

GOVERNMENT'S EFFORTS IN ENHANCING TREE SAFETY

Executive Summary

1. **Background.** There are tens of millions of trees in Hong Kong. It is the Government's policy to actively promote greening in order to improve the city's living environment. The Government has all along adopted an "integrated approach" in assigning to relevant departments responsibilities for maintaining vegetation (including trees) on government land. Under this approach, tree maintenance is part and parcel of the duty of the department which uses and manages that particular piece of land or facility. Currently, there are a number of major tree management departments, including the Highways Department (HyD) which manages trees on roadside man-made slopes/retaining walls and expressways, and the Leisure and Cultural Services Department (LCSD) which manages trees in LCSD venues and landscaped areas along public roads other than expressways. The Administration estimated that, as at December 2013, the major tree management departments were maintaining about 1.6 million trees with an annual contract expenditure of \$473 million, and 470 staff were involved in day-to-day tree management on a full-time or part-time basis.

2. **Public concern over tree safety.** In the past few years, there have been a number of tree collapse cases causing deaths or injuries to members of the public. In March 2009, the Chief Secretary for Administration led an inter-departmental Task Force to review tree management issues, particularly public safety aspects. In June 2009, the Task Force published its Report. Pursuant to the recommendations of the Task Force Report, the Development Bureau (DEVB) established the Tree Management Office (TMO) in March 2010. To ensure more effective implementation across departments of the integrated approach to tree management, the TMO acts as a central authority to give policy steer, a focal point of coordination of departmental efforts, and a provider of arboricultural expertise. In May 2014, the Audit Commission (Audit) commenced a review of the Government's efforts in enhancing tree safety.

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3. ***Delineation of management responsibilities for roadside trees.*** Trees at roadside areas pose a particular safety risk to pedestrians and road users. Broadly speaking, apart from expressways (under the purview of the HyD) and country parks (under the purview of the Agricultural, Fisheries and Conservation Department), the LCSD is responsible for roadside trees on landscaped areas, whereas the Lands Department (LandsD) is responsible for roadside trees on unallocated government land not maintained by any other departments. According to a Technical Circular issued in March 2004 by the DEVB, the LandsD carries out maintenance of trees on an ad hoc basis, i.e. mainly when a requirement is identified or a complaint/referral is received (paras. 2.4, 2.15, 2.17 and 2.22).

4. ***Disagreements over maintenance responsibilities.*** All along, there have been disagreements among departments over the delineation of maintenance responsibilities for roadside trees, particularly regarding whether a tree is within a “landscaped area”. In the LCSD’s view, a landscaped area should be an area with landscape design elements such as roadside planters or tree pits. In the TMO’s view, a landscaped area should be an area with intentional plantings irrespective of whether the plantings are located in planters or tree pits. The disagreements among departments had affected the handling of tree complaints and other tree management work. In 2013, it was agreed that when agreement could not be reached among departments, the TMO would review the case and adjudicate as to which department was responsible for tree management (paras. 2.18 to 2.21).

5. ***Roadside tree survey.*** In 2011, the DEVB considered that there was a need to enhance tree risk management for roadside trees under the ad hoc maintenance by the LandsD, and to have a general understanding of the quantity and quality of these trees in order to facilitate policy considerations on the maintenance approach. In July 2012, the TMO embarked on a territory-wide roadside tree survey covering public roads/carriageways. As at June 2014, the TMO had substantially completed the fieldwork of the survey. Some 70,000 roadside trees not included in the inventories of any tree management departments were found. As at September 2014, the TMO was working on the delineation of maintenance responsibilities of the surveyed trees, and the review of the policy considerations on the maintenance approach for roadside trees had not been completed (paras. 2.23 to 2.27).

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6. *Special tree inspection exercise.* The scope of the TMO's roadside tree survey (see para. 5 above) did not cover village access roads/footpaths in rural areas. In October 2012, a fatal tree collapse case occurred on a village access road in Tai Po. After this case, the LandsD planned to conduct a special tree inspection exercise to identify potentially hazardous trees along village access roads and footpaths on unallocated government land with relatively high pedestrian and/or vehicular flow, and to carry out appropriate remedial works of the trees for public safety. The LandsD started the exercise in December 2013 and expected to complete the exercise in six years (paras. 2.27, 2.38 to 2.40).

7. *Need to review the ad hoc maintenance approach.* According to the LandsD, it was first involved in tree maintenance in May 2002 on the understanding that trees not claimed by any other departments on unallocated government land, which were unlikely to be along roadside, would be taken up by the LandsD. It had since then been accepted within the Government that trees put under the LandsD would only be subject to ad hoc rather than regular maintenance. Since the issue of the Technical Circular in March 2004 (see para. 3 above), trees on non-landscaped areas along non-expressway roads and pavements had been put under the LandsD's purview. The 2012 Tai Po tree collapse case (see para. 6 above) highlighted inadequacies in the ad hoc maintenance of roadside trees for ensuring public safety. There is a need for a critical review of the LandsD's ad hoc maintenance approach (paras. 2.43 and 2.44).

Tree risk assessment

8. *Implementation of the tree risk assessment (TRA).* The Task Force, making reference to international best practices, recommended new TRA arrangements based on a dual approach comprising two stages (i.e. the area-basis assessment and the tree-basis assessment). In carrying out the area-basis assessment, a tree management department should classify the sites under its purview into three risk zones (i.e. Category I, II and III zones). The purpose is to let the department focus on high-risk sites (i.e. Category I zones). In carrying out the tree-basis assessment of a site, a group inspection (a Form 1 inspection) should be conducted on all trees of the site to identify problematic trees. For the problematic trees identified, if the remedial measures taken on the spot cannot eliminate the risks, detailed inspections (Form 2 inspections) should be conducted on them to identify in detail the risks and the appropriate remedial measures (paras. 3.2 to 3.8).

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9. **Conduct of Form 1 inspections.** According to the TMO's guidelines on the dual-approach TRA, to safeguard the quality of a Form 1 inspection, the number of trees to be covered should not be excessive. Audit examined the Form 1 inspections conducted by the HyD and the LCSD in the 2014 TRA, and noted that there were a considerable number of Form 1 inspections which covered a large number (e.g. more than 100) of trees. Audit also noted cases in which problematic trees had not been identified during their Form 1 inspections, but later became the subjects of complaints and found to be hazardous (paras. 3.18 to 3.20).

10. **Conduct of Form 2 inspections.** By conducting a Form 2 inspection on a tree, the tree management department can ascertain the detailed conditions of the tree and better identify appropriate remedial measures, including long-term measures (such as pest control and site improvement). Audit noted that, in the 2014 TRA, the number of Form 2 inspections conducted varied widely among the major tree management departments. In particular, the LCSD did not conduct any Form 2 inspections on trees (other than old and valuable trees (OVTs) and stonewall trees) in its 2014 TRA (paras. 3.25 and 3.28).

11. **Tackling brown root rot (BRR) disease.** BRR disease on trees is caused by an aggressive fungal pathogen. Trees infected with BRR disease may experience a rapid deterioration of health and structural conditions. There is currently no effective cure to the disease. The TMO has adopted a dual-pronged management strategy for preventing the spread of the disease, comprising precautionary and preventive measures. For infected trees which are not OVTs, they should be removed entirely. For infected OVTs, if they are structurally stable and the infection is at the early stage, they should be quarantined. Audit noted that, as at August 2014, there were 16 non-OVTs with BRR infection pending removal. For some of them, the removal had been outstanding for a long period (paras. 3.52, 3.55 and 3.57).

Management information systems and databases

12. **Tree Management Information System (TMIS).** The TMO engaged a contractor to set up the TMIS. The system commenced live run in December 2012. The TMO encountered a number of system development issues. There were gaps between the expected and the actual functions provided. There were also system bugs and instability issues. In particular, most of the tree management departments had not yet transferred their tree data to the system. There were also data inconsistencies between the system and the departmental systems maintained by

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some departments. The TMO was planning to enhance the TMIS (paras. 4.2, 4.3, 4.7 and 4.9).

13. ***Tree Register.*** In July 2010, the TMO set up and published (on its website) a “Tree Register”. The Tree Register includes problematic trees with mitigation measures to be completed and important trees (i.e. OVTs and stonewall trees). The objectives of the Tree Register are to promote community surveillance and to enhance the transparency of the Government’s tree risk management work. Audit noted that there was a tendency for tree management departments not to add problematic trees to the Tree Register. There were also trees with mitigation measures already completed for quite some time (3 to 8 months) but not deleted from the Tree Register (paras. 4.14, 4.15, 4.17 and 4.22).

Training and community involvement

14. ***Training on tree management.*** The TMO used considerable staff resources (both professional and administrative staff) in delivering training courses on tree management. In 2013, the 21 training courses delivered by the TMO took up 35 working days, representing about 14% of the working days in the year. The delivery of training by the TMO will draw on its scarce staff resources, leaving fewer resources available for other important duties. The TMO needs to review its long-term arrangement for delivering tree management training (paras. 5.9, 5.10 and 5.12).

15. ***Community involvement in greening.*** The DEVB oversees community involvement activities on greening. In view of growing public concerns about tree safety, the DEVB needs to further promote community surveillance from a tree safety perspective, particularly relating to roadside trees (paras. 5.18 and 5.23).

Way forward

16. ***Progress made since 2008 in improving tree management.*** The TMO was set up in March 2010 with the main task of minimising the threat of problematic trees to public safety. Notwithstanding the Government’s efforts since the setting up of the TMO, tree collapse incidents have still occurred from time to time, including a few fatal cases. It appears that more needs to be done in further enhancing tree safety (paras. 6.2 and 6.3).

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17. *Addressing safety risks of trees on private land.* The work of the TMO primarily focuses on trees maintained by government departments. For trees on private land, their maintenance responsibilities rest with the private land owners concerned. In August 2014, a tragic tree collapse incident occurred at Mid-levels which involved a tree on private land. This incident has aroused public concerns about safety risks posed by trees on private land. Audit considers that the DEVB needs to critically review whether there is a need for tree legislation to regulate, among other things, the proper maintenance of trees on private land. Meanwhile, effective measures need to be devised to bring forth improvements more readily (paras. 6.6 and 6.10).

Audit recommendations

18. **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 Secretary for Development should:**

Coordinating the work of tree management departments

- (a) **expedite action to review the policy considerations concerning the maintenance approach for roadside trees, and sort out the delineation of maintenance responsibilities of the surveyed trees (para. 2.33(a));**
- (b) **in conjunction with the Director of Lands, consider implementing regular maintenance for trees on unallocated government land, particularly roadside trees, which currently are under ad hoc maintenance (para. 2.46);**

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- (c) **provide more guidelines on the appropriate number of trees to be covered by a Form 1 inspection (para. 3.39(b));**
- (d) **provide more guidelines to help tree management departments decide whether and when it is necessary to conduct a Form 2 inspection (para. 3.39(d));**
- (e) **for non-OVTs which have been infected with BRR disease, urge the responsible departments to remove the trees in a timely manner (para. 3.60(a));**

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- (f) take measures to promptly complete the TMIS enhancement project (para. 4.12(a));
- (g) ensure that tree management departments are committed to using the TMIS and avoid data inconsistencies between the TMIS and departmental systems (para. 4.12(c));
- (h) take measures to ensure that the Tree Register provides a complete and up-to-date list of problematic trees with mitigation measures to be completed (para. 4.26(a));

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- (i) review the long-term arrangement for the TMO to deliver tree management training in a more sustainable manner (para. 5.13);
- (j) make more efforts in promoting community surveillance from a tree safety perspective, particularly relating to roadside trees (para. 5.24);

Way forward

- (k) critically review whether there is a need for legislation for mandatory tree inspection and maintenance of trees on private land by private land owners (para. 6.11(c)); and
- (l) before any new legislation is introduced, take effective measures that can more readily help improve tree safety on private land (para. 6.11(d)).

19. Audit has also *recommended* that the Director of Lands should expedite action to complete the special tree inspection for roadside trees on village access roads and footpaths in rural areas (para. 2.47).

Response from the Administration

20. The Administration agrees with the audit recommendations.