

**Confirmed Minutes of the 239th Meeting
of the Advisory Council on the Environment (ACE)
held on 6 January 2020 at 2:30 pm**

Present:

Mr Stanley WONG, SBS, JP (Chairman)
Prof Nora TAM, BBS, JP (Deputy Chairman)
Ms Sylvia CHAN, MH
Ir Cary CHAN, JP
Ir Samantha KONG
Mr Adam KOO
Miss LAM Chung-yan
Prof LAU Chi-pang, JP
Dr Michael LAU
Dr Winnie LAW
Prof Kenneth LEUNG, JP
Ir Prof Irene LO, JP
Mr Simon WONG, JP
Prof WONG Sze-chun, BBS, JP
Mr Owin FUNG (Secretary)

Absent with Apologies:

Ms Carmen CHAN, BBS, JP
Ms Julia LAU
Prof Albert LEE
Mr Andrew LEE
Ir MA Lee-tak, SBS
Dr SUNG Yik-hei
Ms Christina TANG
Ir Conrad WONG, BBS, JP

In Attendance:

Ms Maggie CHIN	Assistant Director of Planning / Technical Services (Acting), Planning Department (PlanD)
Ms Fanny HUI	Chief Information Officer, Environmental Protection Department (EPD)
Ms Becky LAM	Chief Executive Officer (CBD), EPD
Miss Dora CHU	Executive Officer (CBD) 1, EPD

Miss Carman LEUNG

Executive Officer (CBD) 2, EPD

In Attendance for Item 3:

Mr TSE Chin-wan, BBS, JP

Under Secretary for the Environment, Environment Bureau (ENB)

Mr Dave HO, JP

Assistant Director (Air Policy), EPD

Mr Brian LAU

Principal Environmental Protection Officer (Air Policy), EPD

Dr Kenneth LEUNG

Principal Environmental Protection Officer (Air Science), EPD

Action

The Chairman started the meeting by wishing Members a prosperous and healthy 2020 and hoping that Hong Kong would soon restore its peace and order. He informed Members that apologies of absence had been received from Ms Carmen Chan, Ms Julia Lau, Prof Albert Lee, Mr Andrew Lee, Ir Ma Lee-tak, Dr Sung Yik-hei, Ms Christina Tang and Ir Conrad Wong.

Item 1 : Confirmation of the draft minutes of the 238th meeting held on 11 November 2019 (Closed-door session)

2. The draft minutes were confirmed without amendments.

Item 2 : Matters arising (Closed-door session)

3. There were no matters arising from the minutes of the last meeting.

Item 3 : Proposal for Updating the Air Quality Objectives (ACE Papers 1/2020 and 2/2020)

4. The Chairman informed Members that *ACE Paper 1/2020* briefed Members on the key findings of the public consultation on the review of the Air Quality Objectives (AQOs) and sought Members' views on the final recommendations and way forward to update the AQOs. A background note on the subject matter, i.e. *ACE Paper 2/2020*, prepared by the Secretariat had been circulated to Members for reference before the meeting.

5. There was no declaration of interest by Members.

[The presentation team joined the meeting at this juncture.]

Presentation cum Question-and-Answer Session (Open session)

6. Mr Tse Chin-wan gave an opening remark, and with the aid of a powerpoint presentation, Mr Brian Lau briefed Members on the background of the review of AQOs, key findings of the public consultation and final recommendations to tighten AQOs.

Tightening the 24-hour AQO of PM_{2.5}

Rationale of the proposed tightening the 24-hour AQO of PM_{2.5}

7. Noting that about one-fourth of submissions during the consultation period had reservation or opposed to increasing the allowable exceedances of the 24-hour AQO of fine particulate matters (FSP or PM_{2.5}) from nine to 35, a Member suggested that the Government should project the concentration of PM_{2.5} and the number of exceedances over a timeline and establish milestones along the timeline with regard to the existing and planned measures to better illustrate the overall air quality improvement in Hong Kong. He, with the support of the Chairman and another Member, considered that a trend showing a decreasing concentration of PM_{2.5} and number of exceedances could alleviate public concerns that the proposed increase in the number of allowable exceedances would counteract the proposed tightening of the concentration limit. The Chairman pointed out that Members had raised similar concerns regarding the adjustment when the subject matter was discussed at the ACE meeting on 4 March 2019.

8. Mr Tse Chin-wan agreed that the provision of the relevant projections could help both the public and Legislative Council (LegCo) members better understand the rationale of tightening the 24-hour AQO of PM_{2.5} when the amendment bill submitted to the LegCo in due course. He explained that the concentrations of nitrogen dioxide (NO₂), PM_{2.5} and respirable suspended particulates (RSP or PM₁₀) had decreased by about one-third over the past five years and more than 50% over the past 10 years. The number of hours of reduced

visibility from 1,570 hours in 2004 to 475 hours in 2019 recorded by the Hong Kong Observatory also demonstrated that the regional photochemical smog problem had been greatly alleviated. He further advised that according to the 2025 air quality modelling results, there would be continuous improvement in the ambient PM_{2.5} concentration level in 2025.

9. Four Members pointed out that the proposed tightening of the concentration level of the 24-hour AQO of PM_{2.5} while increasing the number of allowable exceedances would arouse public concerns on whether the new target was more lenient than the prevailing AQO and whether the overall air quality would improve.

10. Dr Kenneth Leung advised that a statistical analysis on the idealised log-normal distribution of 24-hour average PM_{2.5} concentration based on the prevailing AQOs (annual concentration level at 35µg/m³, 24-hour concentration level at 75µg/m³ and allowable number of exceedances at nine) and new AQOs (annual concentration level at 25µg/m³, 24-hour concentration level at 50µg/m³ and allowable number of exceedances at 35) of PM_{2.5} had been conducted. Dr Leung advised that the distribution of the 24-hour average PM_{2.5} concentration based on the new AQOs skewed more to the lower concentration when compared with that of the prevailing AQOs, denoting a significant improvement in the daily averaged PM_{2.5} concentration. Furthermore, the number of days with the 24-hour average PM_{2.5} concentration below 50µg/m³ was 330 for the distribution based on the new AQO, whereas only 309 days were noted in the distribution based on the prevailing AQO. This further demonstrated that the air quality meeting the new AQOs would be of better quality than that complying with the current AQOs, hence the new AQOs were scientifically more stringent than the prevailing one.

11. In reply to a Member's enquiry regarding the assumption of the statistical distribution of air pollutant concentration, Mr Dave Ho advised that the frequency distribution of air pollutant concentration was generally in the form of log-normal distribution which was widely adopted in air pollution studies worldwide.

12. In response to a Member's enquiry about the projected number of exceedances of the prevailing 24-hour AQO of PM_{2.5} which was set at the World Health Organisation (WHO) Interim Target-1 (IT-1) level of 75µg/m³, Mr Dave Ho explained that the highest number of exceedance of the prevailing 24-hour AQO of

PM_{2.5} recorded by the air quality monitoring network was 11 in 2015, and it would decrease to eight in 2025 based on the 2025 air quality modelling results because of the improvement in the annual average concentration of PM_{2.5}.

13. A Member opined that the projected number of exceedances at both the prevailing and new AQOs should be highlighted to assure the public that there would not be any deterioration in the overall air quality subsequently under the proposed tightening of the 24-hour AQO for PM_{2.5}.

14. As regards a Member's enquiry on whether it was possible to maintain the number of allowable exceedances at nine while adjusting downward the concentration level for the 24-hour AQO of PM_{2.5}, Dr Kenneth Leung explained that the suggestion could be done theoretically, however the downward adjustment would be very small. Moreover, the concentration levels at 75µg/m³ and 50µg/m³ respectively were set according to the interim targets of the WHO with no in-between values.

15. A Member asked whether it was feasible to tighten the number of allowable exceedances to eight times while maintaining the 24-hour PM_{2.5} concentration limit at 75µg/m³. Mr Tse Chin-wan advised that with an annual average PM_{2.5} concentration at only 21µg/m³, Hong Kong would be able to meet the new annual PM_{2.5} AQO which was set at WHO's Interim Target-2 (IT-2) level. He considered that maintaining the prevailing 24-hour PM_{2.5} AQO at the IT-1 level would give a negative impression on Hong Kong's determination in tackling air pollution and the progress for meeting the ultimate targets of the WHO Air Quality Guidelines (AQGs). It would be more appropriate to tighten the 24-hour AQO of PM_{2.5} to the IT-2 level given that it was more stringent and consistent with the principle of progressively tightening the AQOs towards the ultimate goal WHO AQGs. He added that the AQOs of most of the other air pollutants had already been tightened to the IT-2 level or even the ultimate targets set by WHO.

16. In response to a Member's question regarding the 30 exceedances under the new 24-hour AQO of PM_{2.5} during the period between 2011 and 2017 as shown in the powerpoint presentation, Mr Tse Chin-wan explained that this was the count of the number of EPD's General Air Quality Monitoring Stations in Hong Kong of which the recorded air quality data would have exceeded the new 24-hour AQO of PM_{2.5} during the period. Mr Dave Ho supplemented that this figure was quoted to

show that the new AQO was scientifically more stringent than the prevailing one, given that there were only 17 exceedance counts under the prevailing 24-hour AQO of PM_{2.5} between 2011 and 2017. Given that the relationship between the concentration level of an AQO and its number of allowable exceedance entailed complex scientific and statistical analysis, he considered that such information could help enhance public's understanding on the rationale of tightening the 24-hour AQO of PM_{2.5}.

17. Noting that the projected highest number of allowable exceedances of the new 24-hour AQO of PM_{2.5} in 2025 was 33, a Member asked whether there was any scientific basis for setting the allowable exceedances at 35. Three Members considered that it would be more scientific to set the allowable number of exceedances at a specific percentile of the distribution of the air pollutant concentration. Dr Kenneth Leung and Mr Dave Ho explained respectively that WHO AQGs recommended setting a suitable number of allowable exceedances to exclude the exceedances owing to uncontrollable circumstances, like extreme weather and regional air pollution influence. The projected highest number of exceedances against new 24-hour AQO of PM_{2.5} at 33 was mainly due to the regional influence under unfavourable weather conditions. The setting of the number of allowable exceedances at 35 was to allow for air pollution impacts caused by local emission sources on top of the regional influence. Mr Ho supplemented that the European Union adopted the same number of exceedances in setting the 24-hour air quality standard of PM₁₀ based on the same principle.

18. Given that there could still be queries about whether the proposed new 24-hour AQO for PM_{2.5}, which had a tighter concentration limit but a higher number of allowable exceedance, would be more stringent than the prevailing one, a Member asked whether it was feasible to adopt two sets of objectives, i.e. setting the number of allowable exceedance for both IT-1 and IT-2 levels. Dr Kenneth Leung explained that the AQOs served as a benchmark for consideration of designated projects under the Environmental Impact Assessment Ordinance (EIAO), it might have legal implications to adopt two sets of objectives simultaneously in the assessment. As regards a Member's suggestion on devising a separate set of AQOs for designated projects under the EIAO, Mr Tse Chin-wan explained that this was not legally viable under the prevailing legislation.

19. Four Members opined that the log-normal distribution of 24-hour average

PM_{2.5} concentration should be provided to public to enhance their understanding about the relative stringency between the prevailing and new AQOs. Two Members further suggested reviewing and exploring better ways to present to the general public and LegCo members such that they could understand the implications behind the complex statistical analysis.

20. A Member suggested and two Members supported that the data on the health benefits arising from the tightening of the AQO, for instance, reductions in the number of premature deaths and hospital admissions, should also be published. The Chairman noted that the findings of the Health and Economic Impact Assessment (HEIA) had been promulgated in the public consultation document, which summarised the anticipated health and economic benefits to Hong Kong brought about by the improvement in the overall air quality.

21. Remarking that different audiences might have different perceptions towards different presentation approaches, Mr Tse Chin-wan thanked Members for their comments and suggestions and said that the subject team would review and explore different ways of presenting the analysis so as to enhance public understanding.

Pearl River Delta (PRD) Regional influences

22. Given that the local PM_{2.5} concentration was greatly subject to Pearl River Delta (PRD) regional influences, a Member opined that information regarding the progress of the mainland China, especially the Guangdong Province, on improving the air quality should be provided.

23. Mr Tse Chin-wan responded that the Hong Kong SAR Government had been long collaborating with the Guangdong Provincial Government to jointly implemented measures to reduce emissions from various major air pollution sources including power plants, factories and motor vehicles in the region. As a result, most of the major air pollutants in the region had been substantially reduced over the years. The PRD was the first region in the country to achieve an annual average PM_{2.5} level of below 35µg/m³. He mentioned the Outline Development Plan of the Guangdong-Hong Kong-Macao Greater Bay Area was drawn up to strengthen coordinated efforts to further improve the air quality in the region in the coming years.

Possible scope for tightening the AQOs for O₃ and PM₁₀

24. Noting that there was no proposal to tighten the AQOs for ozone (O₃) and PM₁₀, a Member was concerned that there might be little driving force for the public and private sectors to cut down emissions from relevant sources to reduce the concentrations of these pollutants. In response, Mr Tse Chin-wan advised that while there had been improvements, the air quality modelling assessment results projected that annual concentrations of PM₁₀ in most parts of Hong Kong would still exceed the next higher IT level, i.e. IT-3, in 2025. As for O₃, Mr Tse explained that O₃ was not directly emitted from air pollution sources but was formed by photochemical reactions amongst different air pollutants in the atmosphere which were emitted from many different pollution sources in the region, and its concentration would only decrease when the concentration of its precursors including oxides of nitrogen and volatile organic compounds decrease. With the continual efforts taken by the GD Provincial Government in tackling air pollution, he anticipated that the local concentration of O₃ would peak shortly and begin to drop in the foreseeable future. The Government would continue to work closely with the GD Provincial Government to improve regional air quality and explore opportunities to further tighten the relevant AQOs in the next review.

Conclusion

25. The Chairman thanked the subject team of EPD for their presentation. He summarised the views of Members and concluded that Members were generally supportive of the progressive tightening of the AQOs towards the ultimate goal of the WHO AQGs for protecting public health.

[The presentation team left the meeting at this juncture.]

Internal Discussion Session (Closed-door session)

26. The Chairman summarised the concerns raised by Members during the discussion and considered that a clear presentation could help the public better understand the rationale behind in setting the proposed new AQOs, in particular the 24-hour AQO for PM_{2.5}.

27. A Member shared another Member's concern that under the proposal, the number of allowable exceedances in 24-hour AQO of PM_{2.5} was 35, higher than the existing number of allowable exceedances in 24-hour AQO of PM_{2.5} at 9, despite that the concentration level was tightened from 75µg/m³ to 50µg/m³. As such, they considered that there might be a possibility that the air quality in the short period of time could deteriorate as a result of tightening of the relevant AQO.

28. While pointing out that monitoring data showed that past exceedances rarely reached a level beyond 90µg/m³, a Member concurred with another Member's viewpoint that the air quality could deteriorate subsequent to tightening the relevant AQO. She was also concerned about the difficulty for the public to understand that the setting of the number of allowable exceedances for the proposed 24-hour AQO for PM_{2.5} at 35 with a lower concentration level (i.e. 50µg/m³) was indeed a tighter AQO than the number of allowable exceedances at 9 for the existing AQO with a higher concentration level (i.e. 75µg/m³).

Item 4 : Any other business (Closed-door session)

29. There was no other business for discussion at the meeting.

Item 5 : Date of next meeting (Closed-door session)

30. The next ACE meeting was scheduled for 3 February 2020 (Monday). Members would be advised on the agenda in due course.

[Post meeting note: As there was no proposed item for discussion at the ACE meeting, the meetings scheduled for 3 February, 2 March and 6 April 2020 were cancelled. The next ACE meeting is scheduled for 11 May 2020.]

ACE Secretariat

May 2020