LCQ11: Review of Air Quality Objectives

Following is a question by the Hon Kenneth Leung and a written reply by the Secretary for the Environment, Mr Wong Kam-sing, in the Legislative Council today (November 27):

Question:

The Government conducted a public consultation on 2025 Air Quality Objectives Review from July to October this year. The consultation paper recommends, among others, that the average 24-hour concentration limit stipulated for fine suspended particulates (i.e. PM2.5) in the Air Quality Objectives (AQOs) be tightened, but that the number of exceedances allowed be relaxed from the current level of nine to 35 a year. In this connection, will the Government inform this Council:

(1) as an environmental group has pointed out that the longer the duration for which members of the public are exposed to air pollutants, the greater the health risks they will face, whether the Government will consider afresh shelving the aforesaid recommendation of relaxing the number of allowable exceedances; if not, of the justifications for that;

(2) as the findings of the 2025 air quality assessment have shown that the concentrations of ozone and respirable suspended particulates (i.e. PM10) in most parts of Hong Kong will exceed the relevant levels set by the World Health Organization, whether the Government will consider exploring expeditiously the tightening of the concentration limit targets of those two types of air pollutants; if so, of the details; if not, the justifications for that; and

(3) as the Police have frequently fired tear gas rounds during public events in recent months, and according to some academics, it is very likely that tear gas rounds will give off dioxins during the combustion process, whether the Government will consider installing additional equipment at the 13 existing general air quality monitoring stations or adopting other measures for real-time monitoring of dioxin concentrations, so that members of the public may take actions to minimise personal health risks as necessary; if not, of the justifications for that?

Reply:

President,

The Environment Bureau completed the review of the Air Quality Objectives (AQOs) in December 2018, and reported the review outcomes to the Panel on Environmental Affairs (EA Panel) of the Legislative Council in March 2019. Subsequently, a three-month public consultation was conducted from July 12 to October 11, 2019 to solicit public views on the review findings and

proposed tightening of the AQOs. During the consultation period, over 280 submissions were received. After consolidating and analysing the views collected, we will consult the EA Panel on the final recommendations for tightening the AQOs.

Replies to the questions raised by the Hon Kenneth Leung are as follows:

(1) and (2) The Government has been striving to improve air quality for the protection of public health. According to the air quality assessment results of the AQOs review, there would be continuous improvement in the ambient fine suspended particulates (PM2.5) concentration level in 2025. As such, the review recommended that the annual and 24-hour AQOs of PM2.5, which are currently set at Interim Target (IT)-1 level of the World Health Organization (WHO) Air Quality Guidelines (AQGs), can be tightened to IT-2 level. Based on local studies, the health risks associated with long-term exposure to PM2.5 (in terms of annual mean concentration) is about ten times higher than that of the short-term exposure to PM2.5 (in terms of 24-hour concentration). According to the WHO AQGs, lowering the annual mean of PM2.5 from IT-1 to IT-2 level could reduce the risk of premature death by about 6 per cent.

As for the recommendation to tighten the 24-hour AQO of PM2.5 to IT-2 level (i.e. 50μg/m3) with 35 allowable exceedances, between 2011 and 2017, the ambient air quality monitoring network recorded 17 exceedances against the prevailing 24-hour AQO of PM2.5 while there were 30 exceedances against the recommended new AQO, suggesting that the recommended AQO is more stringent than the prevailing one. As aforesaid, we are analysing the views collected during the public consultation for drawing up the final recommendations to tighten the AQOs, including the 24-hour AQO of PM2.5, and will consult the EA Panel on the final recommendations in due course.

The current review aims at setting the AQOs for 2025. Owing to the high regional background concentrations of respirable suspended particulates (PM10) and ozone, the 2025 air quality assessment results revealed that concentrations of these pollutants would not be able to meet the next level, i.e. WHO AQG's IT-3 level for PM10 and the ultimate AQG level for ozone. Therefore, the review did not recommend to tighten the AQOs of PM10 and ozone at this stage. To continuously improve the air quality, Guangdong and Hong Kong have launched the Study on Post-2020 Regional Air Pollutant Emission Reduction Targets and Concentration Levels. We shall consider the study findings in the next review period (i.e. 2019-2023) to explore further scope for tightening the AQOs of PM10 and ozone.

(3) According to the information from the Department of Health and the Hospital Authority, there is no literature or scientific evidence on dioxin poisoning caused by the use of tear gas.

There are only a few emission sources of dioxin in Hong Kong. Furthermore, the Government has banned open burning since 1996 and eliminated this major source of dioxin. As such, the dioxin level in the territory is largely associated with the background level in the region and the dioxin concentrations across the territory is quite uniform. The Environmental Protection Department (EPD) has set up two dioxin monitoring points at the

Central/Western and Tsuen Wan air quality monitoring stations respectively. The data can represent the level of dioxin exposure of the public. In fact, the dioxin concentrations recorded at the two monitoring stations in the past five years were similar, indicating that setting up two dioxin monitoring points is sufficient. The EPD has no plan to extend dioxin monitoring to other general air quality monitoring stations. Also, the dioxin concentrations recorded at the two stations in the past few months have not deviated from their normal levels.

Dioxins are not a single compound but a family of compounds that share distinct chemical structures and characteristics. The extraction of samples and chemical analytical processes are complex and require the use of sophisticated instruments. The chemical analysis of the sample usually takes several weeks to complete. As far as we know, there are no instruments on the market that can measure dioxin concentrations in real time.