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Urban Forestry Advisory Panel (2023-24)
(Notes of the 2nd Meeting)

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Date and Time: 2 November 2023 (Thursday) at 10:00 am
Venue: Conference Room 1, G/F, Central Government Offices, Tamar

Present

Miss Kathy NG	Chairperson (H/GLTMS, DEVB)
Mr. Paul CHAN	Member (via video conferencing)
Prof. Wendy CHEN	Member
Prof. CHU Lee-man	Member
Mr. Kevin ECKERT	Member (via video conferencing at USA)
Dr. Billy HAU	Member
Dr. SHI Shulin	Member (via video conferencing at Beijing)
Mr. Ken SO	Member
Mr. Chiky WONG	Member
Prof. Charles WONG	Member (via video conferencing)
Mr. YIU Vor	Member
Mr. Ryan LIN	Member (H/TMO, DEVB)
Mr. Eric LIU	Member (SConO(TS), AFCD)
Miss Eva LEE	Member (CLA, HyD)
Mr. Michael YIP	Member (LA5, HD)
Miss Annie FUNG	Member (CLM(PA), LCSD)
Mr. HSU Ka-man	Secretary (AS(TM)3, DEVB)
Mr. KUN Chong-meng	Note-taker (TMO5, DEVB)

Absent with apologies

Prof. CHAU Kwai-cheong, JP	Member
Prof. Leslie CHEN, JP	Member
Dr. DONG Hui	Member
Mr. Hincent NG	Member
Mr. John HO	Member
Prof. Anthony LEUNG	Member

In Attendance

Ms. Vina WONG	H(GLO), DEVB

UFAP Paper No. 05/2023

Mr. Nelson SO	TMO4, DEVB

UFAP Paper No. 06/2023
Prof. Frank LEE   PTeC, PolyU
Dr. Ben LEU   PTeC, PolyU
Dr. ZHUANG Hui-chuan   PTeC, PolyU
Miss Jenny WONG   PTeC, PolyU
Mr. Peter LAM   SLA/VM(U&Is), HyD

UFAP Paper No. 07/2023
(i)   Dr. Eric CHAN   SForO/TMG, ArchSD
        Ms. ENG Pui Yan Rosanna   LA/TMG, ArchSD

(ii)   Mr. Peter LAM   SLA/VM(U&Is), HyD
        Mr. Jacky SHUM   LA/VM(HK)1, HyD

UFAP Paper No. 08/2023
Mr. Isaac SO   AS(GL)1, DEVB

Action

1.   The Chairperson welcomed Members to the second meeting of Urban Forestry Advisory Panel ("UFAP") 2023-2024.

Item 1 : Confirmation of the notes of the last meeting

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

Item 2: Update on Consultancy Study on Occurrence and Distribution of Pests and Diseases on Urban Trees in Hong Kong (UFAP Paper No. 05/2023)

3.   The Chairperson invited H/TMO and TMO4, to introduce the consultancy study.

4.   H/TMO, DEVB informed the members that the Consultancy Study on Occurrence and Distribution of Pests and Diseases on Urban Trees in Hong Kong was initiated in September 2019 and was then presented at the UFAP meeting held on 15 January 2020. However, due to the outbreak of COVID-19 in early 2020, the Study was

temporarily suspended until 2023. The Consultancy Study targeted to collect information on pests and diseases on urban trees in Hong Kong; understand their impacts; recommend the control, diagnosis, prevention and management strategies; and provide information (pictorial guide) on the research findings for future publications.

5.   <u>TMO4, DEVB</u> briefed Members on the progress of the Consultancy Study carried out by the Guangdong Institute of Zoology, Guangdong Academy of Sciences. Key activities included a trial field study and two surveys conducted between April and June, as well as August and October. The surveys covered eight major parks and various sections of roads throughout the territory. The final report, expected to be completed in Q2 2024, would provide information on the occurrence and geographic distribution of the identified common pests and diseases on urban trees in Hong Kong.

6.   <u>A Member</u> appreciated the study's significance but suggested narrowing its scope due to time constraints and focusing on problematic pests within budget limitations. He emphasized the importance of addressing exotic species, as local species have already adapted to the environment. He recommended a future stage of the study to focus on specific cases of exotic species or pests and provide corresponding recommendations.

7.   <u>A Member</u> agreed with the comments and raised concerns about the absence of a phenology study in the consultancy as understanding the timing and relationship between pests and their hosts would be important. He also expressed concerns about the definition of "harmful agent". He suggested focusing on producing a pictorial guide for common pests instead of guidelines.

8.   <u>A Member</u> appreciated the study's purpose. He sought clarification on soil-related pest sampling methods and whether the figures presented represented total pests or species recorded. He recommended prioritizing actions based on study outcomes and establishing communication networks with Mainland professionals. He recommended future study to address these aspects.

9.   A Member inquired about the selection of the surveying route for the study and suggested comparing findings with that of natural settings. She recommended including desktop or experimental research to explore the possibility of plant communities supporting each other against pests and diseases, alongside pest control measures.

10.   TMO4, DEVB explained that using the term "harmful agents" did not imply direct health problems. The study aimed to identify potential issues that could affect trees. The research team would conduct desktop research, suggest mitigation measures, and prioritize specific pest problems based on observations. The survey route and period would generate some baseline information.

11.   H/TMO, DEVB supplemented that the study was a preliminary exploration of pests and diseases in Hong Kong and the management plan, in view of the limited previous studies. He appreciated the comments and would consider future studies.

12.   A Member supported the purpose of the baseline study and suggested considering pest abundance. She emphasized the importance of frequency and abundance observations to understand pest impact. She suggested implementing a continuous monitoring scheme to explore the relationship between pests, diseases, and tree vulnerability in the future.

13.   A Member proposed using the term "potentially harmful species" instead of "harmful species" at this stage of the study.

14.   In response to a Member's enquiry on literature review, TMO4, DEVB responded that the research team studied available literature from both Mainland and Hong Kong which would be included in the report.

15.   The Chairperson appreciated the comments and encouraged ongoing communication with Members. She acknowledged the study as the beginning of a broader exploration of the topic.

Item 3: Application of E-nose-base Technique in Detecting Brown Root Rot Disease (UFAP Paper No. 06/2023)

16.   Prof. Frank LEE, PolyU presented the E-nose application for Brown Root Rot Disease (BRRD) detection, which consisted of two phases and only the summary of key findings of the second phase was presented in the meeting.

17.   SLA/VM(U&Is), HyD supplemented that more E-nose samples for machine learning would be gathered by using the calibrated E-nose device provided by PTeC PolyU in future so as to enhance the detection accuracy. SLA/VM(U&Is), HyD thanked LCSD and ArchSD for facilitating sample collection of BRRD infected trees in the study. CLA, HyD added that HyD staff would be attending the training provided by PTeC PolyU to use the E-nose device on-site.

18.   A Member appreciated the study's potential in aiding early detection of BRRD. He inquired about the E-nose's ability to identify different stages of BRRD. He asked about the lower detection accuracy for certain tree species and the reasons behind it.

19.   Prof. Frank LEE, PolyU explained that the study covered trees ranging from healthy to confirmed BRRD cases, and comparing the results with PCR tests. The research faced challenges related to factors such as wind speed, species, insect activity, soil, temperature, humidity, and steepness of slope. Once a tree was infected with BRRD, the VOCs concentration would increase over time. The preliminary screen provided initial data, but for more accurate results, PCR testing would be necessary.

20.   CLA, HyD added that the E-nose test could be considered the rapid test for detecting BRRD in trees, similar to the RAT test for COVID for screening.

21.   Dr. Ben LEU, PolyU further elaborated that a large database and long-term observation would be necessary for quantitative analysis. Limited sampling of certain tree species hindered conclusive findings in the present database. This aspect would be proposed for the next stage.

22. A Member expressed appreciation for the presentation and the initiative taken by HyD for the research. He inquired about the kind of samples used to train the computer or sensor to identify BRRD-related trees and the status of samples (tree stump of live specimen) and how to determine the correct VOCs to be used in the test.

23. Prof. Frank LEE, PolyU replied that different trees emit different VOCs, and they studied various tree species, scanning and analyzing over 400 tree samples, including healthy and BRRD-affected, to gather their VOC data. Those data were analyzed using various methods, such as linear discriminant, principal component, and neighborhood components. Among these methods, neighborhood components analysis achieved the highest efficiency.

24. Dr. Ben LEU, PolyU added by comparing the smell of uninfected and infected samples, the research team gathered sufficient data for the machine to identify the critical VOC data to confirm infection. Both E-nose and PCR testing were conducted on these samples, contributing the findings as shown in the presentation.

25. CLA, HyD supplemented that out of the 400 tree samples in the study, many were taken from HyD slopes with confirmed BRRD cases and in the vicinity of trees which had a history of BRRD. HyD also sought assistance from other departments to obtain confirmed BRRD samples.

26. A Member inquired about the development of the E-nose and whether it is possible to include other *Phellinus* species, in addition to *Phellinus noxius*, to enhance their training and improve the accuracy of the device's detection capabilities.

27. Prof. Frank LEE, PolyU responded that their future direction involved enhancing the E-nose by including more *Phellinus* species and expanding the sensor capacity to cover more VOCs, aiming for increased sensitivity and detection capabilities.

28. The Chairperson expressed gratitude to HyD and the

research team, looking forward to further developments and the extensive utilization of other techniques for BRRD detection and management.

Item 4: Report on the Conditions of Old and Valuable Trees
(i) Maintained by Architectural Services Department (OVT No. ARCHSD KWT/4 and)
(ii) Maintained by Highways Department (OVT No. HYD CW/1)
(UFAP Paper No. 07/2023)

(i) Maintained by Architectural Services Department (OVT No. ARCHSD KWT/4)

29. SForO/TMG, ArchsD provided an update on the (Old and Valuable Tree) OVT at Lions College, Kwai Chung.   The OVT was a *Ficus altissima* infected with BRRD since 2016. Dieback and mycelium crust were observed over the years, but recent foliage density improvement was noted. Resistograph tests conducted in March 2023 revealed good wood strength in most parts, including the trunk, surface roots, and aerial roots. Two roots showed signs of decay, but the overall wood resistance remained stable as indicated by the results of resistograph. Despite poor health, the tree was deemed stable with extensive aerial roots anchoring on ground. Crown cleaning and reduction would be carried out to mitigate risk, while ongoing monitoring would include resistograph test and LiDAR remote sensing.

30. A Member appreciated the decision being based on the tree's actual and updated condition. Considering the tree's reliance on its leaves for photosynthesis, the member recommended assessing the necessity of crown reduction. He also stressed the importance of the control of spread of disease.

31. In response to the question on the criteria on the selection of trees to be presented in UFAP, the Chairperson explained that the trees presented in the meeting were chosen based on their significance as OVT and potential concerns regarding their health and structure. She suggested departments sharing with UFAP their efforts in

tree preservation and management, seeking input from members before trees reached a critical state.

32. A Member suggested adding more information, e.g. soil fungus levels, signs of infection, and the persistence of the fungus within trees in the tree assessment for consideration.

33. SForO/TMG, ArchsD responded that further laboratory tests were not conducted after confirming BRRD infection in 2016. Continuous presence of mycelium crust and symptoms were observed. Crown cleaning would be performed, while the extent of crown reduction would be further considered with the arborists of the contractor. Trenches were made near the tree to reduce the potential spread of disease, and ongoing monitoring of other trees on the slope was assured. No new infections were reported within the past three years.

34. A Member supported the recommendation for crown reduction to reduce end weight and wind load. He suggested considering strategies to encourage new growth from the lower part of the crown to compensate for the loss of leaves and branches after crown reduction.

35. The Chairperson suggested it may be beneficial for creating a 3D image of trees. She recommended ArchSD to seek information from HyD's team on the 3D imaging as more accurate data could assist the monitoring on the overall condition of the tree.

(ii)   Maintained by Highways Department (OVT No. HYD CW/1)

36. LA/VM(HK)1, HyD provided an update on a *Ficus microcarpa* tree situated on stonewall feature between Bonham Road and Hospital Road with infected BRRD since February 2019. Pruning was conducted in December 2020, March 2021, April 2022 and March 2023, and a supportive cabling system installed in April 2021. Its aerial root growth was limited. Signs of decay were found at the base, and new cracks worsened after the super typhoon on 1 September 2023. Displacement monitoring indicated downward movement and leaning towards Hospital Road.

Resistograph tests revealed some areas of concern in the prop roots. To address these issues, a significant crown reduction was performed on 28 September 2023 from the other side of Bonham Road to reduce wind load and tree mass.

37. The Chairperson observed that HyD's engineering team had assisted in placing the concrete blocks and emphasized the need to assess the robustness of the concrete block and cable support system. It is noted that the tree relied heavily on cables and concrete blocks for support, yet significant movement was still observed in measurement points. A Member also inquired about measuring the tension of the cables.

38. SLA/VM(U&Is) and LA/VM(HK)1, HyD's responded that:
    a. the tree was connected and supported by cobra cables, but movement was still observed.
    b. HyD was arranging to measure the tension of the cables and expressed concerns about the structural integrity of the supporting elements in relation to the increasing weight.
    c. No abnormality of movement was observed on the majority of monitoring point on the stone wall.

39. A Member was invited by HyD for visiting the tree in late August before the crown reduction. He concluded that the tree was heavily reliant on the support system. He noticed slight deformation of the steel structure itself and recommended assessing the support system's resilience in extreme weather and considering a longer-term plan for crown size reduction, subject to the effectiveness of the support system.

40. A Member noticed similar displacement in those trees along Hospital Road after Typhoon Saola and inquired about the frequency of measurements taken. He emphasized the need to consider the impact of the typhoon and also asked if there were monitoring points on the concrete block on Bonham Road and whether any movement was detected there. The member also supported the proposal of crown reduction.

41. SLA/VM(U&Is), HyD confirmed that both readings were taken after Typhoon Saola and measurements were conducted bi-weekly and would consider conducting crown reduction based on the Member's advice.

42. The Chairperson emphasized the significance of the engineer's advice in assessing the tree's stability before the rainy season and the steer from HyD's senior management level would be essential regarding the multidisciplinary efforts required for the case. Continuous monitoring including mapping of cracks would be necessary. HyD was reminded to engage stakeholders including District Council members, local communities and NGOs.

43. CLA, HyD responded that HyD's senior management including DHy was fully aware of the tree's condition and appropriate actions were being taken.

44. LA/VM(HK)1, HyD informed that District Councilors were notified on the tree pruning works, and notices were posted to inform the public about the recent crown reduction.

Item 5: Update on Consultancy Study on Suitability and Sustainability of Roadside Trees (UFAP Paper No. 08/2023)

45. AS(GL)1, DEVB presented the Consultancy Study on the Suitability and Sustainability (S&S) of Roadside Trees. The Consultant team consists of experts in landscape architecture, urban forestry, civil engineering, and arboriculture. Commenced in August 2023, the Consultancy Study included conducting desktop research on experiences of other cities, devising assessment criteria, developing a scoring system suitable for the local context for prioritizing treatment of large roadside trees and providing recommendations for improvement measures and treatment options.

46. A Member suggested including cities with similar climate for the desktop study such as Taipei and Singapore.

47. A Member suggested considering appropriate tree species and referencing cities such as Guangzhou and Shenzhen, as

Hong Kong has distinct tree species compared to Western countries.

48. <u>A Member</u> expressed concern about the adequacy of using only 60 samples for the study and suggested, considering the sample size to ensure its appropriateness.

49. <u>H/GLO, DEVB</u> explained that the 60-tree sample size was to establish and validate the proposed scoring system. She acknowledged the importance of on-site validation and hoped to confirm the effectiveness of their recommendations through this process.

50. <u>A Member</u> was doubtful about the availability of similar scoring systems worldwide and the difficulty in finding a comparable benchmark. He emphasized the importance of addressing soil conditions and suggested utilizing replanting opportunities after a typhoon for efficient tree management, highlighting its significance for S&S assessments.

51. <u>A Member</u> suggested considering compact cities like Japan and South Korea, known for their tree management expertise, in addition to regions with similar climates. She also recommended including the keyword "street tree" in research for valuable insights and research output.

52. <u>The Chairperson</u> supplemented that the report to the meeting was primarily a progress update, intended to inform Members about the current status of the project. City selection was not solely based on similarity in geographical location but also relevance in comparable studies on urban forestry strategies and replacement plans. Melbourne and Sheffield were selected as case studies for their overall strategy and tree replacement plan respectively.

Item 6: Any Other Business

53. <u>H/GLO, DEVB</u> announced the upcoming International Urban Forestry Conference (IUFC) from 10-12 April 2024. More information would be provided in due course.

54.	A Member raised two questions. Firstly, he inquired that in view of extreme hot weather plans from the Bureau/GLTMS to address the issue through tree planting on vacant lands and increasing canopy coverage on road pavements. He suggested relaxing conditions for temporary land usage to encourage tree planting. Secondly, he enquired about addition to the OVT register and recommended improving quality of photos on the website.

55.	The Chairperson explained combating climate change was a topic that required concerted efforts of many government departments, and also non-government parties and the general public. The government, in particular EEB had been coordinating among government bureaus and departments and non-government parties and the public to actively working against climate change. Hong Kong was endowed with over 3/4 of land being vegetated and development concentrated in high density on 1/4 of the land as such urban greening had to compete for space with other priorities. Nevertheless, guidelines and regulations for urban greening were in place to govern the quality and quantity of greening, even before the establishment of GLTMS, including planting work of vacant lots. For details of Short Term Tenancy arrangement, LandsD would be the appropriate party to consider suggestions raised. OVT register updates were ongoing, and GLTMS was engaging with relevant departments on this matter. There have been addition to the OVTs from time to time.

56.	A Member recommended prioritizing urban plants' ecosystem services over traditional greening efforts. He emphasized the cooling effect of tree canopies for improving micro-climates and suggested studying their impact on pavements.

57.	The Chairperson explained that Environment and Conservation Fund (ECF) and other funding sources had sponsored numerous research on urban greenery in various aspects apart from various studies by research institutes; and new areas for research would be welcome.

58.	SConO(TS), AFCD added that ECF provided funding

support for climate change initiatives. Currently, their focus was on nature-based solutions aimed at cooling down the city and improving climate change resilience. He believed new research areas would be welcomed by ECF.

59. The Chairperson took the opportunity to express gratitude to Mr. HSU Ka-man, AS(TM)3 who would commence pre-retirement leave on 11 November 2023.

60. The Chairperson thanked Members valuable comments. The meeting was adjourned at 12:45 pm. The next meeting was to be confirmed.

Greening, Landscape and Tree Management Section
Development Bureau
February 2024