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Panel on Environmental Affairs

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Background brief on indoor air quality

Introduction

Air pollution, both in indoor and outdoor environment, is a major cause of public concern and has been discussed at various meetings of the Council and the Panel on Environmental Affairs (EA Panel). Outdoor air quality is affected by local and regional air pollution. To this end, the Administration has adopted a number of measures, such as reducing emissions from stationary sources and motor vehicles as well as reducing dust emissions from construction activities etc, to tackle local air pollution. It has also reached a consensus on emission reduction targets with the Mainland authorities with a view to addressing regional air pollution. However, air pollution in indoor environment has received little attention in the past as compared with that in the outdoor environment. Given that a person on average spends more than 70% of his time at home, in office and other indoor environment, and that poor indoor air quality (IAQ) may lead to discomfort, ill health and, in workplace, absenteeism and low productivity, Members hold the view that more have to be done to improve indoor air quality.

Consultancy study on indoor air pollution in offices and public places

2. In recognition of the potential health risk and problems associated with indoor air pollution, the Environmental Protection Department commissioned a consultancy study on "Indoor Air Pollution in Offices and Public Places" (the Study) in October 1995. The Study aimed to characterize and quantify the indoor air pollution in office premises and selected public places in Hong Kong, assess the causes of the pollution problems, and recommend suitable control strategies.

3. The Study, which was completed in September 1997, revealed that indoor air pollution in Hong Kong is very similar to that of other developed countries. Sources of indoor air pollution include formaldehyde emissions from new furniture and renovation materials, radon emissions from building materials, or nitrogen dioxide and carbon dioxide emissions from the burning of fuels in gas stoves and ovens, as

well as environmental tobacco smoke (ETS) comes from smoking. Poorly ventilated indoor environment can have high levels of biological contaminants arising from mould growth on damp surfaces. Particles of dust, dirt or other substances may be drawn into the building from outside and can also be produced by activities that occur in buildings, such as sanding wood, printing, copying and operating equipment.

4. Given that the quality of indoor air is determined by a large number of factors, and that different professions are involved in dealing with and solving indoor air problem, Hong Kong does not have specific legislation on IAQ and there is no single authority that has full responsibility for IAQ. The responsibility over IAQ is spread over a number of government departments through the implementation of a series of ordinances and regulations, the primary focuses of which are for other purposes. A summary of the responsibilities of government department relevant to IAQ is given in **Appendix I** and a summary of existing legislative provisions relevant to IAQ is given in **Appendix II**. To better co-ordinate the various activities and programmes related to IAQ, the Government has set up an inter-departmental Indoor Air Quality Management Group comprising four bureaux and 10 departments.

The IAQ management programme

5. Taking into account the findings of the Study, the Management Group proposed to implement an IAQ management programme in a progressive manner, starting with a publicity campaign. The Government would take the lead in implementing the programme and private owners and building management would be invited to participate on a voluntary basis. In November 1999, the Administration issued a consultation paper on managing IAQ setting out the IAQ management programme which included, among others, the following –

- (a) establishment of a set of IAQ objectives to act as the common benchmark for evaluating and assessing IAQ;
- (b) a set of draft Guidance Notes on the procedures, measures and methodologies to evaluate IAQ as well as to achieve and maintain the IAQ standards; and
- (c) use of a self-regulation approach, under which buildings owners and management of premises would need to employ suitably qualified personnel to assess IAQ of their premises against the indoor AQOs. It was also recommended that the self-regulation approach would be particularly effective if this was combined with a certification system, under which owners of premises would be required to put up a certificate at a prominent location to declare that the concerned premises comply with IAQ. The certification would help users to understand the quality of indoor air, recognize good management practices and provide incentives for building owners to seek to achieve the best level of IAQ.

6. The Administration intended to implement the IAQ management programme in three phases from November 1999 to 2002 with a comprehensive review in 2003.

Previous discussions on IAQ

7. The EA Panel held a number of meetings to discuss the findings and recommendations of the Study as well as the proposed IAQ management programme. Members expressed concern about the impact of prolonged exposure to high levels of indoor air pollutants on health, particularly in public places such as restaurants, markets and public transport exchanges where the situation was further aggravated by inadequate ventilation. According to the Administration, poorly performing and inadequate ventilation systems were the most common causes of indoor air pollution. To this end, building owners and management of premises would be invited to participate in the IAQ management programme to employ suitably qualified personnel to check and certify that IAQ of their buildings were in compliance with the standards on a voluntary basis. Taking into account public views, the Administration would decide whether a voluntary or statutory control system should be adopted and whether a separate department should be established to enforce the control of IAQ.

8. The impact of ETS on IAQ was another major cause of concern to the EA Panel. Members were aware of the difficulties in enforcing the law on the ban of smoking in public places since the provisions in the Smoking (Public Health) Ordinance (Cap. 371) (the Ordinance) had not clearly designated the authority to enforce the ban. They called on the Administration to devise effective ways to deal with the problem. The Panel also invited the Hong Kong Council on Smoking and Health (COSH) to exchange views in this regard at the meeting on 7 January 2000. In the light of the scientific evidence on the adverse health effects caused by ETS, members agreed with COSH that the Administration should strictly enforce the existing legislative provisions relevant to IAQ in transportation, shopping and recreational venues and restaurants. Consideration should also be given to introducing new legislation having regard to the unlikely success of a self-regulation regime. They were also gravely dissatisfied with the passive approach adopted by the Administration to deal with the problem of IAQ, and considered that the Administration should expedite its implementation timetable for IAQ management programme, particularly the introduction of legislation to regulate IAQ in indoor environment and public transportation.

9. According to the Administration, all indoor areas open to the public in shopping malls, department stores, supermarkets, and banks had been designated as no smoking areas under the Ordinance with effect from 1 July 1998. Enforcement of the relevant provisions rested primarily with the management of the premises through persuasion and warning. If the offenders continued smoking, the property management was empowered under the Ordinance to take down the name of the person and require him/her to produce proof of identity or to leave the no smoking area. Where the offender refused to co-operate, the property management could remove him/her from the no smoking area by the use of reasonable force if necessary

or detain him/her while awaiting police assistance. Assistance from the Police could be sought if the offenders concerned refused to extinguish their cigarettes after repeated warnings. To broaden the scope of the ban on smoking in public places, restaurants with 200 seats and above were required to designate at least one-third of the floor area as no smoking area. The Tobacco Control Office was set up to coordinate and enhance Government's tobacco control efforts with a view to promoting a smoke-free culture in Hong Kong. The Administration would review the effectiveness of the IAQ management programme after it came into force for a period of time.

10. On 22 October 2003, the Council passed a motion moved by Hon CHOY So-yuk urging the Administration to expeditiously account for the progress in implementing the Indoor Air Quality Management Programme.

11. On 20 October 2004, the Council passed a motion moved by Hon Bernard CHAN as amended by Hon Albert CHENG urging the Administration to actively expedite the implementation of a total smoking ban in workplaces.

Latest developments

12. The Administration has launched a voluntary IAQ Certification Scheme for Offices and Public Places since September 2003. Up to the end of May 2004, a total of 37 buildings had been awarded an IAQ Certificate under the Scheme.

13. In November 2003, the Administration issued a set of professional practice notes for managing air quality in air-conditioned buses and railway facilities to provide guidance on how to ensure the maintenance of better air quality inside these facilities and compartments.

14. The Administration also commissioned a study in early 2004 to collect information on overseas emission standards for materials that are potential sources of indoor air pollution and their market conditions. This would help the Administration to explore the possibility of imposing control on some of these indoor air pollution sources.

15. On 11 May 2005, the Administration introduced the Smoking (Public Health) (Amendment) Bill 2005 into the Legislative Council. The Bill aims to extend the statutory smoking ban to restaurants (in addition to the present limited ban), bars and other hospitality premises, educational and welfare institutions, indoor work places and public places. A Bills Committee has been formed to study the Bill and the work is still in progress.

Summary of Responsibilities of Government Departments Relevant to IAQ

Department	Legislation	Relevance to IAQ
Buildings Department	Buildings Ordinance Cap. 123	Requirement for mechanical ventilation with 5 air changes per hour to office not provided with natural ventilation.
Provisional Urban/Provisional Regional Council	Public Health & Municipal Services Ordinance, Cap. 132	Dampers, filters & precipitators are inspected yearly by registered ventilation contractor. Specified ventilation rates for scheduled premises.
	Places of Public Entertainment Regulations, Cap. 172	Requires provision of sufficient ventilation to the public places. A fresh air supply requirement of 13m ³ /h/person is imposed on all entertainment machine centres.
Labour Department	Factories & Industrial Undertakings Ordinance, Cap. 59	Requirements to protect workers (workplace safety and measures of work practice as well as medical surveillance).
	Occupational Safety & Health Ordinance, Cap. 509	Requires the provision of safe and healthy workplace for industrial and non-industrial workers. Provision of adequate ventilation & air within workplace should be kept free of impurities.
Various government departments such as Commission of Police, TV & Licensing Authority	Smoking (Public Health) (Amendment) Ordinance, Cap. 371; Code of Practice under Broadcasting Authority Ordinance	Control measures relating to prohibition of advertisements, designated 'No Smoking' areas, 'No Smoking' signs, etc.
Customs & Excise Department	Consumer Goods Safety Ordinance, Cap. 456 Ozone Layer Protection Ordinance, Cap. 403 Air Pollution Control Ordinance, Cap. 311	Control of import of consumer goods with focus on product safety and enforcement of import control on ozone-depleting substances & asbestos through import licensing (as authorised by EPD).
Agriculture & Fisheries Department	Pesticides Ordinance, Cap. 133	Control of import, manufacture, supply & sale (but no control of use of registered pesticides).
Environmental Protection Department	Air Pollution Control Ordinance, Cap. 311	Established Air Control Zones and the associated Air Quality Objectives Control of asbestos in environment.

Scheduled Premises under the Public Health and Municipal Services Ordinance

16. At present, the public places under licensing remit are those scheduled premises laid down in the Second Schedule of the Public Health and Municipal Services Ordinance, Cap. 132. Among them, restaurants, factory canteens and funeral parlours are licensed under the Public Health and Municipal Services Ordinance, places of public entertainment such as cinema and theatres are licensed under the Places of Public Entertainment Ordinance, Cap. 172, and dancing halls are licensed under the Miscellaneous Licenses Ordinance, Cap. 114 by the Television & Entertainment Licensing Authority.

17. Other than the scheduled premises, hotels and guesthouses are currently licensed under the Hotel and Guesthouse Accommodation Ordinance, Cap 349, which provides for the control and safety of hotel and guesthouse. For clubs, bedspace apartments, the house for the aged, and the child care centre, they are respectively under licensing control of the Clubs (Safety of Premises) Ordinance, Cap. 376, Bedspace Apartments Ordinance, Cap. 447, Residential Care Homes (Elderly Persons) Ordinance, Cap. 459, and Child Care Centres Regulations, Cap. 243.

Office Premises and Other Public Places

18. Under Building (Planning) Regulations, Cap. 123, premises designated for habitation, office, kitchen and rooms containing soil fitment are required to be provided with natural lighting and ventilation, or subject to provisions of mechanical ventilation if modification is granted. The Buildings Department is currently reviewing the Buildings Ordinance with a view to strengthening the provisions on ventilation and natural lighting.

Workplaces

19. The Occupational Safety and Health Regulation (OSHR) (Cap. 509) currently enforced by the Labour Department was enacted in 1997 and came into effect in 1998. It requires the employer or occupier of a workplace to ensure that the workplace is adequately ventilated by fresh air; and that, as far as reasonably practicable the air within the workplace is kept free of impurities. Occupational Exposure Limits (OELs), which have been set with reference to those in force by UK's Health & Safety Executive, the American Conference of Government Industrial Hygienists and other overseas bodies, have already been adopted as the air quality compliance standards for workplaces. OELs are recognised to ensure no adverse health effects to adult employee, who in general works 8 hours a day for five-day working week or a forty-hour working week in workplace. The workplace under OSHR includes both industrial and non-industrial premises such as offices.