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Panel on Environmental Affairs

Meeting on 25 June 2018

**Background brief on the Indoor Air Quality Management Programme
prepared by the Legislative Council Secretariat**

Purpose

This paper provides background information on the Indoor Air Quality ("IAQ") Management Programme. It also gives a brief account of the major views and concerns expressed by Members when related issues were discussed by the relevant committees of the Legislative Council.

Background

Indoor Air Quality Management Programme

2. The Administration implemented the IAQ Management Programme in 2000 to raise public awareness of the importance of good IAQ and to promote ways to improve IAQ. The IAQ Management Programme includes:

- (a) public education and publicity campaigns;
- (b) IAQ Certification Scheme for Offices and Public Places ("Certification Scheme"); and
- (c) IAQ for public transport facilities.

Public education and publicity campaign

3. The IAQ Information Centre was set up in January 2001 to promote good IAQ to the public by displaying IAQ-friendly products and technologies as well as disseminating relevant information and reference materials. It also organizes educational and publicity activities to enhance public awareness of the importance of IAQ.

4. In September 2003, the Administration published the Guidance Notes for the Management of Indoor Air Quality in Offices and Public Places ("the Guidance Notes"). The Guidance Notes provides comprehensive guidelines for the total management of IAQ and covers a range of issues including ventilation, scientific assessment and communication strategies. The Guidance Notes was designed to enable owners/management of premises/buildings to prevent and successfully manage most of the common IAQ problems encountered in premises/buildings in Hong Kong.

Indoor Air Quality Certification Scheme for Offices and Public Places

5. Launched in September 2003, the Certification Scheme aims to recognize good IAQ management practices and provide incentives for owners of premises/buildings or property management companies to pursue the best level of IAQ. Key features of the Certification Scheme include:

- (a) a two-level IAQ objective (namely, Excellent Class and Good Class) as the benchmark to assess IAQ of premises/buildings; and
- (b) a voluntary and self-regulatory approach for annual certification.

Buildings or totally enclosed areas for use as offices or public places which are served by mechanical ventilation and air-conditioning systems may join the Certification Scheme.¹ The current IAQ objectives for offices and public places under the Certification Scheme are in **Appendix I**.

¹ Public places are defined as "any theatre, place of public entertainment of any kind, or other place of general resort, admission to which is obtained by payment or to which the public have or are permitted to have access".

Indoor air quality for public transport facilities

6. To provide guidance on how to ensure the maintenance of better air quality inside public transport facilities, the Administration has issued Practice Notes for Managing Air Quality in Air-Conditioned Public Transport Facilities covering buses, railways and ferries.²

Major views and concerns expressed by Members

7. The Panel on Environmental Affairs ("the Panel") was briefed on the IAQ Management Programme at its meeting on 28 November 2005. Questions related to IAQ were raised at the policy briefing-cum-meeting of the Panel on 30 October 2017, and during examination of the Estimates of Expenditures in 2017-2018 and 2018-2019. Major views and concerns expressed by Members on the subject are summarized in the ensuing paragraphs.

Measures to improve indoor air quality

8. Members enquired about the measures taken by the Administration to improve IAQ and to reduce possible spread of infectious diseases through indoor air-conditioning systems, in particular at schools and homes for the aged.

9. The Administration advised that the Guidance Notes had been issued to provide for methods to measure indoor air pollutant levels and improve IAQ in premises/buildings. Moreover, representatives of premises including offices and shopping malls were invited every year to participate in the Certification Scheme to assess the relevant pollutant levels in such premises and to share methods for improvement of IAQ. As the World Health Organization had issued new standards for assessing IAQ, the Administration was considering whether any improvement measures could be introduced in Hong Kong under such standards. Given that common problems found in air-conditioning systems were contamination of pipes/ducts with mould, the Administration advised that it was preparing guidance notes for the regular removal of mould from the air-conditioning systems.

10. Some Members suggested the Administration introduce legislation to implement a mandatory IAQ control system. The Administration advised that

² The Practices Notes for Managing Air Quality in Air-Conditioned Public Transport Facilities were issued in 2003 (for buses and railways respectively) and 2015 (for ferries).

there were difficulties in pursuing this suggestion having regard to the substantial financial implications involved for assessing the IAQ of all buildings in Hong Kong. It was considered more practicable to encourage building owners and management companies to conduct IAQ assessment of their buildings on a voluntary basis.

Indoor Air Quality Certification Scheme for Offices and Public Places

11. Members enquired about assessment of IAQ under the Certification Scheme and the participation of public and private organizations in the Scheme.

12. The Administration advised that owners or property management companies participating in the Certification Scheme were required to employ IAQ Certificate Issuing Bodies ("CIBs") accredited by the Hong Kong Accreditation Service to assess the IAQ in their premises every year. CIBs would issue certificates to the premises where the IAQ complied with the prevailing IAQ objectives.

13. The Administration further advised that premises participating in the Certification Scheme included offices, shopping malls, club houses, theatres/halls, sports venues, libraries, etc. As regards the participation of government buildings, according to the joint circular on "Green Government Buildings" issued by the Development Bureau and the Environment Bureau in April 2009, all new government buildings served with central air-conditioning systems should aim to achieve the Excellent Class IAQ level of the Certification Scheme, while existing government buildings with a total construction floor area of more than 10 000 sq. m. should aim to achieve the Good Class IAQ level. In April 2015, the Administration updated the said circular to require that all existing government buildings, irrespective of their floor areas, should aim to achieve the Good Class IAQ level.

14. As regards the measures to encourage public and private organizations to join the Certification Scheme, the Administration advised that the Environmental Protection Department ("EPD") had engaged the Hong Kong Productivity Council to operate the IAQ Information Centre for vetting applications under the Certification Scheme and issuing IAQ certificates, providing information and technical support, as well as promoting the Certification Scheme through seminars, etc. Moreover, EPD had carried out publicity on different media, putting up posters on buses, trams and trains, as well as organizing roving exhibitions, in order to enhance public awareness of IAQ and the Certification Scheme.

Council questions

15. At the Council meetings of 24 January 2007 and 4 February 2009, questions were raised on the effectiveness of the Certification Scheme. At the Council meeting of 24 February 2016, Dr Hon CHIANG Lai-wan raised a question related to the monitoring of cleaning products sold in Hong Kong to improve IAQ for safeguarding public health. The questions and the Administration's replies are hyperlinked in **Appendix II**.

Recent development

16. The Administration will brief the Panel on its proposal to update the IAQ objectives under the IAQ Certification Scheme at the meeting on 25 June 2018.

Relevant papers

17. A list of relevant papers is set out in **Appendix II**.

Council Business Division 1
Legislative Council Secretariat
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Indoor air quality ("IAQ") objectives for offices & public places

Parameter	Unit	8-hour average ^a	
		Excellent Class	Good Class
Room Temperature	°C	20 to <25.5 ^b	< 25.5 ^b
Relative Humidity	%	40 to <70 ^c	< 70
Air movement	m/s	< 0.2	< 0.3
Carbon Dioxide (CO ₂)	ppmv	< 800 ^d	< 1,000 ^e
Carbon Monoxide (CO)	µg/m ³	< 2,000 ^f	< 10,000 ^g
	ppmv	< 1.7	< 8.7
Respirable Suspended Particulates (PM ₁₀)	µg/m ³	< 20 ^f	< 180 ^h
Nitrogen Dioxide (NO ₂)	µg/m ³	< 40 ^g	< 150 ^h
	ppbv	< 21	< 80
Ozone (O ₃)	µg/m ³	< 50 ^f	< 120 ^g
	ppbv	< 25	< 61
Formaldehyde (HCHO)	µg/m ³	< 30 ^f	< 100 ^{f, g}
	ppbv	< 24	< 81
Total Volatile Organic Compounds (TVOC)	µg/m ³	< 200 ^f	< 600 ^f
	ppbv	< 87	< 261
Radon (Rn)	Bq/m ³	< 150 ⁱ	< 200 ^f
Airborne Bacteria	cfu/m ³	< 500 ^{j, k}	< 1,000 ^{j, k}

Legends:

- a. In some cases, it may not be practicable to take 8-hour continuous measurement. In these circumstances, surrogate measurement (i.e. an intermittent measurement strategy based on the average of half-an-hour measurements conducted at four time-slots) is also accepted.
- b. EMSD (1998), Guidelines on Energy Efficiency of Air Conditioning Installations
- c. Indoor Air Quality guideline value for Japan (Law of Maintenance of Sanitation in Building) and South Korea (Public Sanitary Law).
- d. US EPA (1996), *Facilities Manual: Architecture, Engineering, and Planning Guidelines*. Maximum Indoor Air Concentration Standards.
- e. Indoor Air Quality guideline value for Australia (Interim National Indoor Air Quality Goals), Canada (Indoor Air Quality in Buildings: A Technical Guide), Japan (Law of Maintenance of Sanitation in Building), South Korea (Public Sanitary Law), Singapore (Guidelines for Good Indoor Air Quality in Office Premises/building), Sweden (Ventilation Code of Practice) and Norway (Recommended Guidelines for Indoor Air Quality).
- f. Finnish Society of Indoor Air Quality and Climate (2001), *Classification of Indoor Climate 2000: Target Values, Design Guidance and Product Requirements*.
- g. WHO (2000), *Guidelines for Air Quality*
- h. EPD (1987), Hong Kong Air Quality Objectives under the Air Pollution Control Ordinance (Cap. 311)
- i. US EPA(1987): US EPA Guideline for Radon in Homes due to Natural Radiation Sources (Note: 4 pCi/L or 150 Bq/m³ is EPA Action Level)
- j. ACGIH (1986), ACGIH committee activities and reports “*Bioaerosols: Airborne viable microorganisms in office environments: sampling protocol and analytical procedures*”, Applied Industrial Hygiene.
- k. The exceedance of bacterial count does not necessarily imply health risk but serve as an indicator for further investigation.

[Source: [Website of IAQ Information Centre](#)]

List of relevant papers

Date of meeting	Event	Paper
28 November 2005	Meeting of the Panel on Environmental Affairs	Administration's paper on Indoor Air Quality Management Programme (LC Paper No. CB(1)348/05-06(07)) Background brief on indoor air quality prepared by the Legislative Council Secretariat (LC Paper No. CB(1)348/05-06(06)) Minutes of meeting (LC Paper No. CB(1)484/05-06)
5 April 2017	Special meeting of the Finance Committee for examination of Estimates of Expenditure 2017-2018	Written questions raised by Members and Administration's replies (Reply serial numbers: ENB231)
30 October 2017	Policy briefing cum meeting of the Panel on Environmental Affairs	Minutes of meeting (LC Paper No. CB(1)399/17-18)
17 April 2018	Special meeting of the Finance Committee for examination of Estimates of Expenditure 2018-2019	Written questions raised by Members and Administration's replies (Reply serial numbers: ENB152 , 278 and 292)

Hyperlinks to relevant Council Questions:

Date	Council Questions
24 January 2007	Council question (oral) on indoor air quality
4 February 2009	Council question (written) on the Indoor Air Quality Certification Scheme for Offices and Public Places
24 February 2016	Council question (written) on monitoring of cleaning products sold in Hong Kong