

## **Minutes of the 4<sup>th</sup> Urban Forestry Advisory Panel (UFAP) Meeting**

Date : 8 November 2018

Time : 9:30 am

Venue : Communal Conference Room 1, G/F, Central Government Offices

### **ATTENDANCE**

#### **Chairperson**

Miss Janet WONG	Head of Greening, Landscape and Tree Management Section	Development Bureau (DEVB) (Works)
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#### **Members**

Prof. CHAU Kwai-cheong	Soil Scientist	The Chinese University of Hong Kong
Mr. Kingsley CHOI Lim-cho	Horticulturalist	
Mr. Kevin ECKERT	Urban Arborist	ArborGlobal
Dr. Billy HAU Chi-hang	Ecologist	The University of Hong Kong
Mr. Evans IU Po-lung	Landscape Architect	
Mr. Patrick LAU Hing-tat	Landscape Architect	EarthAsia
Dr. WONG Fook-yee	Ecologist	
Mr. David CHAIONG	Chief Leisure Manager (Passive Amenities)	Leisure and Cultural Services Department
Ms. Winnie KWOK	Senior Conservation Officer (Technical Services)	Agriculture, Fisheries and Conservation Department (AFCD)
Mr. Perry TO	Senior Landscape Architect/Vegetation Maintenance (Special)	Highways Department (HyD)

#### **Via Skype**

Dr. Paul BARBER	Forest Pathologist	ArborCarbon
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**Secretary**

Ms. Olivia CHEUNG	Assistant Secretary (Tree Management) <sup>3</sup>	DEVB (Works)
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**IN ATTENDANCE**

Ms. Vina WONG	Head of Greening and Landscape Office (H/GLO)	DEVB (Works)
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Dr. Samuel LAM	Stand-in for Head of Tree Management Office	DEVB (Works)
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Ir. Herman SHIU	Contract Senior Geotechnical Engineer (Special Duties)	DEVB (Works)
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Mr. Allen CHEUNG	Landscape Architect (Greening and Landscape) <sup>2</sup>	DEVB (Works)
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Mr. HSU Ka-man	Tree Management Officer <sup>5</sup>	DEVB (Works)
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Ms. Sandy TONG	Senior Landscape Architect/Vegetation Maintenance (New Territories)	HyD
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Dr. Alvin TANG	Consultant	Hong Kong Baptist University
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**ABSENT WITH APOLOGIES**

Dr. Philip CANNON	Forest Pathologist
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Ir. CHAN Yun-cheung	Geotechnical Engineer
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Ms. Cecilia CHEUNG So-mui	Urban Forestry Manager
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Mr. Mark DUNTEMANN	Tree Risk Manager
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Prof. Cecil KONIJNENDIJK	Scholar
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Dr. David LAU Tai-wai	Botanist
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Mr. Frank RINN	Urban Arborist
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Mr. Ian SHEARS	Urban Forestry Manager
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Prof. XING Fu-wu	Horticulturalist
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Prof. ZHANG Qi-xiang	Horticulturalist
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## Discussion Items

## Action

### **1. Opening Remarks**

- 1.1 The Chairperson welcomed all to the meeting, and advised Members that Ms. Deborah KUH, the ex-Head of Greening, Landscape and Tree Management Section, had resigned in October 2018 while she would take up the post of Head of Greening, Landscape and Tree Management Section (H/GLTMS) in the interim until further notice.

### **2. Confirmation of the Minutes of the Last Meeting Held on 27 April 2018**

- 2.1 The minutes of the last meeting were confirmed without amendment.

### **3. Tree Failure Analysis (UFAP Paper No. 05/2018)**

- 3.1 Contract Senior Geotechnical Engineer (Special Duties) (CSGE(SD)) briefed Members on the findings of the analysis of non-typhoon related tree failures in 2017 and 2018 (up to August) and those arising from post-Mangkhut inspections.
- 3.2 A Member asked if parameters such as species characteristics, age, form, structure, growth rate, population, soil and spacing of the fallen or damaged trees had been analysed. CSGE(SD) responded that owing to the constraints with time and manpower resources, such information had not been collected and analysed in the exercise.
- 3.3 A Member shared his observations that many Eucalyptus (i.e. *Eucalyptus citriodora*), which had a high Crown Height to Diameter at Breast Height (DBH) ratio, were densely planted along San Tin Highways. Since their trunks were tall and thin, they were more susceptible to damage or failure during strong winds that would in turn affect road users along San Tin Highways every now and then. He further suggested that fast-growing or pioneer tree species should not be selected for planting in urban areas. Apart from tree species, factors such as tree growth characteristics, mature size, species diversity, environmental conditions, etc. should also be considered when planning planting work. In addition, in order to allow the healthy growth of trees, proper post-planting care, including fertilising and thinning, should not be overlooked.

## Action

- 3.4 A Member raised the following questions regarding the analysis results:
- how to determine the chance of survival of a tree;
  - how to tackle the residual risk; and
  - whether the Greening, Landscape and Tree Management Section (GLTMS) would share the tree failure database to arborists.
- 3.5 CSGE(SD) advised that the chance of survival of the trees concerned was assessed by experienced Field Officers based on the extent of damage. As a matter of fact, strong winds during previous typhoons might have already weakened the root plate stability, caused trunk and branch damage, and induced stress to these trees. To safeguard public safety, prompt tree inspections followed by the implementation of appropriate mitigation measures were recommended. As to the sharing of the tree failure database, CSGE(SD) commented that it was premature to do so as the existing database was newly built up without sufficient quality data and information yet. Upon collation of more tree failure data in future typhoons, the database could become more comprehensive and might be suitable for sharing with interested parties then.
- 3.6 The Member remarked that based on his experience, tree species was only one of the many factors associated with tree failures during typhoons while other factors, such as health and structural conditions of trees, soil properties, etc., were also relevant.
- 3.7 Another Member pointed out that *Garcinia subelliptica* (菲島福木) shown on Slide No. 47 might be mis-identified as *Elaeodendron orientale* (福木), which was rarely found in Hong Kong. Another Member suspected that the tree species mentioned in Slide No. 16 should be *Eucalyptus camaldulensis* (赤桉) instead of *Eucalyptus citriodora* (檸檬桉). CSGE(SD) acknowledged the points made by the two Members and agreed to verify the tree species after the meeting.

[Post-meeting notes: *Elaeodendron orientale* (福木) shown on Slide No. 47 has been revised to *Garcinia subelliptica* (菲島福木), while the tree species on Slide No. 16 has been confirmed as originally stated, i.e. *Eucalyptus citriodora* (檸檬桉).]

## Action

- 3.8 In response to a Member's suggestion on using Tree Risk Assessment records to streamline the process of collecting tree failure data, CSGE(SD) confirmed that basic tree information, such as tree species, size, etc., available in the Tree Management Information System had been used to facilitate the on-site measurements.
- 3.9 A Member opined that the comprehensive tree failure database was a useful reference for tree management departments to formulate precautionary measures to minimise tree failures in the future, in particular before typhoons. Another Member echoed this point and suggested that the information in the tree failure database should be considered when planning planting works at Kai Tak and West Kowloon Cultural District.
- 3.10 A Member asked if comparison on tree failure patterns between trees in the country parks and urban parks, as well as native and exotic tree species had been made in the analysis. CSGE(SD) responded that no such data was collected during the inspections. The GLTMS would carefully review the tree failure data and consolidate all the information collected to form a report for reference of the tree management departments. GLTMS
- 3.11 A Member noticed that there was a sharp increase of tree failures when the gust wind speed was above 200 km/hr. He asked if any inspection had been conducted in parks apart from the Tamar Park. CSGE(SD) responded that the Tamar Park was an example used in the presentation to explain the inspection methodology. A total of 10 urban parks across the territory had been inspected.
- 3.12 The Member further asked how many sensors were installed to collect information during Typhoon Mangkhut. Another Member, who was responsible for the sensor project funded by the Hong Kong Jockey Club (HKJC), responded that about several dozens of sensors had been installed at one selected site in the New Territories before the typhoon and the data from these sensors would be analysed under the HKJC Project.

## Action

- 3.13 The Chairperson thanked CSGE(SD) for his efforts and Members' inputs and suggestions. She highlighted that the presented analysis was the output of the GLTMS' first attempt to better understand the commonalities of tree failures, with reference to some past tree failure incidents and the post-mortem inspections after Typhoon Mangkhut. More comprehensive and detailed analyses, upon collection of more data of the kind in future, would be required before any solid conclusions could be drawn. She further pointed out that although a large number of trees were lost after the passage of Typhoon Mangkhut, it provided an opportunity for government departments to re-plant suitable tree species to replenish the lost stock. In this connection, the GLTMS would release the Street Tree Selection Guide (the Guide) by the end of 2018. The Guide would feature tree species that were resilient to wind, heat, drought, flood, pests and diseases, etc., and hence suitable for urban street environments. Besides, professional advice from tree experts and the principle of "Right Tree Right Place" would be duly followed in the coming replanting exercise with a view to achieving a sustainable, healthy and resilient streetscape while minimising tree decline and failure at the same time.
- 3.14 A Member asked if a sharing session on the tree failure analysis could be arranged for landscaping contractors and practitioners, including those working in Macao and Shenzhen. The Chairperson responded that the GLTMS would arrange a discussion forum with contractors in December 2018 when the relevant information would be shared. She also indicated that it was a good suggestion to share the information with nearby cities and the GLTMS would follow up in due course. GLTMS

## **4. Use of Technology in Tree Management (UFAP Paper No. 06/2018)**

- 4.1 CSGE(SD) briefed Members on the following technologies that were being put to pilot use in tree management:
- Smart sensors for tree risk management;
  - QR codes to facilitate identification of problematic trees and provision of educational information; and
  - Other technologies including drone, infrared camera, optical fibre sensors for tree inspection, tree health monitoring and tree movement monitoring respectively.

## **Action**

- 4.2 A Member asked about the format of the QR code that would be displayed on a tree label. CSGE(SD) responded that the QR code would be displayed at a corner of a tree label on which other basic tree information would also be provided.
- 4.3 In response to a Member's queries about the operation of the smart sensors, CSGE(SD) explained that the sensors were used to monitor movement and stability of trees while another Member, who was responsible for the HKJC Project, supplemented that the sensors would monitor the tilt angle of the trees and would alert the management team to undertake inspection and assessment when the sustained tilt angle exceeded a certain threshold value.
- 4.4 Regarding the use of a surveillance device, Senior Conservation Officer (Technical Services) of AFCD shared AFCD's experience in using the remote electronic device for monitoring illegal harvesting of Incense Trees. Upon detection of human activities, the device would send captured pictures instantly to a designated mobile device or an e-mail account so that timely operations or follow-up actions could be arranged as necessary.
- 4.5 On the use of infrared camera, a Member commented that based on his own experience, there was a weak correlation between decay and thermal infrared imagery, as surface temperature, shade and temperature fluctuation might also affect the result. He said that qualified arborists should be able to detect cavity inside a trunk based on Mallet Sounding. CSGE(SD) indicated that the GLTMS was aware of the limitations of the technology, which was explored to be a supplementary tool to support a more systematic and analytical framework to enhance the effectiveness and efficiency of tree risk assessment.
- 4.6 The Member further asked about the purposes of using drone in tree management. CSGE(SD) clarified that the drone would be used to assist inspection of defects at tree crown level. Besides, the drone could be equipped with a multi-spectral camera to take images of tree canopy for tree health monitoring.

## Action

### **5. Investigation Report for 130 Dead Pine Trees along Tolo Highway (UFAP Paper No. 07/2018)**

- 5.1 Senior Landscape Architect/Vegetation Maintenance (New Territories)/ Highway Department (SLA/VM(NT)/HyD) and their Consultant (i.e. Hong Kong Baptist University) briefed Members on the findings of their investigation on the death of 130 numbers of pine trees along Tolo Highways and treatment recommendations for the dead trees.
- 5.2 A Member observed that pathogenic fungi were detected in the two pine trees (i.e. T1 and T3) only and asked how to interpret the results. The Consultant responded that they had collected some live specimens from T1 and T3 for the fungal test while dead specimens from other pine trees had been used to test the presence of pathogenic fungi. Since the dead specimens could have been left on site for some time, the conventional culture method might not be able to isolate pathogenic fungi in the process of fungi identification.
- 5.3 A Member raised the following questions:
- whether there was any difference in the planting pattern between the control site and the infested site;
  - whether pathogens could be isolated from soil and the root tissue of the infested pines;
  - whether humidity of the site was measured; and
  - whether other insect pests could be found on site.
- 5.4 The Consultant responded that there was no significant difference in the planting pattern between the control site and infested site. The fungal test revealed that no other pathogenic fungi were found in the soil and root specimens from both the control and infested sites. Besides, the laboratory test of the physico-chemical properties of the soil samples from the infested site revealed that all tested parameters were within a normal range and poisonous substances were not detected. The humidity of the site was not measured, but would be supplemented and incorporated in the report in due course. The Consultant further pointed out that based on the information provided by HyD, it was confirmed that no vector of the Pine Nematode Disease was found.



## **Action**

- 5.5 A Member asked whether any pest and disease control measure, such as application of fungicides, was applied to control the disease. The Consultant explained that it was difficult to prove the potential dispersal pathway. The emergence of the pathogenic fungal was probably due to the stressed environment and the weakened host plants. To prevent potential spread of the disease, the Consultant recommended removing all dead pine trees, and disinfecting and disposing of all infested plant materials. The Consultant also recommended monitoring of the healthy pine trees nearby regularly and pruning of any shoots once symptoms of dieback were detected.
- 5.6 The Chairperson asked whether any mal-practice was found in the pruning work, and what lessons had been learnt from this case to prevent reoccurrence of similar incidents in future. SLA/VM(NT)/HyD advised that no pruning work for the pine trees had been conducted recently. The Consultant supplemented that the frontline workers should be alerted and requested to give a timely report to their management staff when signs of sudden wilting or death of pine trees were detected.
- 5.7 A Member asked whether there was a need to remove the remaining pine trees nearby. The Consultant considered that removal of all infested pine trees would be sufficient to isolate the pathogenic fungi. SLA/VM(NT)/HyD supplemented that there was no sign of infestation in the remaining pine trees, and HyD would closely monitor these pine trees.
- 5.8 A Member raised the following questions:
- whether the method for nematode analysis was acceptable;
  - whether the vector of Pine Nematode was found in the investigation;
  - what was the stress level triggering pathogenicity of the fungi; and
  - what was the spreading mechanism of the pathogenic fungi.

## Action

- 5.9 The Consultant replied that the investigator for the nematode analysis was an experienced nematologist with 15 years of relevant experience in the Southern China, and the method adopted in this investigation was a standard method in nematode analysis. He confirmed that no vector of Pine Nematode Disease was found in the investigation. Although many scientific literatures had reported the two pathogenic fungi, the vector of the fungi was seldom reported. Besides, the stress level that triggered the disease was not known. He believed that the emergence of the fungal disease was probably due to a combination of factors, including harsh site conditions (such as prolonged drought, high temperature, poor soil nutrients, etc.), stressed or weakened host plants and presence of endophytes inside the plant tissues. The mechanism of fungal invasion was unclear as the pathogens were asexual fungi.
- 5.10 A Member echoed that stress, such as prolonged drought, could be the primary cause, whereas the pathogens could only be the secondary cause.
- 5.11 The Chairperson concluded that based on the information collected from the investigation conducted by HyD, the rapid decline of the pine trees was unlikely associated with pine wood nematodes as no vector of the Pine Nematode Disease was found. The cause of the death of the pine trees was probably due to the attack by the two pathogenic fungi *Sphaeropsis sapinea* (Sphaeropsis Tip Blight) and *Lasiodiplodia theobromae* (Diplodia Rot). Prolonged drought and high temperature in the early 2018 might also be possible factors leading to the death of the tree stands which were then attacked by the pathogenic fungi. The Chairperson thanked HyD and its Consultant's report and asked HyD to continue monitoring the remaining pine trees on site.
- 6. Street Tree Selection Guide (UFAP Paper No. 08/2018)**
- 6.1 The Chairperson updated Members on the compilation of the Guide, which would serve to improve the resilience of our urban forests by expanding species diversity, to improve ecological health, and to minimise tree risks. The GLTMS would release the Guide by the end of 2018 to provide guidance for tree management departments on the selection of suitable tree species for different street types in Hong Kong and departments' replanting programmes to replenish the lost tree stock due to Typhoon Mangkhut

## Action

- 6.2 A Member asked if landscape design submissions by Landscape Architect (LA) consultants to government were required to follow the Guide when preparing landscaping and planting proposals. The Chairperson responded that the LA consultants were required to follow the guiding principle of “Right Tree Right Place” to select suitable species, taking into account the growing environment as well as their characteristics and maintenance requirements to ensure sustainable and healthy tree growth. They would be advised to draw reference to the Guide when preparing the landscaping and planting proposals. The H/GLO added that the species featured in the Guide would be strongly recommended in the future planting designs, although it would not be a compulsory requirement.
- 6.3 Landscape Architect (Greening and Landscape)<sup>2</sup> supplemented that each tree species included in the Guide would come with a set of user-friendly datasheet containing illustrations and detailed information of the species to facilitate systematic consideration and review of the site specific factors in the street tree selection process. After all, departments would need to exercise their professional judgement to select appropriate locations for the tree species.
- 6.4 A Member commented that the Government should ensure a stable supply of the species mentioned in the Guide. Another Member also worried that some species might not be available in the market. The H/GLO informed that the GLTMS was also aware of this issue, and hence would soon commission another study to explore measures to tackle this issue, such as sourcing commercial supply of the mentioned species in the Southern China.
- 6.5 A Member echoed that it was important to ensure a stable supply of the named species in the market to support different planting programmes. Another Member suggested that Hong Kong should cooperate with the nurseries in Guangdong, especially those in Shenzhen, to propagate and supply the tree seedlings required for the planting programmes.
- 6.6 The Chairperson thanked Members for their suggestions and responded that the H/GLO had already paid a visit to Guangdong. The project was only a start and took time to complete.

## **Action**

### **7. Any Other Business**

- 7.1 A Member asked about the progress of Form 1 and Form 2 enhancement. The Chairperson responded that the GLMTS had invited tree management departments and their contractors to participate in a trial run on the revised Form 1 and Form 2. Their comments and feedbacks were under review at the moment. It was expected that the new forms would be put to formal use in 2019.
- 7.2 In view that the Meeting was the last meeting of this term, on behalf of the GLTMS, the Chairperson expressed her sincere thanks to all Members for their remarkable contributions, valuable comments and great support to the development of urban forestry in Hong Kong.
- 7.3 There being no other business, the meeting adjourned at 12:45 pm.

**Greening, Landscape and Tree Management Section  
Development Bureau  
March 2019**