

MONITORING AND REPORTING OF AIR QUALITY

Executive Summary

1. Air pollution is one of the major problems in Hong Kong. The Environment Bureau (ENB) and the Environmental Protection Department (EPD) are responsible for formulating and implementing environmental policies, including those on air quality. In 2012-13, the EPD's estimated expenditure on managing air quality is \$627 million.

2. The existing air quality objectives (AQOs) in Hong Kong were set in 1987, some 25 years ago. The AQOs stipulate the concentration levels for seven major air pollutants, of which sulphur dioxide, nitrogen dioxide (NO₂), and particulate matters with a diameter of 10 micrometres or less (PM₁₀) are the most relevant and significant ones in Hong Kong. Since 1999, the EPD has also compiled an hourly air pollution index (API) for each of the 11 general air-quality monitoring stations and three roadside stations.

3. In January 2012, the Government announced that, based on the Air Quality Guidelines (AQGs) issued in 2006 by the World Health Organisation (WHO), the AQOs in Hong Kong would be revised to more stringent levels with effect from 2014 (2014 AQOs).

Management of air quality objectives

AQOs not fully achieved

4. Under the Air Pollution Control Ordinance (Cap. 311), the EPD, as the Air Pollution Control Authority, is tasked to aim to achieve the AQOs as soon as is reasonably practicable and thereafter to maintain the quality so achieved. However, the Audit Commission (Audit)'s examination has revealed that the existing AQOs have never been fully achieved since their adoption in 1987.

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5. The achievement of AQOs at roadside is important. However, Audit notes that some AQO limits at roadside have been persistently and significantly exceeded. Hong Kong has never attained the roadside annual average AQO levels of NO₂ and PM₁₀. In 2011, the roadside annual average concentration levels of NO₂ and PM₁₀ had exceeded the AQO limits by 53% and 11% respectively, and both had exceeded the WHO limits by 205%.

6. Air quality of Hong Kong is also unsatisfactory when compared with that of some world cities. For example, in 2011, the ambient annual average concentration level of NO₂ in Hong Kong was 279%, 47% and 36% higher than those in Sydney, London and New York respectively, and that of PM₁₀ in Hong Kong was also 220%, 100% and 153% higher than those in the three cities respectively.

2014 AQOs not adequately protecting public health

7. The 2014 AQOs (see para. 3) for four major air pollutants are mostly set on the basis of WHO Interim Targets. As such, they do not provide adequate protection of public health when compared with the WHO AQG levels. Audit considers that the ENB and the EPD need to formulate an air-quality management strategy for achieving the WHO AQGs in the long term.

Administration of air pollution index

8. An API exceeding 100 reflects a very high air pollution level and is associated with high health risks. Audit notes that the EPD has never achieved its performance target on API (not exceeding 100 on any day in a year) since setting the target in 2006-07. In fact, the trend is worsening, caused by the vehicle emission problem and the worsening of roadside API. The number of days with API exceeding 100 had risen from 74 in 2007 to 175 in 2011.

Performance reporting

9. Audit examination of the Controlling Officer's Reports and Government websites has identified room for improvement in the Government's performance reporting of air quality. In particular, Audit found that some important information

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was not readily accessible by the public. For example, the extents of achieving the existing AQOs and the EPD's performance target on API (not exceeding 100 on any day in a year) were not readily available on the EPD website.

Way forward

10. There is growing public concern over the worsening air pollution in Hong Kong and its adverse impacts on public health. According to the EPD's Consultant, upon attainment of the 2014 AQOs, about 4,200 unnecessary hospital admissions and 7,400 statistical life years would be saved each year, or an improved average life expectancy of around one month for the entire population. Therefore, there is an imminent need for the Government to formulate and update strategies for implementing appropriate measures to achieve the AQOs as early as possible.

Audit recommendations

11. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has recommended that the Secretary for the Environment and the Director of Environmental Protection should:**

Management of air quality objectives

- (a) **make vigorous efforts to formulate and implement strategies with time targets and milestones for achieving the AQOs as early as possible;**
- (b) **take measures to ensure that the AQOs are regularly reviewed and revised, taking account of new WHO guidelines and overseas practices;**
- (c) **set up a mechanism for effective monitoring of the extent of achieving the AQOs and for publicising the progress of achievement periodically;**
- (d) **formulate an air-quality management strategy for achieving the WHO AQGs in the long term;**

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- (e) consider providing the public with clearer and more specific precautionary advice when a roadside API exceeds 100; and

Performance reporting

- (f) strengthen efforts in timely reporting and publishing measurement results of air quality.

Response from the Administration

12. The Administration agrees with the audit recommendations. The Secretary for the Environment and the Director of Environmental Protection have said that protection of public health is the key guiding principle in the formulation of air-quality improvement measures, and the achievement of the WHO AQGs is a long-term goal of the EPD.