For Information

Legislative Council
Panel on Environmental Affairs

Improving Air Quality in Pearl River Delta Region

Introduction

In September 1999, the Hong Kong Special Administrative Region (HKSAR) Government and the Guangdong Provincial Government jointly commissioned a study on Pearl River Delta Regional Air Quality to identify the major sources of air pollution in the Pearl River Delta (PRD) Region, to make trend forecasts and to recommend long-term measures to improve regional air quality. The study has been completed.

2. At a meeting held on 29 April 2002, the Hong Kong/Guangdong Joint Working Group on Sustainable Development and Environmental Protection considered the study report. The two Governments reached a consensus to implement long-term measures to improve air quality in the Region.

3. This paper sets out the findings of and measures recommended in the study, and the consensus that the two Governments have reached.

Findings of the Study

4. The Executive Summary of the study report is at the Annex. A full set of the report has been deposited with the Secretariat of the Legislative Council and may be viewed or downloaded from the website of the Environmental Protection Department at http://www.info.gov.hk/epd.

5. The study shows that air quality in the PRD Region has been deteriorating, as evidenced by a decline in visibility due to smog. The smog phenomenon is caused by very fine particles formed in the atmosphere by complex chemical reaction among ozone, nitrogen oxides (NOx), sulphur dioxide (SO_2) and volatile organic compounds (VOC). Ozone is not emitted directly from any source; it forms under sunlight when NOx react with VOC. Other than poor visibility, high concentrations of ozone may cause eye irritation and aggravate respiratory illnesses. Very fine respirable suspended particulates (RSP) weaken lung function, aggravate respiratory illness and increase lung cancer risk. Therefore, to reduce smog, improve visibility and protect public health, it is necessary to reduce emissions of SO_2, NOx, RSP and VOC.

6. Using 1997 as a base, the study anticipates that the regional economy, population, electricity consumption and traffic would grow by 150%, 20%, 130% and 190% respectively by 2010. Under these growth trends, air quality in the Region will deteriorate unless the two Governments implement improvement measures in addition to those that they have implemented or are committed to implementing. This is because existing and committed measures would only improve local air pollution problems. To tackle the regional air pollution problem, which is caused by both local and regional emission sources, the concerted effort of the two Governments in implementing additional improvement measures would be required.

7. If the two Governments do not jointly implement additional measures, the regional emission of SO_2, NOx, RSP and VOC would increase by 53%, 34%, 34% and 25% respectively (using 1997 as a base). Visibility would also become a more serious problem.

8. If the two Governments implement the measures recommended in the study, the regional emissions of SO_2, NOx, RSP and VOC would be reduced by 40%, 20% 55% and 55% respectively. If this overall emission reduction potential is realised, Hong Kong would meet its current air quality objectives. Cities in the PRD Economic Zone would also meet the relevant national air quality standards for SO_2, NOx and RSP. The problem of ozone will remain in the PRD Economic Zone but will become much less serious than at present. The study indicates that technically, the two Governments could achieve the emission reduction targets in 2010 at the earliest.

Measures Recommended in the Study

9. The study recognizes that motor vehicles and power plants are the major emission sources of RSP and NOx in Hong Kong and that the bulk of VOC emissions come from printing operations and consumer products containing VOC. It acknowledges the effectiveness of the measures already in place and to which we are already committed, and that we cannot do much more to reduce emissions from motor vehicles. To achieve the emission reduction targets, we will have to take the following actions –

(a) reduce VOC emissions from sources such as printing operations and consumer products including paints and aerosol sprays of various kinds; and

(b) use cleaner fuel for power generation in order to reduce SO_2, NOx, and RSP emissions in Hong Kong.

10. The study identifies major emission sources in PRDEZ to be power plants, motor vehicles and industrial operations. To achieve the emission reduction targets, it recommends that the Guangdong Provincial Government should take the following measures –

(a) reduce emissions from power plants through transmission of hydro-electricity from the west, using natural gas instead of coal as fuel and upgrading existing plants;

(b) reduce motor vehicle emissions through speeding up the tightening of motor fuel and vehicle emission standards; and

(c) reduce industrial emissions through targeting the most polluting industrial processes and requiring their upgrading or the installation of control equipment.

11. The study recommends that the two Governments should examine the implementation of the proposed measures in detail with regard to local circumstances.

Consensus Reached

12. Having considered the findings and proposed measures in the study report, the HKSAR Government and the Guangdong Provincial Government have agreed that –

(a) the two Governments would aim to reduce, on a best endeavour basis, the regional emissions of SO_2, NOx, RSP, and VOC by 40%, 20%, 55% and 55% respectively by 2010, using 1997 as the base year;

(b) to achieve the emission reduction targets set out in (a) above, the two Governments would, on a best endeavour basis, aim to strive to reduce by 2010 the emissions of the four air pollutants from their own sources by the same levels;

(c) the two Governments would jointly draw up a regional air quality management plan and assign the responsibility for coordinating and monitoring progress of the improvement measures to the departments concerned which will in turn report to the Hong Kong/Guangdong Cooperation Joint Conference; and

(d) the two Governments would set up an expert group comprising representatives of the Environmental Protection Department (EPD) of

the HKSAR and the Guangdong Environmental Protection Bureau to monitor jointly trends and changes in regional air quality and evaluate the effectiveness of the improvement measures. The expert group will also be responsible for training relevant personnel of the two Governments, exchanging technical know-how and keeping in view the feasibility of introducing new technologies and measures.

13. The Administration will arrange with the Clerk to the Panel to brief Members more fully on the study report on a later date.

Environment and Food Bureau
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