

Feasibility and Obstacles of Air Quality Attainment in Hong Kong from 2019 to 2025

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Abstract : Fine particulate matter concentrations have been decreasing in the past few years while the ozone concentrations are posing an increasing trend in the Greater Bay Area (GBA) of China. A series of control policies have been released to mitigate the country-wide air pollution, however, how to effectively evaluate the exercised control measures and efficiently reveal potential projected mitigation pathways are still limited. By refining an enhanced air-quality-modeling system, this study provides an account of the air quality assessments from 2019 to 2025 to appraise the air quality results and improvement under designed scenarios for assessing the optimum scope for tightening the Air Quality Objectives (AQOs). The results show that it is doable to tighten the 24-hour AQO for SO₂ from the World Health Objective air quality guidelines Interim Targets Level-1 (IT-1) (125µg/m³) to IT-2 level (50µg/m³) with the current number of exceedance allowed (three) remains unchanged. It is also possible to tighten the annual AQO for PM_{2.5} from IT-1 (35 µg/m³) to IT 2 (25 µg/m³), and its 24-hr AQO from IT-1 (75 µg/m³) to IT 2 (50 µg/m³) with the number of exceedances allowed increased from current nine to 35. Regional cooperation under the development of the GBA cooperation are still needed to be focused and strengthen due to the cross-boundary transport characteristics of the air pollution.

Keywords : air quality attainment, Hong Kong, mitigation policy, chemical transport modeling, sensitivity analysis

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