LCSD (i.e. around mid-2013).

According to CEDD, of the 11 urban GMPs, the handover of trees and shrubs for 10 GMPs had been completed by July 2013 and the remaining GMP (i.e. Wong Tai Sin) by December 2013.

3.5 *Handover of plants in NT.* According to CEDD, the handover of all trees and shrubs planted under 4 GMPs for Southeast and Northwest NT (with related greening works completed in October 2017) had been completed by December 2018. In March 2019, CEDD informed Audit that:

- (a) reports with photographic records had been provided to LCSD regularly during establishment period; and
- (b) at the final handover joint inspections, riding upon the experience gained in GMPs for urban areas, the information package provided to LCSD for GMPs for NT had been enhanced. Such handover information recorded the handover with more detailed summary table, photographic records and drawings which reflected the as-built works, including the planting species, quantities and locations.

As of mid-March 2019, CEDD had not yet provided the related as-built drawings to LCSD for record (Note 16).

Room for improvement in handover arrangement

3.6 Audit reviewed the handover arrangement from CEDD to LCSD of the trees and shrubs planted under GMPs for Phase 3 of urban areas and Southeast and

Note 16: *According to CEDD, the as-built drawings will include the production of microfilms and velograph with signature of the Engineer, containing largely the same information as the record drawings (see para. 3.3(d)).*

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Northwest NT for maintenance and found that there was room for improvement (see paras. 3.7 to 3.11).

3.7 *Different definitions of trees and different measurement bases for shrubs.*
In March 2019, CEDD and LCSD informed Audit that they had different definitions of trees and different measurement bases for shrubs, leading to differences in planting quantities for trees and shrubs between CEDD handover records and LCSD inventory records, as follows:

Definitions of trees

- (a) ***CEDD.*** CEDD adopted the “Check List of Hong Kong Plants” published by the Agriculture, Fisheries and Conservation Department to determine whether a plant should be classified as a tree. The Check List classified a plant as a tree based on its species (irrespective of its size and trunk diameter). The number of trees planted were recorded in the record drawings and the as-built drawings. All trees planted under GMPs were young and majority of them with trunk diameter measured less than 95 mm at a height of 1.3 metres above the ground level (see item (b) below);
- (b) ***LCSD.*** LCSD adopted DEVB Technical Circular (Works) No. 7/2015 and its superseded version No. 10/2013 “Tree Preservation” for tree management and maintenance purpose, which classified a plant as a tree if its trunk diameter measured 95 mm or more at a height of 1.3 metres above the ground level. For those “trees” with trunk diameter measured 95 mm or more, LCSD would record their locations, physical data and general conditions in its inventory system (see para. 3.3(d)) for regular monitoring (e.g. annual tree risk assessment). As most of the trees planted by CEDD under GMPs were small in size with trunk diameter measured less than 95 mm, LCSD did not classify them as trees and they would be maintained with other shrubs taken over;

Measurement bases for shrubs

- (c) ***CEDD.*** CEDD adopted the number of shrubs as the unit for the quantity of shrubs. The record drawings and the as-built drawings indicated both quantities of shrubs and related planting locations for reference by both CEDD and LCSD;

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- (d) **LCSD.** LCSD adopted the size of planting area as the unit for measuring landscape works after taking over the vegetation for horticultural maintenance by its in-house staff and/or contractors, as:
- (i) it was impracticable and not cost-effective to count the number of shrubs after one year's establishment period when the shrubs had grown up. As such, CEDD was responsible to ensure the quantity of shrubs planted and provided the measurement and locations of planting areas for handing over; and
 - (ii) it was a common practice in the field of horticulture and more practicable to adopt the size of planting area as the basis for calculation of horticultural maintenance cost. As a maintenance department, LCSD focused mainly on the health condition of plants (e.g. free from weeds, pests and diseases) and the overall landscape effect (e.g. plants should well cover the soil surface and with graceful appearance);

Planting quantities handed over

- (e) **CEDD.** After the final joint site inspection, CEDD would provide the handover memorandums/letters (with record drawings) and thereafter the as-built drawings (which showed the position at the end of establishment period — Note 17) to LCSD. CEDD considered that the handover

Note 17: *In March 2019, CEDD informed Audit that:*

- (a) *final joint site inspections generally took place at the end of the establishment period and the works, with conditions satisfactory to the maintenance departments, were handed over on the same date. Therefore, the end of establishment period and the handover dates would be the same juncture in time; and*
- (b) *for GMPs for Phase 3 of urban areas, the establishment period ended around mid-2012. The as-built drawings therefore reflected the GMP works as at the originally scheduled handover in 2012 under the contracts. The subsequent horticultural maintenance of the plants by CEDD for one more year (see para. 3.4(c)) was a special arrangement between CEDD and LCSD. During the horticultural maintenance period, CEDD was to maintain the conditions and quantities of the trees and shrubs. The conditions of the GMP works were inspected and taken over by LCSD in mid-2013, with the as-built drawings in 2012 accepted for record purpose.*

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memorandums/letters (with record drawings) provided at the time of handover would already provide clear records to LCSD and other maintenance departments for maintenance purpose. Trees and shrubs planted as included in the handover memorandums/letters (with record drawings) and the as-built drawings under GMPs for Phase 3 of urban areas (i.e. 16,490 trees and 3,434,260 shrubs) and GMPs for Southeast and Northwest NT (i.e. 3,965 trees and 2,570,219 shrubs) were mostly handed over to LCSD (Note 18); and

- (f) **LCSD.** During handover of plants under GMPs, LCSD accepted the handover memorandums/letters (with record drawings) and as-built drawings as the formal handover records. LCSD acknowledged that all the vegetation planted on site was generally in line with the as-built drawings and taken over for subsequent maintenance. The species, quantities and size of vegetation planted as well as the size of planting areas could largely be retrieved from the as-built drawings by cross-referencing to the list of GMP planters/areas. Based on LCSD records and its definition of trees, a total of 3,080 trees and 74,699 square metres (m²) of planting areas for shrubs under GMPs for Phase 3 of urban areas, and a total of 3,273 trees and 65,313 m² of planting area for shrubs under GMPs for Southeast and Northwest NT had been taken over by LCSD (see Appendix G).

Note 18: *According to CEDD, regarding the number of trees and shrubs planted under GMPs for Phase 3 of urban areas and Southeast and Northwest NT (see Table 1 in para 1.11):*

- (a) *apart from handing over to the Highways Department, there were minimal planting quantities handed over to other maintenance departments (e.g. Home Affairs Department), though the related quantities handed over to each of them were not readily available; and*
- (b) *the planting quantities in item (e) represented those trees and shrubs remaining after handing over to the Highways Department, as follows:*
- (i) *GMPs for Phase 3 of urban areas: 17,240 trees and 3,452,100 shrubs planted minus 750 trees and 17,840 shrubs for Eastern district handed over to the Highways Department (i.e. 16,490 trees and 3,434,260 shrubs); and*
- (ii) *GMPs for Southeast and Northwest NT: 3,980 trees and 2,632,482 shrubs planted minus 15 trees and 62,263 shrubs for Sha Tin handed over to the Highways Department (i.e. 3,965 trees and 2,570,219 shrubs).*

3.8 *Scope for enhancing handover records to meet the different recording needs of CEDD and LCSD.* Audit noted that the record drawings and as-built drawings (which LCSD treated as formal handover records — see para. 3.3(d)) showed the number of trees planted without details about their height and trunk diameter measures (see para. 3.7(b)). It would be difficult for LCSD to reconcile the planting quantities in such handover records with its inventory records due to different definitions of trees and different measurement bases for shrubs between CEDD and LCSD. In Audit's view:

- (a) to ensure that all greening works completed under GMPs are properly handed over and such works are properly and accurately recorded, there is merit for CEDD and LCSD to work out handover records showing the greening works handed over at the handover date in order to meet the different recording needs arising from their different definitions of trees and different measurement bases for shrubs (e.g. working out a common form of handover records with sufficient details);
- (b) in preparing such handover records, CEDD needs to take measures (e.g. checking against the contracts for greening works completed and joint site inspection results) to ensure that all greening works completed under GMPs as agreed to be taken over by LCSD are accurately and completely included therein; and
- (c) LCSD needs to properly record in its inventory records the greening works taken over based on such handover records.

Audit recommendations

3.9 *Audit has recommended that, to ensure that all greening works completed under GMPs are properly handed over and such works are properly and accurately recorded, the Director of Civil Engineering and Development and the Director of Leisure and Cultural Services should work out handover records showing the greening works handed over at the handover date in order to meet the different recording needs of CEDD and LCSD arising from their different definitions of trees and different measurement bases for shrubs (e.g. working out a common form of handover records with sufficient details).*

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3.10 Audit has *recommended* that the Director of Civil Engineering and Development should, in preparing the handover records, take measures (e.g. checking against the contracts for greening works completed and joint site inspection results) to ensure that all greening works completed under GMPs as agreed to be taken over by LCSD are accurately and completely included therein.

3.11 Audit has *recommended* that the Director of Leisure and Cultural Services should properly record in LCSD's inventory records the greening works taken over based on the handover records.

Response from the Government

3.12 The Director of Civil Engineering and Development agrees with the audit recommendations in paragraphs 3.9 and 3.10.

3.13 The Director of Leisure and Cultural Services agrees with the audit recommendations in paragraphs 3.9 and 3.11. She has said that:

- (a) in handling future projects, LCSD will continue to enhance its communication with CEDD to work out a common form of handover records detailing the plant species, quantities, locations and planting areas; and
- (b) LCSD will remind its colleagues to keep the handover records properly and input information on trees to the Tree Data Bank System.

Maintenance of trees and shrubs planted under Greening Master Plans

3.14 Maintenance of vegetation on landscape area is to ensure the healthy establishment and growth of plants, which in general includes watering, fertilising, pruning, pest control and replacement. LCSD maintains the trees and shrubs planted under GMPs together with other trees and vegetation under its purview by its in-house staff and/or contractors. LCSD has 18 district offices to provide public services on a district basis, including maintenance of plants.

3.15 Audit examined LCSD's efforts in maintaining the trees and shrubs planted under GMPs for urban areas (which were handed over by CEDD by December 2013) and found that there was room for improvement (see paras. 3.16 to 3.20).

Removal of some trees planted under GMPs for urban areas

3.16 Audit noted that, of the 3,827 trees (classified by LCSD as trees — Note 19) taken over by LCSD for maintenance under GMPs for urban areas, 958 trees (25%) had been removed and 113 trees (12% of 958) replanted as of October 2018 (see Table 11).

Note 19: *According to LCSD, for "trees" with trunk diameter measured less than 95 mm at handover dates, they would be maintained together with other shrubs taken over from CEDD (see para. 3.7(b)). LCSD would conduct annual inspection to identify those "trees" which grew up to 95 mm trunk diameter and would record them as "trees" in its tree inventory records. However, the number of such "grown-up trees" was not readily available.*

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Table 11

Trees taken over by LCSD for maintenance under GMPs for urban areas
(July 2013 to October 2018)

District	No. of trees			
	Taken over by LCSD per LCSD's inventory records (Note) (a)	Removed (b)	Replanted (c)	As of October 2018 (d) = (a) – (b) + (c)
Phase 1 for urban areas				
Central	299	6	4	297
Tsim Sha Tsui	212	12	9	209
Phase 2 for urban areas				
Causeway Bay, Sheung Wan and Wan Chai	23	1	-	22
Mong Kok and Yau Ma Tei	213	12	12	213
Phase 3 for urban areas				
Eastern	1,757	723	15	1,049
Kowloon City	192	24	15	183
Kwun Tong	227	32	6	201
Sham Shui Po	315	67	16	264
Southern	334	26	31	339
Western	75	15	5	65
Wong Tai Sin	180	40	-	140
Total	3,827	958	113	2,982

Source: Audit analysis of LCSD records

Note: According to LCSD, it maintained information about trees with trunk diameter measured 95 mm or more at a height of 1.3 metres above the ground level when they were taken over from CEDD (see para. 3.7(b)).

3.17 According to LCSD, the reasons for removal of the 958 trees planted under GMPs for urban areas (summarised in Table 12) were as follows:

- (a) **Inclement weather and tree failure.** The removal of 682 trees (640 + 42 — see items (a) and (b) in Table 12) was due to inclement weather and tree failure. Audit noted that LCSD had only replanted a total of 113 trees in

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the locations where the original trees were removed (see column (c) in Table 11 in para. 3.16). According to LCSD:

- (i) since there was a large number of trees being damaged during the passage of super typhoon “Mangkhut” in September 2018, LCSD would critically assess the situations and arrange replanting of fallen trees in accordance with the “right-species-at-the-right-place” principle in a mindful manner; and
- (ii) there were no replanting plan for some of these locations due to the dense planting conditions.

In Audit’s view, LCSD needs to take measures to ensure timely replanting of replacement trees as appropriate. For those locations without replanting plan due to dense planting conditions, there is merit for LCSD to share its tree maintenance experiences with CEDD with a view to assisting CEDD’s development of GMPs; and

- (b) ***Traffic consideration, transplanting and provision of universal access facilities.*** According to LCSD, 227 trees had been removed due to traffic consideration, 37 trees transplanted to other locations and 12 trees removed due to provision of universal access facilities (see items (c), (d) and (e) in Table 12). In Audit’s view, there is merit for LCSD to share its tree maintenance experiences with CEDD with a view to assisting CEDD’s development of GMPs.

Table 12

**Reasons for removal of trees under GMPs for urban areas
(July 2013 to October 2018)**

Reason	No. of trees
(a) Failure due to inclement weather (including typhoon)	640 (67%)
(b) Tree failure (e.g. illness)	42 (4%)
(c) Traffic consideration	227 (24%)
(d) Transplanted to other locations	37 (4%)
(e) Provision of universal access facilities	12 (1%)
Total	958 (100%)

Source: Audit analysis of LCSD records

Room for improvement in maintenance of trees and shrubs

3.18 ***Audit's site visits.*** In December 2018 and January 2019, to ascertain the conditions of the trees and shrubs planted under GMPs after handing over to LCSD for maintenance, Audit conducted site visits to a total of 81 locations under the 11 GMPs for urban areas (Note 20). Audit identified 51 locations with suspected deficiencies (including removal of trees/shrubs, unsatisfactory conditions of trees/shrubs and replanting with other plant species) and referred them to LCSD for its examination and assessment. LCSD confirmed that there was no deficiency for 7 locations. For the remaining 44 locations, some trees/shrubs were removed, with unsatisfactory conditions, or replanted with other plant species.

3.19 LCSD's examination results (as of March 2019) for trees/shrubs at these 44 locations (summarised in Table 13) were as follows:

- (a) ***Removal of some trees and shrubs under GMPs.*** For 32 locations, some trees and shrubs planted under GMPs had been removed. According to LCSD, the reasons for the removal of trees included inclement weather, tree failure and traffic consideration (see paras. 3.16 and 3.17 for Audit's findings related to removal of some trees under GMPs). Cases 4 and 5 show room for improvement relating to removal of plants maintained by LCSD;

Note 20: *For demonstration of greening works under GMPs, CEDD selected a total of 81 locations under all the 11 GMPs (6 to 9 locations for each GMP) for urban areas (which handed over to LCSD for maintenance) and uploaded onto its website photographs showing the conditions before and after greening works completed for each location. Audit conducted site visits to all these 81 locations.*

Case 4

**Removal of plants at road median strip
(June 2011 to March 2019)**

1. In June 2011, the greening works under GMP for Sham Shui Po were completed. According to the photograph taken by CEDD after completion of greening works, a number of trees (*Juniperus chinensis* “Kaizuca” (龍柏)) had been planted at the median strip of a road in Sham Shui Po (Location E — see Photograph 5). According to the as-built drawings under CEDD’s works contract, 200 trees of *Juniperus chinensis* “Kaizuca” (龍柏) had been planted at Location E.

Photograph 5

**Location E
(after greening works completed in June 2011)**



Source: CEDD records

2. In December 2018, Audit conducted a site visit to Location E and noted that all the 200 *Juniperus chinensis* “Kaizuca” (龍柏) planted under the works contract had been removed (see Photograph 6).

Case 4 (Cont'd)

Photograph 6
Location E
(December 2018)



Source: Photograph taken by Audit staff on 14 December 2018

3. In March 2019, LCSD informed Audit that:
- (a) at the time of handing over, the size of the 200 *Juniperus chinensis* “Kaizuca” (龍柏) was with trunk diameter measured less than 95 mm and therefore not counted as trees by LCSD (see para. 3.7(b));
 - (b) however, as the 200 *Juniperus chinensis* “Kaizuca” (龍柏) were planted at the narrow planter boxes at the road median strip with relatively high vehicular flow, LCSD encountered operational difficulties in maintaining the plants. The health condition of them was found deteriorating a few years later (Note); and
 - (c) the planters were replanted with other hardy shrubs under the district beautification of Sham Shui Po DC in 2015-16 and LCSD had enhanced the horticultural maintenance works at the subject site.

Audit comments

4. Audit noted that 200 *Juniperus chinensis* “Kaizuca” (龍柏) at the road median strip were removed and replanted with other hardy shrubs as LCSD encountered operational difficulties in maintaining the plants. In Audit’s view, LCSD needs to share its maintenance experiences with CEDD with a view to assisting CEDD’s development of GMPs.

Source: Audit analysis of CEDD and LCSD records

Note: According to CEDD, *Juniperus chinensis* “Kaizuca” (龍柏) had high tolerance to roadside pollution, drought and wind, and required small soil volume for planting, which was properly selected as plant for the road median strip to provide greenery along roadside.

Case 5

**Removal of plants along a pavement
(June 2011 to March 2019)**

1. In June 2011, the greening works under GMP for Kowloon City were completed. According to the photograph taken by CEDD after completion of greening works, a number of trees (i.e. *Michelia x alba* (白蘭)) had been planted along a pavement in Kowloon City (Location F — see Photograph 7). According to the as-built drawings under CEDD's works contract, 3 trees of *Michelia x alba* (白蘭) had been planted at Location F.

Photograph 7

*Michelia x
alba*
(白蘭)

**Location F
(after greening works completed in June 2011)**



Source: CEDD records

2. In July 2013, CEDD handed over the plants at Location F to LCSD. CEDD's handover records for Location F indicated 3 trees together with the planter had been handed over.
3. In January 2019, Audit conducted a site visit to Location F and noted that all these 3 trees had been removed (see Photograph 8).

Case 5 (Cont'd)

Photograph 8

**Location F
(January 2019)**



Source: Photograph taken by Audit staff on 7 January 2019

4. In March 2019, LCSD informed Audit that:
- (a) the three trees of *Michelia x alba* (白蘭) were taken over for maintenance on 28 June 2013. However, before the data of these trees were recorded in its tree inventory (i.e. Tree Data Bank System), the trees were damaged by a typhoon on 1 July 2013; and
 - (b) since the site at Location F was very windy, the affected areas were replanted with shrubs to maintain the overall landscape.

Audit comments

5. According to LCSD, Location F was very windy and not suitable for replanting of replacement trees. In Audit's view, there is merit for LCSD to share its tree maintenance experiences with CEDD with a view to assisting CEDD's development of GMPs.

Source: Audit analysis of CEDD and LCSD records

- (b) *Unsatisfactory conditions of shrubs planted under GMPs.* According to LCSD, for 14 locations, the maintenance conditions of some shrubs planted under GMPs were unsatisfactory due to unfavourable growing environment (e.g. under shade, windy area or being frequently vandalised). In Audit's view, LCSD needs to strengthen measures in maintaining trees and shrubs planted under GMPs to ensure the healthy establishment and growth of plants and there is merit to share its maintenance experiences of plants with CEDD with a view to assisting CEDD's development of GMPs. Photographs 9 and 10 show an example of unsatisfactory conditions of some shrubs planted under a GMP (identified during Audit's site visit — Note 21); and

Note 21: *In March 2019, CEDD and LCSD informed Audit that:*

- (a) **CEDD.** *CEDD considered that the planting space underneath the flyover had adequate headroom and shade tolerant plant species were selected in the GMP for planting under the flyover; and*
- (b) **LCSD.** *Experience showed that the conditions of the same species of trees and shrubs planted at different locations, even in close proximity, might vary as they were subject to challenges by the micro-climate of specific locations. This subject planter was in the shade of an elevated expressway with a rather windy micro-climatic condition. In view of the less favourable environmental factors, replacement of withered plants with some shade-tolerant and hardy species for this area would be conducted.*

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Photographs 9 and 10

Unsatisfactory conditions of some shrubs planted under Sham Shui Po GMP

(after greening works completed in June 2011)



Source: CEDD records

(December 2018)



Source: Photograph taken by Audit staff on 14 December 2018

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- (c) ***Replanting with other plant species.*** For 17 locations, some trees and shrubs planted under GMPs had been replanted with other species, as follows:
- (i) for 5 locations, the trees/shrubs (species in plant palettes under the GMPs) had been replanted with other species not in plant palettes under GMPs (see Photographs 11 and 12 for an example identified during Audit’s site visit — Note 22);
 - (ii) for 9 locations, the trees/shrubs had been replanted with other species and both original and replanted species were not in plant palettes under GMPs;
 - (iii) for 2 locations, the trees/shrubs (species not in plant palette under GMPs) had been replanted with species in plant palettes under GMPs; and
 - (iv) for the remaining location, the shrubs had been replanted with other species and both original and replanted species were in plant palette under GMP.

According to LCSD, the GMP themes and plant palettes would be strictly observed as far as practicable during replanting, taking into account the specific micro-climatic conditions of the subject sites, the “right-species-at-the-right-place” principle, the concern of stakeholders, and availability of plants in the market at the time of procurement. In this connection, Audit noted that LCSD had not issued any guidelines requiring its staff to make reference to the greening themes and the plant palettes of GMPs for replanting of trees and shrubs during maintenance. In Audit’s view, LCSD needs to issue guidelines in this regard.

Note 22: *According to LCSD, for this case, the shrubs planted under GMP (Lantana camara 黃花馬纓丹 — a species in the plant palette of GMP) were dead and changed to another shrub species (Nephrolepis auriculata 腎蕨 — not a species in plant palette under GMP). The shrubs had been replanted with other species not in plant palette under GMP due to the unavailability of original plant species in the market during the time of replanting work.*

Handover and maintenance of greening works under Greening Master Plans

Photographs 11 and 12

Replanting with other species for some shrubs
planted under Kwun Tong GMP

(after greening works completed in March 2011)



Lantana camara
(黃花馬纓丹)
(a species in
plant palette
under Kwun
Tong GMP)

Source: CEDD records

(January 2019)



Nephrolepis auriculata
(腎蕨)
(not a species
included in
plant palette
under Kwun
Tong GMP)

Source: Photograph taken by Audit staff on 7 January 2019

Table 13

**LCSD's examination results on 44 locations under GMPs for urban areas
with suspected deficiencies identified by Audit's site visits
(March 2019)**

Deficiency	Number of locations involved (Note)
(a) Removal of some trees and shrubs	32
(b) Unsatisfactory conditions for some shrubs	14
(c) Replanting with other plant species	17
Number of locations with deficiencies (Note)	44

Source: LCSD examination results on findings of Audit's site visits

Note: A location might have more than one deficiency identified.

Audit recommendations

3.20 Audit has recommended that the Director of Leisure and Cultural Services should:

- (a) **take measures to ensure timely replanting of replacement trees as appropriate;**
- (b) **share LCSD's experiences in maintenance of plants with CEDD with a view to assisting CEDD's development of GMPs, including reasons for not replanting replacement trees/shrubs (e.g. due to dense planting conditions and windy locations) and for removal of trees/shrubs (e.g. due to traffic consideration and suitability of plant species at specific locations);**
- (c) **strengthen measures in maintaining trees and shrubs planted under GMPs to ensure the healthy establishment and growth of plants; and**

- (d) **issue guidelines requiring LCSD staff to make reference to the greening themes and the plant palettes of GMPs for replanting of trees and shrubs during maintenance.**

Response from the Government

3.21 The Director of Leisure and Cultural Services agrees with the audit recommendations. She has said that LCSD will:

- (a) remind its staff to carry out timely replacement planting having due regard to the “right-species-at-the-right-place” principle and the planting density of trees in the vicinity;
- (b) share its operational views and experience in horticultural maintenance with CEDD with a view to optimising the greening works and development of GMPs;
- (c) closely monitor the overall performance of its staff and horticultural contractors to carry out proper plant maintenance to ensure healthy establishment and growth of plants. Nevertheless, it is noteworthy that trees and shrubs are subject to challenges by the environmental factors and the changing micro-climatic conditions at different planting locations. LCSD will adopt sustainable landscape strategies and practices including the “right-species-at-the-right-place” principle, improving soil quality, arranging timely replacement planting and enhancing irrigation regime to promote healthy plant growth; and
- (d) enhance its guidelines to require its staff to make reference to the themes and the plant palettes of GMPs for replacement planting during maintenance.

PART 4: OVERSEEING AND PUBLIC ENGAGEMENT OF GREENING MASTER PLANS

4.1 This PART examines the efforts of CEDD and DEVB in overseeing implementation of greening measures under GMPs (paras. 4.2 to 4.21) and public engagement of GMPs (paras. 4.22 to 4.31).

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4.2 *Overseeing and monitoring of implementation of greening measures under GMPs.* According to DEVB, GMPs seek to define comprehensively the greening framework of selected areas with coherent themes and plant species to promote a clear district identity. The Steering Committee on GLTM and the GMP Committee are tasked to oversee and monitor the greening measures under GMPs, as follows:

- (a) *Steering Committee on GLTM.* The responsibilities of the Steering Committee on GLTM include considering and approving greening targets and programmes submitted by the GMP Committee and overseeing departmental efforts on greening, landscape and tree management (see para. 1.3); and
- (b) *GMP Committee.* The responsibilities of the GMP Committee include formulating GMPs (including short-term, medium-term and long-term measures) to guide the implementation of greening works on a district basis across the territory, and overseeing and monitoring the implementation of short-term greening works arising from GMPs as endorsed by the Steering Committee on GLTM (see para. 1.4(a) and (b)).

4.3 In December 2009, in preparing the establishment of GLTMS (see para. 1.8), DEVB informed the Steering Committee on GLTM that:

- (a) there was merit in retaining the GMP Committee, particularly with respect to the formulation of GMPs and the implementation of the short-term measures;

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- (b) the GMP Committee would continue to make regular reports to the Steering Committee on GLTM as CEDD took forward the implementation of GMPs for urban areas and the preparation for drawing up GMPs for NT;
- (c) for the implementation of the medium-term and long-term measures under GMPs, it involved complex planning and land use issues which could be handled more effectively by GLTMS, with steer from the Steering Committee on GLTM as appropriate; and
- (d) the key responsibilities of GLTMS would include engaging key partners for cooperation and designing a mechanism that would efficiently keep track of target public/private sector projects affected by the greening proposals under GMPs.

Progress and results in implementing greening works under GMPs for NT not reported to GMP Committee and GLTMS

4.4 In June 2005 (when the GMP Committee approved the first GMP for Tsim Sha Tsui — see item (a)(1) in Table 1 in para. 1.11), in response to a GMP Committee member's enquiry, CEDD informed the GMP Committee that it would report progress of the implementation works periodically.

4.5 ***GMPs for urban areas.*** For GMPs for urban areas, the greening works for the short-term measures commenced in May 2006 and were completed by June 2011. Audit noted that CEDD had from time to time reported the progress and results in implementing greening works under GMPs for urban areas to:

- (a) **GMP Committee.** CEDD had reported implementation progress and results to the GMP Committee, including progress of implementation of greening works under related works contracts, actual planting quantities and experience gained during implementation of greening works (Note 23); and
- (b) **Steering Committee on GLTM.** CEDD had submitted to the Steering Committee on GLTM summaries of the progress reports for the GMP Committee (see item (a) above). According to GLTMS, the summaries were also submitted to GLTMS after its establishment in March 2010.

4.6 **GMPs for NT.** The four GMPs for Southeast NT (Sha Tin and Sai Kung) and Northwest NT (Tuen Mun and Yuen Long) were approved by the GMP Committee in March 2013 and endorsed by the Steering Committee on GLTM in April 2013. The related greening works commenced in December 2014 and were completed in October 2017. However, CEDD had not reported the implementation progress to the GMP Committee and the Steering Committee on GLTM since commencement of the contracts for the related greening works.

4.7 Regarding the reporting to the Steering Committee on GLTM, in March 2019, GLTMS informed Audit that:

- (a) when GMPs for urban areas were implemented, the Steering Committee on GLTM was the policy authority to offer steer and advice on formulation of GMPs under the ambit of the GMP Committee, approve the greening targets (see para. 4.2(a)) and receive progress reports from the GMP Committee or CEDD (see para. 4.5(b)), while upon the establishment of GLTMS in March 2010 (see para. 1.8), GLTMS took up the overall policy responsibility for formulating and coordinating landscape and tree management strategies and initiatives in Hong Kong; and

Note 23: *For example, in June 2011 (after the greening works under GMPs for Phase 3 of urban areas had been completed), CEDD informed the GMP Committee of the experience gained from implementation of the greening works, including the performance of different plant species, impact of underground utilities and objections received on greening works with proposed measures for improvement. CEDD also provided a summary of such information to the Steering Committee on GLTM in August 2012.*

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- (b) therefore, the greening targets, planting figures and progress of contracts (such as completion) under GMPs should be and had been reported to GLTMS instead of the Steering Committee on GLTM, and only problematic cases would be escalated to the Steering Committee on GLTM for resolution but there was no such need in the recent past years.

4.8 While CEDD had reported to GLTMS (since its establishment) implementation of greening works under GMPs, Audit noted that there was scope for CEDD to provide further information (e.g. experience gained from GMP implementation — see Note 23 in para. 4.5(a)).

4.9 To facilitate the GMP Committee (which is responsible for overseeing and monitoring the implementation of short-term greening works arising from GMPs (see para. 4.2(b)) and its role is not affected by the establishment of GLTMS (see para. 4.3(a))) and GLTMS to oversee and monitor the implementation of greening measures under GMPs, and in line with the practice of reporting the implementation progress of GMPs for urban areas to the GMP Committee, CEDD needs to report periodically the progress and results in implementing greening works under GMPs for NT to the GMP Committee and GLTMS.

Need to monitor progress of medium and long-term measures under GMPs for urban areas

4.10 Between June 2005 and December 2008, the GMP Committee had approved 11 GMPs for urban areas which set out short, medium and long-term measures. All the short-term measures had been completed (see para. 4.5). As mentioned in paragraph 1.6(b) and (c):

- (a) medium-term measures are those which have to be implemented in association with other projects or which require private sector participation; and
- (b) long-term measures depict the ultimate greening vision and include proposals such as tree corridors along major roads which can only be achieved in conjunction with urban renewal.

Audit noted that GMPs for urban areas had not set any time frame for completion of medium and long-term measures.

4.11 *Tracking exercise.* According to DEVB, as the urban districts were undergoing continual change, there was a need to take account of the latest situation and revisit the greening measures recommended for medium and long-term implementation under GMPs for urban areas. In 2011, GLTMS commenced a tracking exercise to keep track of the medium and long-term measures under GMPs for urban areas with a view to identifying those which would remain feasible and could be taken forward as well as the parties responsible for implementation. In December 2015, GLTMS completed the tracking exercise. The tracking exercise results for all the 1,216 medium and 413 long-term measures under the 11 GMPs for urban areas are summarised in Table 14 and the details are given in paragraph 4.12.

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Table 14

**Summary of tracking exercise results for medium and long-term measures
under 11 GMPs for urban areas
(December 2015)**

GMP		Implemented/ works-in- progress (a)	Not feasible (b)	To be followed up (c)	Total (d) = (a) + (b) + (c)
(a) Medium-term measures					
1	Causeway Bay, Sheung Wan and Wan Chai	22	74	12	108
2	Central	17	73	19	109
3	Eastern	32	80	30	142
4	Kowloon City	17	38	24	79
5	Kwun Tong	36	57	36	129
6	Mong Kok and Yau Ma Tei	16	50	48	114
7	Sham Shui Po	37	48	18	103
8	Southern	6	90	16	112
9	Tsim Sha Tsui	26	108	7	141
10	Western	13	15	10	38
11	Wong Tai Sin	25	81	35	141
Subtotal		247 (20%)	714 (59%)	255 (21%)	1,216 (100%)
(b) Long-term measures					
1	Causeway Bay, Sheung Wan and Wan Chai	1	29	1	31
2	Central	—	14	2	16
3	Eastern	1	32	3	36
4	Kowloon City	30	93	1	124
5	Kwun Tong	—	48	3	51
6	Mong Kok and Yau Ma Tei	—	9	4	13
7	Sham Shui Po	3	41	1	45
8	Southern	3	15	1	19
9	Tsim Sha Tsui	—	45	—	45
10	Western	—	14	—	14
11	Wong Tai Sin	—	2	17	19
Subtotal		38 (9%)	342 (83%)	33 (8%)	413 (100%)
Overall		285 (Note 1) (17%)	1,056 (65%)	288 (Note 2) (18%)	1,629 (100%)

Source: Audit analysis of DEVB records

Note 1: Of the 285 measures, 264 (93%) were classified as “implemented” and 21 (7%) as “works-in-progress”.

Note 2: Of the 288 measures, 102 (35%) were classified as “to be kept in view”, 156 (54%) as “to be explored” and 30 (11%) as “to be implemented”.

4.12 Regarding the tracking exercise results as of December 2015 on the 1,216 medium-term and 413 long-term measures (see Table 14 in para. 4.11), Audit noted that:

- (a) ***Measures implemented/works-in-progress.*** A total of 247 (20%) medium-term and 38 (9%) long-term measures had been implemented (classified as “implemented”) or were being implemented (classified as “works-in-progress”);
- (b) ***Measures considered not feasible.*** A total of 714 (59%) medium-term and 342 (83%) long-term measures were considered not feasible for implementation in view of the latest site situations and in the light of experience gained. According to GLTMS:
 - (i) the measures found not feasible were mainly due to limitation of set-back distance to building and insufficient space for planting; and
 - (ii) the findings of the tracking exercise indicated that feasibility of the medium-term and long-term greening measures had not been adequately explored and the relevant stakeholders had not been adequately engaged during the development of GMPs or before the inclusion of the proposals in GMPs; and
- (c) ***Measures to be followed up.*** A total of 255 (21%) medium-term and 33 (8%) long-term measures (i.e. 288 measures in total) needed to be followed up by GLTMS (for 67 measures which required private sector/public organisations participation) and by government departments (for 221 measures under their purview). There were 3 types of follow-up actions, as follows:
 - (i) “to be kept in view” (Note 24), involving 79 medium-term and 23 long-term measures;

Note 24: *These are measures which have to be taken into account in current projects or to be considered by government departments, public organisations or the private sector.*

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- (ii) “to be explored” (Note 25), involving 148 medium-term and 8 long-term measures; and
- (iii) “to be implemented”, involving 28 medium-term and 2 long-term measures to be implemented shortly.

4.13 Regarding the monitoring of the progress of the 288 to-be-followed-up measures, in March 2019, GLTMS informed Audit that:

- (a) upon completion of the tracking exercise in December 2015, relevant departments were informed of the results and their responsibilities for the follow-up actions; and
- (b) although GLTMS did not call for written reports, it checked with departments on the progress from time to time.

4.14 While GLTMS had taken certain follow-up actions with the responsible departments on the implementation progress of the 221 measures under their purview (see paras. 4.12(c) and 4.13), it had not taken specific follow-up actions with private sector/public organisations on the 67 measures requiring their participation (see para. 4.12(c)). In this connection, Audit noted that, in reporting the progress of the tracking exercise to the Steering Committee on GLTM in September 2014, GLTMS informed the Committee that it would follow up and encourage the private sector to implement medium and long-term measures of GMPs under their purview. In Audit’s view, GLTMS needs to monitor the progress of the 288 to-be-followed-up measures on a more regular and systematic basis.

4.15 Audit also noted that no time frame had been set for completion of the medium and long-term measures under GMPs for urban areas (see para. 4.10). As the tracking exercise had already taken into account the latest situation and continual change in urban districts, Audit considers that GLTMS needs to set target dates for completing the to-be-followed-up medium and long-term measures as far as practicable.

Note 25: *These are measures which, based on initial review, have been considered practical and required feasibility studies.*

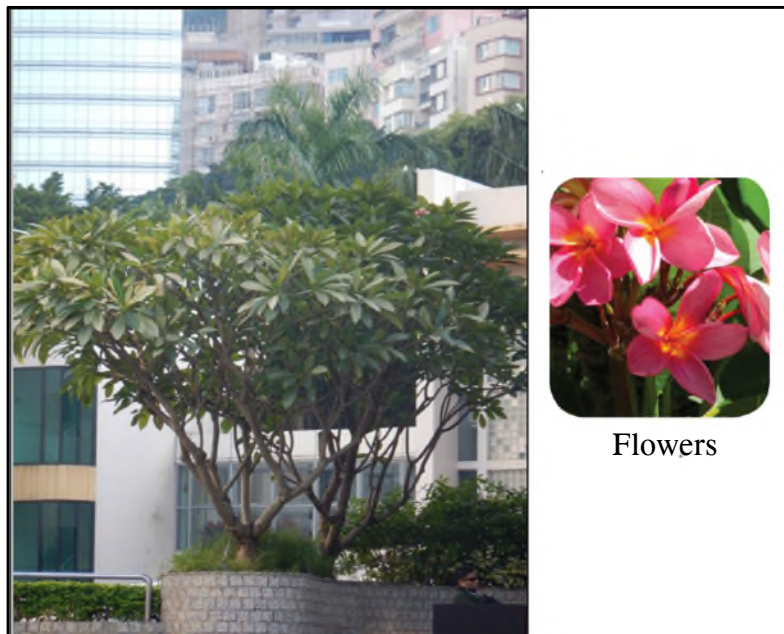
Scope for reviewing plant species under GMPs

4.16 In December 2018, GLTMS published the Street Tree Selection Guide with the purpose to improve the resilience of the Territory’s urban forest by maximising species diversity under the principle of “Right Tree, Right Place” to improve ecological health upstream and in turn, minimise tree risks downstream. According to the Guide:

- (a) the current Hong Kong roadside urban forest is dominated by a small range of 20 common tree species (e.g. *Acacia confusa* (台灣相思) and *Ficus microcarpa* (細葉榕)) in large quantity and planted en-masse;
- (b) it recommends 80 less commonly used but suitable tree species (e.g. *Plumeria rubra* (雞蛋花 — see Photograph 13)) to support a long-term sustainable, healthy and resilient urban forest; and

Photograph 13

Plumeria rubra (雞蛋花)



Source: DEVB records

- (c) plant species should be referred to GMP themes of plant species palette if the roadside planting works form part of the district based GMP.

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4.17 Audit noted that GMPs for urban areas had been developed and approved by GMP Committee more than 10 years ago (between June 2005 and December 2008) and for the four areas in NT more than 5 years ago (Southeast and Northwest NT in March 2013 and Northeast and Southwest NT in February 2014). Audit considers that there is scope for CEDD to review the plant species under GMPs for urban areas and NT, taking into account the additional tree species recommended by the newly published Street Tree Selection Guide, with a view to identifying more plant species under GMPs for replanting and future greening works.

Audit recommendations

4.18 Audit has *recommended* that the Director of Civil Engineering and Development should:

- (a) ensure the periodic reporting of the progress and results in implementing greening works under GMPs for NT to the GMP Committee and GLTMS; and
- (b) review the plant species under GMPs for urban areas and NT, taking into account the additional tree species recommended by the newly published Street Tree Selection Guide, with a view to identifying more plant species under GMPs for replanting and future greening works.

4.19 Audit has *recommended* that the Secretary for Development should:

- (a) monitor the progress of the to-be-followed-up medium and long-term measures under GMPs for urban areas on a more regular and systematic basis; and
- (b) set target dates for completing the to-be-followed-up medium and long-term measures under GMPs for urban areas as far as practicable.

Response from the Government

4.20 The Director of Civil Engineering and Development agrees with the audit recommendations in paragraph 4.18.

4.21 The Secretary for Development agrees with the audit recommendations in paragraph 4.19.

Public engagement of Greening Master Plans

4.22 GMPs define the overall greening framework of a district and serve as a guide for all parties involved in planning, design and implementation of greening works. They also specify the greening themes and the associated theme tree species as well as the plant palettes which will serve as a guide for plant species selection for reference by all parties involved in greening works in the areas. According to DEVB:

- (a) the greening themes and plant palettes as defined under GMPs will help individual districts maintain their distinct district identities and ensure that future greening efforts, whether by government departments or the private sector, will complement the existing greenery; and
- (b) apart from the Government's greenery works, the wide participation of public organisations and the private sector is crucial to the success of greening efforts.

Need to provide updated GMP information on website

4.23 According to CEDD, it has uploaded GMP information on theme species and plant palettes in different districts onto its website for reference by the public, including public organisations and the private sector. Audit noted that CEDD had uploaded such information (including greening themes, theme tree species and the plant palettes) for all urban areas onto its website. However, for GMPs for NT, Audit noted that:

Overseeing and public engagement of Greening Master Plans

- (a) GMPs for Southeast and Northwest NT were approved by GMP Committee in March 2013. However, CEDD only uploaded the related GMP information onto its website about six years later in January 2019; and
- (b) GMPs for Northeast and Southwest NT were approved by GMP Committee in February 2014. However, CEDD only uploaded the greening themes, potential theme tree species and potential representative shrub species onto its website about five years later in January 2019. As of February 2019, CEDD had still not uploaded the information on related plant palettes onto its website.

4.24 As a result of the long time taken by CEDD in uploading some GMP information onto its website, the public could not have timely GMP information which is not conducive to engaging their participation in the matter. In Audit's view, CEDD needs to provide updated GMP information (including the greening themes, theme species and the plant palettes) on its website with a view to facilitating the public's understanding of GMPs and engaging their participation in greening works.

Need to continue to take measures to engage and encourage public organisations and private sector in GMP implementation

4.25 The Government has issued guidelines on government departments' participation in greening works, as follows:

- (a) according to the Project Administration Handbook for Civil Engineering Works, government departments should make reference to the planting theme and the plant palette designated for each GMP in drawing up landscape designs for greening works; and
- (b) DEVB has issued a technical circular requiring relevant departments to make reference to GMP themes for projects which involve design for greening on new roads as far as possible.

4.26 Regarding the engagement of public organisations and private sector in GMP implementation, according to CEDD:

- (a) GMP information had been uploaded onto CEDD's website for reference by the public;
- (b) community forums had been arranged, and stakeholders from public organisations and private sector had been invited to participate in the formulation of GMPs; and
- (c) apart from designing and implementing the greening works, CEDD also promoted greening by explaining its benefits to the public through interviews with the media and through exhibitions and talks to schools, tertiary institutions and relevant professional bodies. Community planting ceremonies were arranged to cover all districts under GMPs. Students, DC members and Rural Committee members were invited to participate in the planting ceremonies to experience the joy of planting and share the happiness in the creation of more green space.

4.27 According to DEVB, apart from the Government's greenery works, the wide participation of public organisations and the private sector is crucial to the success of greening efforts. In fact, GLTMS's tracking exercise of December 2015 (see para. 4.12) found that such parties had implemented some medium-term measures of GMPs for urban areas (e.g. road works with associated greening in Sham Shui Po by a public organisation and greening on roof of a building in Central by the private sector). Audit also noted the engagement work conducted by CEDD (see para. 4.26). In Audit's view, GLTMS, in collaboration with CEDD, needs to continue to take measures to engage and encourage public organisations and the private sector in the implementation of greening measures under GMPs.

Audit recommendations

4.28 Audit has *recommended* that the Director of Civil Engineering and Development should provide updated GMP information (including the greening themes, theme species and the plant palettes) on CEDD's website with a view to facilitating the public's understanding of GMPs and engaging their participation in greening works.

4.29 Audit has *recommended* that the Secretary for Development should, in collaboration with the Director of Civil Engineering and Development, continue to take measures to engage and encourage public organisations and the private sector in the implementation of greening measures under GMPs.

Response from the Government

4.30 The Director of Civil Engineering and Development agrees with the audit recommendations in paragraphs 4.28 and 4.29.

4.31 The Secretary for Development agrees with the audit recommendation in paragraph 4.29.

Membership of Steering Committee on Greening, Landscape and Tree Management

Chairman

Permanent Secretary for Development (Works)

Membership

1. Deputy Secretary for Development (Planning and Lands)³
2. Deputy Secretary for Development (Works)¹
3. Director of Agriculture, Fisheries and Conservation
4. Director of Architectural Services
5. Director of Buildings
6. Director of Civil Engineering and Development
7. Director of Drainage Services
8. Director of Environmental Protection
9. Director of Highways
10. Director of Home Affairs
11. Director of Housing
12. Director of Lands
13. Director of Leisure and Cultural Services
14. Director of Planning
15. Director of Water Supplies
16. Commissioner for Tourism
17. Commissioner for Transport
18. Representatives from other departments on a need basis

Source: DEVB records

Membership of Greening Master Plan Committee

Chairman

Director of Civil Engineering and Development

Membership

Representatives from:

1. Development Bureau
2. Architectural Services Department
3. Buildings Department
4. Drainage Services Department
5. Environmental Protection Department
6. Food and Environmental Hygiene Department
7. Highways Department
8. Home Affairs Department
9. Housing Department
10. Lands Department
11. Leisure and Cultural Services Department
12. Planning Department
13. Transport Department
14. Water Supplies Department

Non-governmental members

1. Hong Kong Housing Society
2. Urban Renewal Authority

Ad hoc members

1. Agriculture, Fisheries and Conservation Department
2. Tourism Commission
3. Others as necessary

Advisors

1. Relevant expert from the academia
2. Hong Kong Institute of Architects
3. Hong Kong Institute of Landscape Architects
4. Others as necessary

Source: DEVB records

Appendix C
(paras. 1.5(a) and
2.15 refer)

Greening themes of Greening Master Plans

GMP		Greening theme
(a) Urban areas		
1	Causeway Bay, Sheung Wan and Wan Chai	Rainbow (彩虹)
2	Central	Heart of Gold (金融中心)
3	Eastern	Royal Palm Boulevard, Elegant Bay and Tranquil Garden (東城棕調、翠榕雅灣 及 安逸薪園)
4	Kowloon City	Verdant Parkland and Vibrant Heart (綠悠恬林 及 躍動紅灣)
5	Kwun Tong	Jade Crescent and Sunny Prospect (翠堤灣畔 及 曉巒翠景)
6	Mong Kok and Yau Ma Tei	Green Kaleidoscope, Coastal Scenery and Parkland (綠色萬花筒、海濱風光 及 休閒園地)
7	Sham Shui Po	Golden Kaleidoscope and Scenic Vistas (金影花筒 及 彩峰倚雲)
8	Southern	Bauhinia Neighbourhood, Incense Harbour and Ruby Shores (楓林紫影、香樹漁港 及 赤映灣畔)
9	Tsim Sha Tsui	Jade Necklace (翡翠玉帶)
10	Western	Civil Elegance and Joyful Renaissance (文城雅樹 及 「喜」動之城)
11	Wong Tai Sin	Celestial Garden, Shady Palm Garden and Vibrant Rainbow (華園仙踪、蒲園綠蔭 及 繽紛彩虹)
(b) New Territories		
12	Islands	Tranquil Seascape, Flourishing Isles (躍蓉恬翠)
13	Kwai Tsing	Blue Breeze and Green Vista (嵐海菁喬)
14	North	A Landscape Born of River and Mountain (錦繡山河)
15	Sai Kung	Fragrant Blossom Paths (萬彩千香) (see Figure 4 in para. 2.15(a))
16	Sha Tin	Floral Riverbanks, Verdant Hills (沙田聳翠)
17	Tai Po	History and Harmony in the Urban Landscape (綠意盎然)
18	Tsuen Wan	Green Vibrance (翠錦悅灣)
19	Tuen Mun	Ruby Flowers, Emerald Mountain (映照青瑤)
20	Yuen Long	Golden Sunset (彩鳥映霞)

Source: CEDD records

Appendix D
(paras. 2.3(b) and 2.6 refer)

**Works contracts for implementation of Greening Master Plans
for urban areas and New Territories**

Contract		Commencement date	Original contract completion date	Actual completion date	No. of months later than original contract completion date (Note)
(a) Urban areas					
<i>Phase 1</i>					
1	Central and Tsim Sha Tsui	29.5.2006	30.9.2007	30.9.2007	0
<i>Phase 2</i>					
2	Causeway Bay, Mong Kok, Sheung Wan, Wan Chai and Yau Ma Tei	29.8.2008	26.11.2009	31.12.2009	1
<i>Phase 3</i>					
3	Eastern	15.12.2009	14.4.2011	13.6.2011	2
4	Kowloon City	4.9.2009	2.1.2011	30.6.2011	6
5	Kwun Tong	25.9.2009	23.2.2011	24.3.2011	1
6	Sham Shui Po	21.9.2009	19.1.2011	30.6.2011	5
7	Southern	18.12.2009	17.3.2011	27.4.2011	1
8	Western	23.12.2009	22.3.2011	3.5.2011	1
9	Wong Tai Sin	31.8.2009	29.12.2010	30.6.2011	6
(b) NT					
<i>Southeast NT</i>					
10	Sai Kung and Sha Tin	30.12.2014	26.6.2017	23.10.2017	4
<i>Northwest NT</i>					
11	Tuen Mun and Yuen Long	24.12.2014	21.6.2017	19.10.2017	4

Source: CEDD records

Note: According to CEDD, the extensions of contract periods were due to inclement weather (for all works contracts), additional planting works (for works contracts for Kowloon City and Wong Tai Sin) and delay in obtaining excavation permits for some planting locations (for works contract for Sham Shui Po).

Appendix E
(para. 2.3(c) refers)

**Target and actual number of trees and shrubs planted
under Greening Master Plans for urban areas and New Territories**

Contract		Target no. stated in PWSC paper		Actual no. planted	
		Tree	Shrub	Tree	Shrub
(a) Urban areas					
<i>Phase 1</i>					
1	Central	300	50,000	570	155,000
	Tsim Sha Tsui	600	160,000	680	145,000
<i>Phase 2</i>					
2	Causeway Bay, Sheung Wan and Wan Chai	2,200	500,000	2,230	520,000
	Mong Kok and Yau Ma Tei	2,000	400,000	4,170	860,000
<i>Phase 3</i>					
3	Eastern	1,830	352,000	2,100	400,000
4	Kowloon City	2,200	440,000	2,690	442,000
5	Kwun Tong	2,940	840,000	5,230	1,255,100
6	Sham Shui Po	1,500	540,000	3,210	540,000
7	Southern	1,230	113,000	1,440	255,500
8	Western	540	95,000	900	96,500
9	Wong Tai Sin	1,260	310,000	1,670	463,000
Subtotal of Phase 3		11,500	2,690,000	17,240	3,452,100
Subtotal (a)		16,600	3,800,000	24,890	5,132,100
(b) NT					
<i>Southeast NT</i>					
10	Sai Kung	700	330,000	838	386,475
	Sha Tin	1,000	330,000	1,134	863,113
<i>Northwest NT</i>					
11	Tuen Mun	700	500,000	910	536,389
	Yuen Long	1,000	650,000	1,098	846,505
Subtotal (b)		3,400	1,810,000	3,980	2,632,482
Total (c)=(a)+(b)		20,000	5,610,000	28,870	7,764,582

Source: CEDD records

Remarks: The overall number of trees and shrubs planted under each of the 11 works contracts in urban areas and Southeast and Northwest NT exceeded the planting targets stated in the funding papers to PWSC of the Finance Committee of LegCo.

**Expenditure of works contracts for implementation of
Greening Master Plans for urban areas
(December 2018)**

Contract		Original contract sum	Total contract expenditure	Increase/(decrease)	
		(a)	(b)	(c) = (b) – (a)	
		(\$ million)	(\$ million)	(\$ million)	(%)
<i>Phase 1</i>					
1	Central and Tsim Sha Tsui	18.6	23.0	4.4	24 %
<i>Phase 2</i>					
2	Causeway Bay, Mong Kok, Sheung Wan, Wan Chai and Yau Ma Tei	104.4	91.5	(12.9)	(12 %)
<i>Phase 3</i>					
3	Eastern	35.1	40.5	5.4	15 %
4	Kowloon City	34.0	33.7	(0.3)	(1 %)
5	Kwun Tong	77.3	77.1	(0.2)	(1 %)
6	Sham Shui Po	38.2	42.7	4.5	12 %
7	Southern	19.4	19.3	(0.1)	(1 %)
8	Western	10.2	8.3	(1.9)	(19 %)
9	Wong Tai Sin	26.4	25.6	(0.8)	(3 %)
Overall		363.6	361.7	(1.9)	(1 %)

Source: CEDD records

**Trees and shrubs planted
under Greening Master Plans taken over by LCSD
under Phase 3 of urban areas and New Territories**

District	Trees and shrubs taken over by LCSD	
	Trees (No.)	Shrubs (planting area)
(a) Phase 3 of urban areas		
Eastern	1,757	6,148 m ²
Kowloon City	192	12,253 m ²
Kwun Tong	227	27,086 m ²
Sham Shui Po	315	18,184 m ²
Southern	334	3,349 m ²
Western	75	2,393 m ²
Wong Tai Sin	180	5,286 m ²
Subtotal (a)	3,080	74,699 m ²
(b) NT		
<i>Southeast NT</i>		
Sai Kung	545	4,862 m ²
Sha Tin	626	19,734 m ²
<i>Northwest NT</i>		
Tuen Mun	882	13,443 m ²
Yuen Long	1,220	27,274 m ²
Subtotal (b)	3,273	65,313 m ²
Total (c) = (a) + (b)	6,353	140,012 m ²

Source: LCSD records

Acronyms and abbreviations

Audit	Audit Commission
CEDD	Civil Engineering and Development Department
DC	District Council
DEVB	Development Bureau
GLTMS	Greening, Landscape and Tree Management Section
GMP	Greening Master Plan
GMP Committee	Greening Master Plan Committee
HD	Housing Department
LCSD	Leisure and Cultural Services Department
LegCo	Legislative Council
m ²	Square metres
mm	Millimetres
NT	New Territories
PWSC	Public Works Subcommittee
Steering Committee on GLTM	Steering Committee on Greening, Landscape and Tree Management