Urban Forestry Advisory Panel
(Notes of the 1st Meeting)

Date and Time : 16 April 2021 (Thursday) at 2:30pm
Venue : Conference Room 7, G/F, Central Government Offices, Tamar

Present

Mr. Robin Lee Hong-nin	Chairperson (H/GLTMS, DEVB)
Ir. Chan Yun-cheung	Member
Mr. Kingsley Choi	Member
Mr. Evans Iu	Member
Dr. David Lau	Member
Dr. Billy Hau	Member
Prof. Anthony Leung	Member
Mr. Chiky Wong	Member
Prof. Leslie Chen, JP	Member (via video conferencing)
Prof. Chau Kwai-cheong, JP	Member (via video conferencing)
Mr. Patrick Lau, JP	Member (via video conferencing)
Dr. Wong Fook-yee	Member (via video conferencing)
Prof. Chu Lee-man	Member (via video conferencing)
Mr. John Ho	Member (via video conferencing)
Dr. Charles Wong	Member (via video conferencing)
Mr. Yiu Vor	Member (via video conferencing)
Mr. Kevin ECKERT	Member (via video conferencing at Hawaii, USA)
Ms. Florence Ko	Member (H/TMO, DEVB)
Mr. Eric Liu	Member (SConO(TS) (Ag.), AFCD)
Mr. Ryan Lin	Member (SLA/VM(S), HyD)
Mr. Sunny Lo	Member (SLA/TD&C), HD)
Mr. David Chaiong	Member (CLM(PA), LCSD)
Mr. Hsu Ka-man	Secretary (AS(TM)3, DEVB)
Ms. Paula Chan	Note-taker (TMO5, DEVB)

Absent with Apologies
Dr. Paul Barber
Mr. Ian Shears
Mr. Mark Duntemann

In Attendance

Ms. Vina Wong	H/GLO, DEVB

UFAP Paper No. 02/2021

Mr. Edmond Lam	AS(TM)1, DEVB
Dr. Charles Wong Man-sing	Associate Professor, The Hong Kong Polytechnic University (via video conferencing)
Mr. Felix Lam	Director, Infinite Geo-spatial Model (HK) Ltd.

UFAP Paper No. 03/2021

Mr. Hsu Ka-man	AS(TM)3, DEVB
Mr. Paul Chan	Director, Otherland Ltd.
Mr. James Wong Kwan-ho	Junior Research Assistant, Shiu-Ying Hu Herbarium, The Chinese University of Hong Kong

UFAP Paper No. 04/2021

Ms. Florence Ko Wan-yee	H/TMO

UFAP Paper No. 05/2021

Ms. Kathy Ng Tze-kwun	CLA, HyD (via video conferencing)
Mr. William Yau Wai-fu	SLA/VM(U&I), HyD (via video conferencing)

Action

1. <u>The Chairperson</u> welcomed Members to the 1st Urban Forestry Advisory Panel (UFAP) meeting of the 2021-2022 term, in particular new Members and those who attended the meeting via video conferencing.

Item 1 : Confirmation of the minutes of the last meeting

2. The minutes of the last meeting were confirmed without amendment.

Item 2: Use of Remote Sensing Technologies in Tree Management (UFAP Paper No. 02/2021)

3. <u>The Chairperson</u> invited AS(TM)1, and the Consultants, Dr. Charles Wong of The Hong Kong Polytechnic

University and Mr. Felix Lam of the Infinite Geo-spatial Model (HK) Ltd. to present the use of two remote sensing technologies in tree management, including (a) the use of multispectral images and 3D LiDAR models in monitoring the health conditions and structural stability of Old and Valuable Trees (OVTs) and Stonewall Trees (SWTs); and (b) the use of mobile mapping system (MMS) application for collection of tree information in selected Form 1 Sites.

4.   AS(TM)1 briefed Members on the objectives of using these two technologies, their project durations and the engagement of two consultancy services respectively for the two technologies. After that, Dr. Charles Wong introduced the pilot study on the use of multispectral images and 3D LiDAR models in monitoring the health conditions and structural stability of OVTs and SWTs, including analysis of multispectral images, airborne LiDAR (ALS) analysis and terrestrial LiDAR (TLS) analysis. Mr. Felix Lam then informed Members of his pilot study on the use of MMS application for collection of tree information, covering project description, data acquisition and data interpretation.

5.   A Member asked whether the study was a one-off exercise and involving a new technology for monitoring the OVTs and SWTs.

6.   Dr. Charles Wong responded that the remote sensing technology had been applied in other fields but it was firstly applied in the study to identify and monitor a tree. AS(TM)1 supplemented that one objective of this study was to make recommendations on further application of this remote sensing technology in tree management.

7.   A Member enquired for the accuracy of measurement of the tree parameters and whether the technology was applicable to numerous trees in a group.

8.   Dr. Charles Wong responded that the deviation of the measurement was up to centimeter level. The survey team would conduct actual field measurement for data validation. Primary tree parameters such as tree height, DBH and tree crown could be collected. However, it was difficult to extract secondary tree parameters such as total volume and branches data for a tree cluster due to the layers of overlapping. He

remarked that the target of this study was an individual and standalone OVT and SWT.

9.   <u>A Member</u> opined that the spectral readings might vary according to a number of variables like the solar orientation, the climate and the soil condition, which might change the leaf orientation, as a result, interfere with the reflection and spectral reading. He asked for any other compensation models to align these variations to ensure the accuracy of the evaluations.

10. <u>Dr. Charles Wong</u> responded that the weather and atmosphere would affect the spectral value. As such, lots of data in different months would be collected so as to identify days with similar atmospheric conditions for comparison. From the remote sensing point of view, correction could only be made for the atmosphere and solar angle, but not for the view angle. He added that a standard and recommendations for collecting the LiDAR data could be developed, taking into account the average result and the compensation on different situations.

11. <u>A Member</u> asked if the TLS scanning could supplement to the ALS scanning in order to give more comprehensive information.

12. <u>A Member</u> expressed that if the image was taken from the bird view, old leaves under young leaves in the lower canopy were not covered. He also raised concerns on the seasonal variation and the dust on the leaf surface that would affect the result. Moreover, he suggested using moisture index to reflect the tree damage caused by the Brown Root Rot Disease (BRRD) in a very late stage. He also wished to know any ground truth measurement for data validation.

13. <u>Dr. Charles Wong</u> responded that TLS could supplement ALS for information collection and seasonal variation effect was noted. He also agreed that remote sensing had limitation in capturing the bottom side of the canopy shielded by young leaves. He also informed that ground truth measurement would be conducted for data validation. He thanked Member's comments on BRRD, the moisture index in the canopy might be incorporated in the study as an early signal for monitoring.

14. A Member enquired whether the technology should be used solely by the research team for detecting the health situation of trees.

15. A Member asked whether the tree species with fall color and spring color would be treated differently in the study.

16. Dr. Charles Wong expressed that he welcomed others to use this technology for the goodwill in the community. Moreover, the research team also considered the seasonal change of some tree species in the study.

17. A Member asked the way to collect tree information on inaccessible slopes and multi-trunk trees.

18. AS(TM)1 responded that the 10 sites in the study included slopes, roadside areas, an estate and an garden. Drone would be used for collecting the tree information of inaccessible areas. Mr. Felix Lam supplemented that many multi-trunk trees were spotted in the sites and they would find out a reliable method to extract the tree crown data.

19. A Member commented that the MMS was helpful on tree survey along highways. He asked whether the MMS could identify the exact location of a particular tree to be preserved in a development site.

20. Another Member questioned about the site scanning time.

21. A Member opined that vegetation composition in country parks was very complicated and asked if secondary forests would be included in the study.

22. AS(TM)1 responded that a handheld imaging laser scanner under MMS could be used to create a 3D model and structural image of a particular tree which was proposed to be preserved. The site scanning time would vary according to the number of trees in the site. For a detailed analysis, several site scans might be required to get more point clouds information. Sites of country park selected mainly were in high usage and with human interference. Secondary forests were not included in the study.

23. A Member enquired about the differences of these two studies.

24.   AS(TM)1 responded that the use of multispectral images and 3D LiDAR models focused on monitoring health and structural stability of the individual OVT and SWT in long term, whereas the use of mobile mapping system was used to collect the tree location and primary tree information in a trees group so as to facilitate the field tree survey. It was targeted to derive a simple and fast screening method through the studies.

25.   The Chairperson thanked Members' comments and suggestions on the studies. He remarked that Members would be briefed on the findings and recommendations of the studies at a later stage.

Item 3: Update of Tree Labels with Quick Response Codes (UFAP Paper No. 03/2021)

26.   The Chairperson briefed that about 70 nos. of tree labels with quick response (QR) codes had been installed at the Central Ferry Piers in late March 2021. Displaying trees labels with QR codes aimed at bringing convenience to the public in reporting problematic trees, facilitating tree management and providing the educational information about trees. He invited AS(TM)3, Mr. Paul Chan of Otherland Limited (the Consultants) and Mr. James Wong of Shiu-Ying HU Herbarium (School of Life Sciences, the Chinese University of Hong Kong) to report on the progress of the project.

27.   AS(TM)3 briefed Members on the latest development of project, including trees being selected for installation of tree labels, the targeted completion schedule and the engagement of two consultancy services respectively for (a) design, supply and installation of tree labels with QR codes; and (b) provision of botanical descriptions to common tree species in Hong Kong. Mr. Paul Chan then informed Members of the tree label design, the webpage template and the tentative installation programme. Mr. James Wong subsequently shared his experience in preparing and recommending the botanical descriptions of 100 common tree species.

28.   A Member enquired on the maintenance responsibility of trees labels, their installation method and the future

arrangement for additional tree species with botanical descriptions.

29. A Member asked (a) whether trees labels would only be installed at both ends of a cluster of trees of the same species; (b) any plan to install trees labels in public parks; (c) how the public could access to the botanical descriptions; and (d) whether the botanical descriptions in Chinese version would be available. He also advised that botanical descriptions for 100 tree species seemed insufficient.

30. AS(TM)3 responded that the provision of trees labels mainly involved the Leisure and Cultural Service Department and the Housing Department. The Greening, Landscape and Tree Management Section (GLTMS) would be responsible for the replacement of the damaged or re-provision of the tree labels and spare parts for a certain period after installation. GLTMS were liaising with both departments on the future maintenance issues. A tree label would be fastened by a metallic spring which was catered for the increase of trunk diameter. He added that botanical descriptions in both English and Chinese versions would be provided for the 100 selected tree species which covered about 95 % of the roadside tree species or the tree species in public estates accessible by the public. However, GLTMS would review and consider providing additional tree species with botanical descriptions. Since the tree labels would facilitate identification of a particular tree, each tree of the project would be assigned an individual tree ID number on the tree label. In this project, GLTMS would focus on roadside trees and trees in public estates. Should other departments wish to install tree labels with QR codes for trees under their management, GLTMS would provide assistance whenever necessary.

31. SLA(TD&C) supplemented that only trees accessible by the public and within a detectable distance for the scanning of QR code in the estate would be selected for installation of tree labels. He shared experience that loss of existing tree labels in public estates was always spotted and replenishment of the tree labels should be anticipated.

32. A Member appreciated installation of tree labels with QR codes that provided botanical descriptions for educational purposes. He suggested introducing tree labels to the

schools, educational institutes and private sector.

33. A Member enquired about the copyright of the botanical descriptions and suggested to encourage schools, private sectors to install the tree labels linking to the botanical descriptions prepared in this project.

34. The Chairperson informed that Government possessed the copyright of botanical descriptions generated in this project. It was targeted to complete the installation of 200 000 tree labels in early 2022. GLTMS would inform schools and private sectors about the installation of tree labels.

35. A Member informed that the scientific name on the tree label did not include the author name, which did not meet the International Code of Nomenclature.

36. AS(TM)3 responded that a simplified name was presented on the tree label instead of the full scientific name for easy understanding.

37. A Member was concerned about the durability of the material used for tree labels and installation of wrong tree labels with QR codes by unknowledgeable personnel under the project.

38. Mr. Paul Chan responded that the acrylic and the stainless steel spring selected were durable and common for outdoor use. AS(TM)3 supplemented that the consultant equipped with professional knowledge in landscape was responsible for monitoring installation of the tree labels under this project.

39. The Chairperson thanked Members' suggestions and supplemented that departments would help verify the correctness of tree labels installed.

Item 4: Tree Failure Risk in Hong Kong (UFAP Paper No. 04/2021)

40. The Chairperson invited H/TMO to present the paper of "Tree Failure Risk in Hong Kong".

41.   H/TMO briefed Members on (i) the benchmarking of the average annual fatality rate arising from tree failures in Hong Kong with those elsewhere and comparison with the average annual fatality rate arising from traffic accidents in Hong Kong, (ii) the sources of tree failure risk in Hong Kong, and (iii) the proposed recommendations on the management of the tree failure risk.

42.   Members commented that the population of each species should be taken into account in identifying relatively high hazard species.

43.   A Member commented that the findings were valuable for scholars and practitioners, but some information like high hazard and high risk tree species should be treated with caution as the observations were not conclusive.

44.   Members appreciated GLTMS's initiative in conducting the systematic tree failure analysis and sharing the key findings with them.

45.   The Chairperson thanked a Member who shared with the GLTMS the information on the recent fatal incident in Singapore. He remarked that the tree failure risk analysis was conducted using the data in the tree failure inventory kept by the GLTMS. High hazard and high risk tree species were identified on a relative basis and should not be taken as absolute and conclusive.

46.   A Member suggested including a pest and disease factor in the tree failure analysis.

47.   H/TMO clarified that the population of tree species had been considered in the analysis as exemplified in the failure rates in identifying relatively high hazard species. She thanked Members' suggestions and would review the methodology of the analysis upon collation of adequate and relevant tree failure information.

48.   A Member expressed that the analysis had been carried out mainly based on the data as reported in the tree failure reports submitted by departments. Noting that departments had not been able to provide all the data as required in the tree failure reports, he suggested reviewing the existing tree failure report to focus on the essential and relevant

information only. He also opined that the findings might give some insights for departments to review their maintenance strategies.

49. <u>A Member</u> recommended inclusion of biomechanics and soil volume in the tree failure analysis. The scientific and engineering approach could assist GLTMS in formulating precautionary measures against tree failures. He quoted an example that pruning practices to reduce wind load imposed on trees might be assessed by using a wind tunnel.

50. <u>A Member</u> suggested inclusion of environmental and site factors in the tree failure risk analysis, and commissioning a consultancy study to collect high quality data related to tree failure incidents and undertaking a systematic tree failure analysis.

51. <u>H/TMO</u> responded that the current tree failure report required departments to provide comprehensive information of the tree failure case. However, the interpretation of the form varied among different users which might affect the collection on essential data. Training for personnel of departments on proper collection of tree failure data could be arranged if necessary.

52. <u>The Chairperson</u> thanked Members' suggestions and comments, and advised that GLTMS would continue to collect tree failure data from departments and carry out analysis of these data. He supplemented that GLTMS had commissioned the "Street Ecology Study Stage II", which studied on the urban tree growing environment. Key findings would be shared with Members in due course.

Item 5 : Preservation of Old and Valuable Tree No. HYD CW/1 (UFAP Paper No. 05/2021)

53. <u>The Chairperson</u> advised that HyD had recently made a great effort in preserving the BRRD infected OVT at Hospital Road. He invited HyD to share their experience with Members in this case.

54. <u>CLA/HyD</u> briefed Members on the background of the BRRD infected OVT, their risk assessment, preparation of the maintenance plan in consultation with tree experts, the

key consideration in preserving the OVT, the root survey for BRRD spreading, the detailed public engagement programme, and the mitigating measures.

55.   A Member appreciated HyD's effort on preserving the OVT and commented that cost effectiveness should also be considered for preserving urban trees.

56.   A Member expressed that HyD had demonstrated a very good example on urban tree preservation and the associated public engagement and recommended sharing this case with other departments.

57.   A Member noted that the tree support system was a temporary arrangement and suggested crowd reduction and guiding the aerial roots to the soil to provide additional support.

58.   A Member complimented HyD's effort on preserving the OVT and suggested making reference to the maintenance of another OVT located at Parklane which had recovered well.

59.   SLA/VM(U&I) responded that pruning to reduce the height and spreading of the canopy was arranged.   Only few aerial roots from the OVT were observed.

60.   CLA/HyD added that factors including the tree health and appearance of the OVT, its structural condition and the cost effectiveness had been considered in formulating the details of preservation works. She advised that the tree support system would be maintained for a while. As the wet season was coming, HyD would closely monitor the condition of OVT and would take prompt actions deem necessary to protect the tree and the public.

61.   The Chairperson thanked HyD for their experience sharing and Members' positive response and comments.   He advised Members that HyD had also shared the experience gained in this case to other departments. He remarked that GLTMS aimed to preserve OVTs and stonewall trees as far as practicable, but the details of tree preservation work should be formulated on a case by case basis.   Should any removal of OVT was proposed, GLTMS would bring to Members for consideration and comment according to the established practice.

Item 6   : Any Other Business

62.   <u>A Member</u> suggested using the LiDAR technology to study pest infestation, for example, assessing the crown damage caused by *Phauda flammans* in *Ficus* species.

63.   <u>The Chairperson</u> welcomed Member's suggestion. There being no other business, the meeting was adjourned at 6 pm.

Greening, Landscape and Tree Management Section
Development Bureau
June 2021