

For discussion on
31 January 2023

Legislative Council Panel on Development

Review of Roadside Tree Planting and Maintenance

PURPOSE

This paper briefs Members on the progress of the review regarding roadside tree planting and maintenance and the recommended improvement measures to be taken.

BACKGROUND

2. The Development Bureau (DEVB) established the Greening, Landscape and Tree Management Section (GLTMS) in March 2010 to take up the overall policy responsibility for greening, landscape and tree management. There are two offices under the GLTMS, namely, the Greening and Landscape Office (GLO) and the Tree Management Office (TMO). The GLO is responsible for formulating landscape policies and guidelines, while the TMO is the central authority to lead and coordinate the effective implementation of the ‘integrated approach’¹ on tree management. GLTMS and tree management departments have been working closely to reduce the risk of tree failure and ensure public safety through proper tree maintenance and systematic tree risk assessment. The details of the current tree management regime are in **Annex 1**.

3. Notwithstanding the continuous efforts in both upstream planting and downstream tree management works by the two offices, tree failure incidents did occur from time to time given that trees inevitably undergo changes during their life cycle of growth, aging, disease and decline. In the past three years, the

¹ Under the ‘integrated approach’, departments responsible for maintaining the government facilities or land allocated to them are responsible for taking care of the trees thereon in accordance with the requirements and guidelines promulgated by the DEVB. This approach allows departments to carry out appropriate routine tree maintenance work effectively having regard to their scope of works. For example, when the Highways Department is carrying out maintenance work on expressways, the maintenance of roadside plants can be carried out at the same time, without the need for another separate temporary traffic diversion and road closure, thereby reducing the impact on traffic.

number of fallen trees accounted for about 0.03 % of the total number of trees in locations of high pedestrian and vehicular flow in Hong Kong.

Task force on roadside tree planting and maintenance

4. With the happening of an incident involving the collapse of a 9.5m tall Flame Tree (*Delonix regia* 鳳凰木) growing at a tree pit along the roadside, the Development Bureau set up in September 2022 a Task Force on Roadside Tree Planting and Maintenance (Task Force). In the past few months, the Task Force, chaired by the Permanent Secretary for Development (Works) with members from nine main tree management departments, reviewed the existing tree management arrangement, including the ‘Guidelines for Tree Risk Assessment and Management Arrangements’, methods of tree inspection (including the application of technology and instruments), tree species planted by the roadside, aboveground and underground growth spaces for trees, soil quality management requirements, etc. The Task Force also considered whether the relatively large trees along the existing roads are compatible with the current environment in view of the urban development and explore the direction of treatment.

THE REVIEW AND RECOMMENDATIONS

5. Relevant guidelines and circulars on landscaping and tree planting practices as well as tree risk assessment and other aspects of tree maintenance and management have been drawn up with reference to international best practices for implementation by tree management departments. In general, departments have been conducting tree maintenance and tree risk assessment according to the established system and guidelines, and for new projects, following the space provision for tree planting and tree selection guidelines.

6. Notwithstanding the above, having reviewed the lessons learnt from past tree failure incidents and evaluated the operational experience of tree maintenance departments, the Task Force identified areas for enhancement in the area of roadside tree planting and maintenance and tree risk assessment. Taking into account the observations of the Task Force, DEVB recommends the following enhancement measures (elaborated in **Annex 2**):

- (a) Making clear the line of command concerning tree management;
- (b) Expanding the scope of ‘tree basis’ risk assessment;

- (c) Arranging periodic inspections for trees along village roads on unleased and unallocated Government land;
- (d) Enhancing implementation of risk mitigation measures;
- (e) Enhancing reporting of tree failure cases and stepping up auditing of tree risk assessment reports;
- (f) More extensive use of technology in tree management;
- (g) Replacement of senescent pioneer species;
- (h) Formulating new guidelines for minimum soil volume and soil depth for tree planting;
- (i) Introducing suitability and sustainability assessment for roadside trees; devising suitable measures to improve site conditions or replacing trees which are no longer suitable for site in urban areas; and
- (j) Building up capacity of tree management personnel

ADVICE SOUGHT

7. Members are invited to offer views on the recommended enhancement measures.

Development Bureau
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General Overview of Existing Tree Management Regime

Background

Trees together with green spaces contribute positively to liveability of our urban city. Apart from bringing various environmental, ecological, socio-economic benefits including improved air quality, moderated temperature, visual appeal and biodiversity, there are growing evidence confirming that trees and the associated green space have positive impact to people's health and well-being both physically and psychologically.

2. The Development Bureau (DEVB) established the Greening, Landscape and Tree Management Section (GLTMS) based on the recommendation of the Task Force on Tree Management in June 2009 led by the then Chief Secretary. The GLTMS promotes a holistic approach to landscape and tree management and the **'Right Tree, Right Place' principle**, advocating adequate space allocation for new planting, proper selection of plant species, as well as quality landscape design and planting practices in the upstream, and proper tree maintenance in the downstream, with protection of public safety as a paramount consideration.

3. The Tree Management Office (TMO) of DEVB co-ordinates departmental tree management work at the policy level, through an **'integrated approach'** under which departments responsible for maintaining the government facilities or land allocated to them are responsible for taking care of the trees thereon in accordance with the requirements and guidelines promulgated by the DEVB. This approach allows departments to carry out appropriate routine tree maintenance work effectively with their portfolio of duties integrating the work concerned.

Risk-based approach towards tree management

4. Proper tree maintenance and systematic tree risk assessment are effective means to reduce the risk of tree failure. Trees are living

organisms and they inevitably undergo changes given their life cycle of growth, aging, sickness and decline. Numerous physiological and environmental factors may interact and affect tree health and stability. Older trees planted decades ago might have experienced substantial stresses when the city has been undergoing continuous development.

5. Since 2010, GLTMS introduced a risk-based ‘dual approach’ in tree management with reference to international best practices and promulgated the Guidelines for ‘**Tree Risk Assessment and Management Arrangement**’ (**TRAM Guidelines**). The ‘dual approach’ includes -

- (a) ‘**Area Basis**’ risk assessment (i.e. Form 1 assessment) – departments concerned first identify those areas where the public will be subject to significant risk if a tree fails; and
- (b) ‘**Tree Basis**’ risk assessment (i.e. Form 2 assessment) – once an area is identified, the concerned department will identify those trees which may be problematic and assess their conditions in accordance with a standardized format with particular emphasis on the risk angle.

The TRAM Guidelines elaborate the methodology for demarcation of tree risk zones on an ‘Area Basis’. The Guidelines also stipulate the procedures of ‘Tree Basis’ risk assessment with the application of a prescribed tree assessment form.

6. Every year, tree management departments are required to complete tree risk assessment in areas of high pedestrian and vehicular traffic flows and implement necessary mitigation measures before the onset of wet season with a view to reducing the risk of tree failure and protecting public safety. Depending on the conditions of individual trees, mitigation measures may include removal of dead branches, pruning, pest and disease control, tree removal.

7. With reference to the latest international best practices and drawing from the observations obtained from the TMO’s audit, the TRAM Guidelines have been continuously reviewed and enhanced with the latest version being its 9th edition updated in 2022.

Greening and landscape efforts

8. Since its establishment in 2010, the GLTMS has been promoting proper landscape and tree planting practices with a view to achieving sustainable healthy tree growth, thereby minimizing tree failure risks. Towards this end, relevant circulars and guidelines have been promulgated by DEVB¹ specifying the relevant standards and requirements on planting practices for departments to follow.

9. Apart from greening works in individual large scale infrastructure projects, the Government launched the Greening Master Plans (GMP) which is a territory-wide greening project covering the 18 districts in Hong Kong to plan, design and implement greening works with greening themes, propose suitable planting species and identify suitable planting locations to promote a district identity².

10. To proactively manage trees for safeguarding public safety, enriching biodiversity and promoting the long-term sustainability of highways landscape, the Highways Department has been implementing an ‘Enhancement Programme of Vegetated Slopes’ to replace senescent *Acacia confusa* trees (台灣相思) under the department's management. Separately, Agriculture, Fisheries and Conservation Department has been launching Country Parks Plantation Enrichment Project to progressively remove pioneer exotic trees in plantations to give way for in-planting of native trees. Other departments such as Architectural Services Department and Housing Department also implement similar programme in managing the necessary replacement of senescent *Acacia*.

Tree management in private land

11. To promote proper tree management in private properties on tree

¹ Development Bureau’s website for technical circulars - https://www.devb.gov.hk/en/publications_and_press_releases/technical_circulars/technical_circulars_u/m/index.html

² GMP works in Hong Kong Island, Kowloon and most parts of the New Territories (NT) have already been completed and the remaining districts in Southwest NT (Tsuen Wan, Kwai Tsing and Islands) and Northeast NT (Tai Po and North District) are being implemented and are expected to complete by end 2023.

management, the '**Handbook on Tree Management**' was promulgated in 2016 to provide guidelines and standards of good practice on tree management for reference by private property owners. The Handbook was incorporated into the Code of Practice on Building Management and Safety issued under the Building Management Ordinance (Cap. 344) in September 2018, stipulating the responsibilities and scope of proper tree management for compliance by private property owners.

Current use of technology in tree inspection

12. The application of technology in tree management has expanded substantially since 2010. The adoption of applicable technology in tree management provides useful aids in monitoring the health and structure of trees and tracking their changes and anomalies. For example, resistograph and tomograph are being deployed by tree maintenance departments to assist the tree inspection work and in checking cavities and structural integrity of trees.

13. The GLTMS together with tree management departments have been applying suitable technology and devices and exploring new ones to assist tree management. Major ones being put on trials or being examined are summarized below -

- (a) TMO has launched a three-year study programme in 2021 to collect and analyze the tree movement data captured by tilt sensors with a view to exploring the effectiveness of the sensors. The Government will consider the case of extending the use of tilt sensors to more roadside trees having regard to the findings of the study which will be ending in 2024.
- (b) QR Code tree labels on trees aim at bringing convenience to the public in reporting problematic trees, facilitating tree management and providing the community with educational information about trees. At present, most trees along roadside, parks and gardens which are easily reached by the public have already been installed with QR code labels, totaling around 200,000.

- (c) The GLTMS commissioned a consultancy project in November 2020 to analyze and monitor any change in health conditions of Old and Valuable Trees and Stone Wall Trees through periodic use of remote sensing multispectral imagery and LiDAR sketching techniques for detailed structural analysis. Highways Department has also commissioned a research institute to study the use of hyperspectral imagery of aerial photos in monitoring tree health and the use of LiDAR in collecting the 3-dimensional data of trees in less accessible areas. Upon the conclusion of these studies and consultancies, we will institutionalize effective practices for implementation by our tree management departments.

Training, capacity building and industry development

14. Over the past years, the GLTMS has put in much effort to train up government tree management staff to be professionally qualified in arboriculture and tree management. Back in 2009, some 80 staff members within the Government had professional arboriculture qualifications³. The number of qualified staff has since then grown six-fold to around 500 in 2022. GLTMS has arranged and sponsored about 5,000 training places annually for staff of tree management departments, covering various areas of tree management, e.g. proper tree maintenance practices, pest and disease management, and tree risk assessment and occupational safety and health.

Registration Scheme for Tree Management Personnel

15. To uplift the quality of tree management personnel and the professional standing of the industry, in December 2020, DEVB launched the Registration Scheme for Tree Management Personnel (‘the

³ Professional arboriculture qualifications include Certified Arborist of the International Society of Arboriculture (ISA), ISA Certified Arborist (Municipal Specialist), ISA Tree Risk Assessment Qualification, LANTRA Awards in Professional Tree Inspection, Certificate of Training in Professional Tree Inspection and Risk Assessment of the Hong Kong Metropolitan University Li Ka Shing School of Professional and Continuing Education, and Tree Risk Assessment Course with Assessment of the Technological and Higher Education Institute of Hong Kong (THEi).

Registration Scheme’) for five types of tree management personnel⁴. Practitioners meeting the respective academic, professional, training, occupational safety and health training and work experience requirement may apply for registration on a voluntary basis⁵. By end 2022, there were around 650 registered personnel and with a steady trend of growth.

Urban Forestry Support Fund

16. The Government established the Urban Forestry Support Fund (the Fund) in 2020 with the objective to uplift the professional standards of arboriculture and horticulture practitioners and to strengthen public education and promotion on proper tree care with a view to improving the quality of our urban forest, protecting public safety and enhancing liveability. The \$200-million Fund supports the implementation of the following initiatives –

- (a) ***Study Sponsorship Scheme*** - to provide financial incentives to encourage more people to undertake arboriculture, tree management and tree works programmes offered by local vocational, tertiary and training institutions. By end 2022, around 600 students had applied for subsidy.
- (b) ***Trainee Programme*** – to support graduates of arboriculture, tree management and tree works programmes at Qualification Framework (QF) Level 2 to Level 5 to receive on-the-job training for acquiring practical working experience. Around 150 trainees had been engaged by Government departments and private sector.
- (c) ***International Urban Forestry Conferences (IUFC)*** - to keep local practitioners abreast of the latest international best practices, research and development and technical advances in urban forest management and to provide a platform for the sharing of

⁴ Five types of tree management personnel include arborists, tree risk assessors, tree work supervisors, tree climbers and chainsaw operators.

⁵ The registration is valid for 3 years. For renewal, the tree management personnel require a minimum of 1.5 years in-service records in the immediate past 3 years before expiry of the current registration and records of compliance of the requirements on continuing education in arboriculture during the same period.

experience and expertise in tree management and conservation work among government authorities, professional bodies, academics and practitioners. In the second edition of the IUFC held in 2022, a Greater Bay Area session was also arranged to manifest our concerted effort in building more liveable cities in the southern part of the Mainland China.

- (d) ***Public Education and Promotion Campaign*** - to enhance public appreciation of trees and understanding of proper tree care and raise youngsters' interest in arboriculture through continuous public education and promotion activities. Different activities such as training workshops, roving exhibitions, advertorials, publications and advertisements are adopted to raise public awareness and appreciation of landscape and trees.

**Key Observations from the Review
and Recommendations on Enhancement Measures**

DEVB has thoroughly considered the review conducted by the Task Force which focuses on the current mechanism and practices of tree risk assessment, including inspection, recording, reporting and implementation of necessary follow-up actions, as well as existing technical circulars and guidelines on roadside tree planting with particular regard to the assessment of suitability and sustainability of large roadside trees.

Key Observations

2. It is noted that, in general, departments have been conducting the tree maintenance and tree risk assessment according to the established system and guidelines, and for new projects, following the space provision for tree planting and tree selection guidelines. That said, having reviewed the past tree failure incidents as well as evaluated experience from tree maintenance departments, it is observed that the following may occur at times during the tree management work –

- (a) there were gaps between inspection results on tree conditions and the proposed mitigation measures, e.g. defects identified on a tree were not followed up with corresponding mitigation actions;
- (b) inconsistency between tree assessment observations and risk rating, e.g. a tree was observed to have poor health/ structure but its risk was rated as ‘low’;
- (c) inadequate reference was made to conditions of other trees of the same species in the same area to check anomaly;
- (d) equipment has not been used to assist further assessment when anomaly was identified; and
- (e) some existing roadside trees are currently under unfavourable growing conditions. They, despite not posing immediate risk, might no longer be suitable for its current site or sustainable in the long run.

3. The review also shows that some trees planted in the past might have reached a matured stage and become no longer suitable for the current site or sustainable in the long run. For instance, pioneer exotic species planted on slopes for greening and slope stabilization, e.g. *Acacia* species, have served the purpose of slope greening and soil erosion prevention for many decades but they have reached a senescent stage with declining health and structure. They require progressive replacement to prevent failure and enhance biodiversity and sustainability. Moreover, as Hong Kong has experienced very rapid development in the past decades with major changes in the urban footprints, some roadside trees planted around half a century ago have experienced many changes in respect of its adjacent growing environment, such as eventual construction of new structures and roads/ infrastructure, repaving and laying of utilities. Such development has affected the suitability of the tree for the site and its long-term sustainability.

4. While new standards have been promulgated since 2012 requiring the provision of minimum roadside greening zone for new projects, some roadside trees are currently under unfavourable growing conditions. These conditions include, but not limited to:

- (a) *space below ground* – Planting space in Hong Kong is seriously constrained by competing functional requirements such as need for utilities laying and allowing pedestrians flow and other uses. For older districts in the urban areas, many roadside trees are found in tree pits or rings instead of in open soil or continuous planting strips;
- (b) *space above ground* – Roadside trees are more prone to damage by adjacent vehicular and pedestrian use; and conflict with buildings/ structure and signboards may lead to severe pruning. Structures close to tree canopy may limit the available space for tree growth thus forcing trees to lean in order to get space, or grow tall and slender in order to gain sunlight;
- (c) *microclimate* - roadside trees are exposed to urban heat island effect, emission from vents or pipes, strong gust in wind tunnel, insufficient sunlight due to blockage by adjacent structures, and

drought due to impermeable paving;

- (d) *physical damage* - vandalism and other physical damage of trees are not uncommon; construction and other works nearby might cause physical injury to trees and in some cases improper cutting of tree roots;
- (e) *change in level* - some trees existed before the adjacent development. Subsequent grade changes as a result of development in form of raising or lowering of levels around the trees adversely affect the health and stability of trees.

Recommendations on Enhancement measures

5. Having regard to the key observations above, we propose the following enhancement in tree risk assessment and roadside tree planting.

Recommendation (1) – making clear the line of command concerning tree management

6. The TMO of DEVB co-ordinates departmental tree management work at the policy level, through an ‘integrated approach’ under which departments responsible for maintaining the government facilities or land allocated to them are responsible for taking care of the trees thereon in accordance with the requirements and guidelines promulgated by the DEVB. DEVB as the central authority on policies related to the greening, landscape and tree management in government, is supported by nine core-tree maintenance departments and other departments on the implementation and execution of the tree related policies and initiatives. To ensure these policies and initiatives are properly implemented and to make clear the line of command, it is recommended to strengthen the accountability of heads of the core tree management departments by including tree management as part of their duty list and allowing Permanent Secretary of Works of DEVB to comment on their performance in this respect during their annual appraisal.

Recommendation (2) – Expanding the scope of ‘tree basis’ risk assessment

7. Noting that some tree failures involve relatively large trees growing at locations with stress, **it is proposed** to expand the scope of ‘tree basis’ risk assessment to cover additionally trees with a diameter at breast height (DBH) at 500 mm or above; or with overall height at 9 m or above; and are growing in confined areas, i.e. in tree pits or tree rings, or in unstable formation. This would help ensure that trees with potential high risk can be identified early. With the proposed expansion, not only Old and Valuable Trees, stonewall trees and trees over 750mm DBH would be covered by ‘tree basis’ risk assessment irrespective of whether they are confirmed with brown root rot disease. The number of trees to be covered by individual tree inspection is expected to increase by around 5 times. We target to implement the above change in the 2023 TRAM cycle.

Recommendation (3) – Arranging periodic inspections for trees along village roads on unleased and unallocated Government land

8. At present, Lands Department (LandsD) will carry out ad-hoc tree maintenance work on unleased and unallocated Government land (UUGL) not covered by other departments when the need is identified or upon receipt of a complaint/ referral. Since the UUGL constitutes about one-third of the land area in Hong Kong and there is no detailed record or statistics on the number of tree thereon, it would not be feasible for LandsD to conduct annual inspection on all trees on UUGL. To strengthen maintenance of trees on UUGL, **it is recommended** that LandsD should proactively arrange periodic inspections for trees on UUGL on a risk-based approach by focusing on those along village roads with high pedestrian and/or vehicular flow. Having regard to the resources implications, some villages will be selected for inspection each year with a view to completing each cycle of inspection in a few years’ time.

Recommendation (4) – Enhancing implementation of risk mitigation measures

9. When a tree is identified as having health and/or structural problems, it is essential to work out appropriate mitigation measures to

suitably reduce tree failure risk by specifying clearly the scope, nature and timeline of actions to be taken. While the existing guidelines already set out the respective time frame for completing appropriate mitigation measure, e.g. removal of dead trees or non-OVTs confirmed with brown root rot disease should be done no longer than four weeks, it is pertinent to have a robust mechanism to monitor and ensure timely implementation of necessary tree works and the quality of works. **It is recommended** that departments should put in place, by mid-2023, internal procedure to alert senior management of delay in timely completion of necessary risk mitigation work. A streamlined procedure to facilitate timely implementation of temporary traffic arrangement is also proposed to enable efficient conduct of tree works.

Recommendation (5) – Enhancing reporting of tree failure cases and stepping up auditing of tree risk assessment reports

10. Data on past tree failure incidents is useful in understanding the causes of failure for preventing recurrence and devising appropriate response. To enhance the quality of reporting on tree failure incidents, **it is recommended** to improve the format of the tree failure reports by focusing on the provision of important and essential information. Moreover, departments will be required to submit the reports through a common digital platform as soon as practicable for serious/ significant incident and within a week for other incidents. The digital forms are targeted to be updated by mid-2023.

11. Audit contributes to better quality control over the tree inspection work. It helps identify anomalies in tree inspection work and provide the management a clear picture of the quality of tree inspection work from an external and independent viewpoint. **It is recommended** to maintain the existing audit ratio, i.e. 10% of all inspection forms to be audited by departments using in house resources or outsourced, and another 5% of all forms submitted by departments to be audited by TMO annually, while the number of tree-basis risk assessment inspection forms to be audited in upcoming TRAM cycle is expected to increase substantially, from previous years' around 1,000 to potentially 4,500 forms, due to the expanded scope of tree-basis risk assessment.

Recommendation (6) - More extensive use of technology in tree management

12. Review of past tree incidents shows that use of suitable aid or equipment could have been very useful in providing additional information to supplement visual inspection for assessing the risk level of trees more accurately. This is particularly so for internal decay which is often not visible from the outside and defects of trees at high level which is hard to inspect from ground level. That said, we should be mindful that the use of some equipment is intrusive in nature and may result in spread of decay and therefore their use should be exercised with care and selectively. **It is recommended** to update the TRAM guidelines to list out tree health issues which point to the use of suitable equipment and request the inspection officer to use the relevant equipment to aid tree inspection, e.g. when the tree vigor is low or crown leaf density is lower compared to those of same species nearby, resistograph or tomograph should be used to check internal decay in trunk/ root zone to find out the reason leading to the anomalies. **It is also recommended** to consider the case of extending the use of tilt sensors having regard to the findings of the trial which will be ending in 2024.

13. Technology in general has been evolving rapidly and is becoming more accessible and cost effective; and some may assist checking of roots conditions underground, internal decay, presence of pest/disease, and general health of trees and thereby enhance the quality of tree inspection work. **It is recommended** that TMO, with inputs from departments, should proactively identify emerging knowhow and make use of relevant funding, e.g. TechConnect, and cooperate with local institutions in trying out potential technology through research and pilots. **It is also proposed** that experience on the use and the latest development of technology applicable to tree management should continue to be shared amongst tree maintenance departments through coordination by the TMO.

Recommendation (7) - Replacement of senescent pioneer species

14. Data of some past tree failure cases revealed that some pioneer species planted in the past, e.g. *Acacia*, gradually reached their senescent stage with deteriorating structure and health, thus posing a threat to public

safety. The exotic pioneer species also disrupts the natural ecosystems by displacing native flora and fauna. The programmes by some departments in proactively replacing the senescent pioneer species have considerably reduced risk and also offered an opportunity to plant native trees for enhancing biodiversity and sustainability.

15. **It is recommended** that TMO should coordinate with tree management departments to prioritize risk level of pioneer exotic species which have reached senescent stage and implement systematic enhancement measures or replacement programme for such species by native species starting from 2023 with a view to reducing risk and enhancing biodiversity and sustainability.

Recommendation (8) - Formulating new guidelines for minimum soil volume and soil depth for tree planting

16. With a view to enhancing the environment for sustainable tree growth, **it is recommended** to formulate new guidelines in 2023 on the requirements for minimum soil volume and soil depth provision for new tree planting, and to review the current guidelines/ requirements for space provision for roadside tree planting.

Recommendation (9) - Introducing suitability and sustainability assessment; devising suitable measures to improve site conditions or replacing trees no longer suitable for site in urban areas

17. Some trees which do not exhibit imminent risk at the moment of inspection may be prone to increasing threat in future, e.g. trees that have grown too large for confined locations; trees that have become unsuitable to its existing location due to changes and development in the surrounding environment. While the application of TRAM is effective in identifying trees with health and/or structural defect and mitigate imminent or foreseeable risk, there is a need to plan ahead to identify and devise treatment options to deal with trees that pose no immediate but potential risk in the longer term.

18. For devising longer term measures to address such potential risk, **it is recommended** to commission a study in 2023 to holistically review

the criteria for determining suitability and sustainability of roadside trees having regard to overseas experience, which may include but not limited to the tree's health and structural condition, stress level and potential problems, the adequacy of space for growth, conflict with structures or facilities, its amenity value offered in its location, the level of maintenance required, life-span of the tree species, etc.. The study will also develop a scoring system suitable for the local context based on the identified criteria. The scoring system will serve as a tool to assist the prioritization of large roadside trees that may require treatment in a systematic manner. Advice from both local and overseas experts from the Urban Forestry Advisory Panel will be sought during the course of the study. It is expected that preliminary recommendations on scoring system and criteria will be available in 2024.

19. The study will further identify existing roadside trees in locations of high pedestrian and vehicular flow with suitability and sustainability issues using the scoring system developed, and devise appropriate improvement measures/ treatment options for different scenarios, e.g. increasing the growing space and soil volume for roadside tree planting for existing sites. Where improvement measures are not practicable, criteria for replacement by suitable trees or shrubs or even removal without replacement would be drawn up. The final recommendations from the consultancy study, expected to be available in 2025 onwards, will become an effective management tool to facilitate the planning of the improvement measures and/or replacement planting of our roadside trees, to achieve sustainable greenery within our streets.

20. Pending the conclusion of the study, systematic tree risk assessment will continue to be conducted in accordance with the TRAM Guidelines. In case the health condition of any trees are found to have deteriorated, suitable mitigation measures will be implemented timely to address any imminent risks emerged.

Recommendation (10) – Building up capacity of tree management personnel

21. Having reviewed the manpower market and trend of increase in tree management personnel, manpower resources in the market is

considered adequate to cope with the workload relating tree risk assessment, mitigation measures and related work arising from the recommended enhancement measures.

22. Nevertheless, arboriculture and urban forestry are relatively new disciplines that require continuous support in building up the capacity of tree management personnel in both public and private sectors so as to sustain the healthy development of tree management work. The Government will review the Study Sponsorship Scheme and Trainee Programme under the Urban Forestry Support Fund to attract more new entrants to join this industry, and to encourage in-service practitioners to further advance their arboricultural knowledge and competence to ensure steady supply of quality workforce in the market.

23. Separately, GLTMS will increase the quota for tree management staff at frontline, supervisory and managerial level within government to receive qualification-award training from 50 to around 100 annually with focus on the tree risk assessment qualification related training. Vocational/topical training will also be enhanced with a view to keeping them abreast of latest knowledge and best practices in tree management.