

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.