

立法會
Legislative Council

LC Paper No. CB(1)1785/13-14(04)

Ref. : CB1/PL/EA

Panel on Environmental Affairs

Special meeting on 17 July 2014

**Updated background brief on
"Collaboration with Guangdong in improving air quality
in the Pearl River Delta region"**

Purpose

This paper provides updated background information on the collaboration with Guangdong in improving air quality in the Pearl River Delta ("PRD") region, and gives a brief account of the views and concerns expressed by members on the subject.

Background

2. Hong Kong and Guangdong Province have a long history and a strong foundation on collaboration to improve regional air quality, including –

- (a) the PRD Regional Air Quality Monitoring Network ("the Air Quality Network") set up in November 2005 was Mainland China's first regional network. It enables the Guangdong and Hong Kong authorities to track air pollution trends and the effectiveness of control measures;
- (b) the achievement of emission reduction targets between 1997 and 2010 covering emissions from power plants, motor vehicles and industrial processes in PRD; and
- (c) the agreement between Hong Kong and Guangdong Province in November 2012 of a new set of air emission reduction targets to be achieved by 2015 and 2020.

Joint emission reduction plan with Guangdong

3. To tackle the regional air quality problem, the Hong Kong Government has been working in collaboration with the Guangdong Environmental Protection Department to implement a basket of measures to reduce emissions of four major air pollutants, namely, sulphur dioxide ("SO₂"), nitrogen oxides ("NO_x"), respirable suspended particulates ("RSP") and volatile organic compounds ("VOC"), in Hong Kong and the PRD Economic Zone ("PRDEZ"). The two Governments agreed in 2002 to reduce the emissions of these pollutants by 20 % to 55 % by 2010 as compared with the levels in 1997. To achieve these targets, the two Governments have implemented a basket of emission reduction measures under the PRD Regional Air Quality Management Plan¹ ("the Management Plan").

4. In 2012, the Joint Working Group on Sustainable Development and Environmental Protection ("JWGSDEP") set up jointly by the Governments of Hong Kong and Guangdong examined in detail the emission situation of both places in 2010, including the quantity of emissions, different characteristics of emission sources in the two places, the emission control measures implemented and their effectiveness, and the emission reduction potentials of various trades, etc. Hong Kong announced on 10 October 2012 the attainment of the 2010 emission reduction targets. For Guangdong Province, the 2010 targets for SO₂, NO_x and RSP were met, but not that for VOC. The VOC emission in PRDEZ had been reduced by 26.2% over the period as opposed to the target of 55%. Hong Kong and Guangdong have further agreed on the emission reduction targets/ranges for 2015 and 2020, which are detailed below –

Pollutant	Area	2015 emission reduction target* (%)	2020 emission reduction range* (%)
SO ₂	Hong Kong	-25%	-35% ~ -75%
	PRDEZ	-16%	-20% ~ -35%
NO _x	Hong Kong	-10%	-20% ~ -30%
	PRDEZ	-18%	-20% ~ -40%
RSP	Hong Kong	-10%	-15% ~ -40%
	PRDEZ	-10%	-15% ~ -25%
VOC	Hong Kong	-5%	-15%
	PRDEZ	-10%	-15% ~ -25%

*as compared with emissions in 2010

¹ JWGSDEP endorsed the Management Plan in December 2003 under which a series of emission reduction and preventive measures was adopted. The Special Panel on PRD Regional Air Quality Management and Monitoring ("the Special Panel") under JWGSDEP reviews and reports on the implementation progress and effectiveness of the Management Plan from time to time.

5. If both places reach the lower limit of the emission reduction targets by 2020, Hong Kong will broadly meet the new air quality objectives. The two sides will carry out a review in 2015 to assess the state of socio-economic development at the time and progress made in emission reduction, with a view to finalizing the emission reduction targets for 2020.

6. To achieve the emission reduction targets set for 2015 and 2020, both the Hong Kong and Guangdong Governments would implement additional measures focusing on major emission sources with a view to bringing continuous improvement to regional air quality. The key emission reduction measures to be implemented by Hong Kong included –

- (a) tightening of vehicle emission standards;
- (b) phasing out highly polluting diesel commercial vehicles;
- (c) retrofitting Euro II and Euro III franchised buses with selective catalytic reduction devices;
- (d) strengthening emission control of petrol and liquefied petroleum gas vehicles;
- (e) requiring ocean-going vessels to switch to using low sulphur fuel while berthing;
- (f) tightening the cap on the sulphur level of local marine diesel;
- (g) controlling emissions from non-road mobile machinery;
- (h) further tightening of emission caps on power plants; and
- (i) controlling VOC contents of solvents used in printing and construction industry.

7. Hong Kong unveiled "A Clean Air Plan for Hong Kong" in March 2013, while Guangdong announced "The Guangdong Air Pollution Control Plan (2014-2017)" in February 2014, under which both sides put forward a series of respective air quality improvement measures covering land and marine transport, power plants and non-road mobile machineries in order to tackle air pollution. The measures to be taken forward under these two plans should contribute to the improvement of regional air quality in the PRD region and help achieve the PRD emission reduction targets set out by the two sides for 2015 and 2020.

2013 results for the Air Quality Network

8. The Environmental Protection Department ("EPD") of the Hong Kong Government and the Department of Environmental Protection of Guangdong Province jointly released on 30 April 2014 a report on the 2013 monitoring results of four major air pollutants (SO₂, nitrogen dioxide ("NO₂"), ozone and RSP) measured by the Air Quality Network. The report is hyperlinked in **Appendix I**.

9. According to the Administration, since the operation of the Air Quality Network in 2006, the number of days on which the Regional Air Quality Index met Class 2 National Ambient Air Quality Standards (applicable to general residential areas) increased from 68% in 2006 to 82% in 2013. The average annual concentrations of SO₂, NO₂ and RSP in the region decreased by 62%, 13% and 15% respectively in the same period. Details of the trend since 2006 are set out in **Appendix II**.

Collaboration projects or programmes in 2014-2015

10. In 2014-2015, EPD and relevant Guangdong departments will continue to co-operate in implementing measures to improve regional air quality and operating the Air Quality Network. EPD will also collaborate with Guangdong and Macao to enhance the Air Quality Network and commence a joint study on fine suspended particulates (also known as PM_{2.5}) for the region. EPD will continue to promote the adoption of cleaner production technologies and practices in Hong Kong-owned factories in Guangdong Province. A provision of some \$34 million has been earmarked under the Air Programme of EPD for implementing various cross-boundary air co-operation projects, including around \$25 million for promoting cleaner production and \$9 million for conducting a regional PM_{2.5} study.

The State Council's 10 measures to reduce air pollution

11. The State Council released 10 measures (in **Appendix III**) to help reduce air pollution on 12 September 2013. The measures set out clear targets to reduce air pollution in the Mainland through multi-pronged, short and long-term initiatives that exceeded measures laid out in the 12th Five Year Plan. Some of the measures are relevant to the PRD region.

12. The measures called for further action on the Mainland in respect of implementing desulfurization and denitrification technologies, improving fuel quality, increasing the use of cleaner energy, promoting cleaner production to reduce industrial emission of air pollutants, and the establishment of regional joint mechanisms to prevent and control air pollutants, including the control of PM_{2.5} in PRD to improve air quality.

Deliberations by the Panel and the Subcommittees

13. The Panel on Environmental Affairs ("the Panel") has been closely monitoring the progress in mitigating regional air pollution. To keep track of the progress of achievement of the 2010 emission reduction targets, the Administration had been requested to provide biannual reports to the Panel on the progress of meeting the 2010 emission reduction targets since

September 2005. To enable focused discussion on the Administration's efforts in addressing air pollution, the Panel set up the Subcommittee on Improving Air Quality ("the Subcommittee") in October 2008 to monitor and study policies as well as public concerns on improving air quality. The Subcommittee was briefed on the progress of measures under the Management Plan at its meeting on 28 January 2011. During the current term, the Subcommittee on Issues Relating to Air, Noise and Light Pollution ("the ANLP Subcommittee") was set up by the Panel in November 2012 to follow up the problems of air, noise and light pollution in Hong Kong. The major views and concerns expressed by members at the meetings of the Panel and two Subcommittees are summarized in the ensuing paragraphs.

Discussion by the Panel on Environmental Affairs

14. Panel members were of the view that the regional air pollution problem could not be resolved by the Hong Kong Government alone since the air quality of Hong Kong had been increasingly affected by the rapid economic and industrial development in the PRD region. They were also not optimistic that the emission reduction targets could be met because many industrial activities in the Mainland did not abide by the environmental laws. As such, members considered it necessary for the Special Panel to discharge its duty to follow up on the tasks under the Management Plan. The Administration should explain to the public the bases upon which the emission reductions targets were arrived at and the means to achieve these targets. More scientific methods, such as satellite mapping and remote sensing, should be used to forecast pollution and to trace the pollution sources more accurately to enhance control.

15. In January 2008, the Panel received a briefing on the mid-term review of the Management Plan, which revealed that the economy, population, electricity consumption and vehicle mileage in PRDEZ would increase by 509%, 56%, 158% and 319% respectively in 2010 as compared to the 1997 levels, far exceeding the assumptions in 2002. While the findings suggested that Hong Kong was on track to achieve the 2010 emission reduction targets, there was a need for the Guangdong side to introduce additional measures to meet the targets.

Discussion by the Subcommittee on Improving Air Quality

16. At the Subcommittee's meeting in January 2010, members questioned how the 2010 emission reduction targets could be achieved given that the emission level of SO₂ was way behind schedule. They also enquired about the consequences in the event of failure to achieve the reduction targets. According to the Administration, it was confident that the 2010 emission reduction targets could be fully achieved since the emissions of NO_x, RSP and VOC had been reduced to an extent close to or even exceeding the reduction

targets.

17. In the 2011-2012 legislative session, the Subcommittee noted that the emission levels of all the four pollutants had dropped when compared with those in 1997. Details were as follows –

Pollutant	Emission level in 1997 (Tonnes)	Change in emission level during 1997-2009	Emission reduction target for 2010
SO ₂	66 200	-24%	-40%
NO _x	124 000	-32%	-20%
RSP	11 500	-57%	-55%
VOC	68 800	-58%	-55%

Emission reduction

18. Members were concerned whether additional measures would be adopted with a view to meeting the 2010 emission reduction target in respect of SO₂ emissions. They considered that more emphasis should be placed on the reduction of RSP emissions in setting the emission reduction targets for the next 10 years.

19. Given that there was no marked improvement to the air quality in Hong Kong despite the improvement made in PRD region, members considered that there was a need for more data on emissions from both sides with a view to identifying the sources of air pollution and working out effective measures to improve air quality.

Transport sector

20. Some members held the view that the one-off grant scheme to encourage early replacement of Euro II vehicles was not attractive, particularly to owners of goods vehicles who were reluctant to pay huge sums of money to upgrade their vehicles. They suggested that consideration should be given for the Administration to buy back all pre-Euro and Euro I diesel vehicles, so that these could be removed from the roads permanently. There was also a need to resolve the operational problems associated with the use of Euro IV vehicles in order to encourage early replacement of polluting vehicles.

21. Some members considered that efforts should be stepped up to promote the use of biodiesel, including the provision of more information on the effect of biodiesel on vehicle performance to allay drivers' concerns. Consideration should also be given to allowing a higher percentage of biodiesel (say over 10%) to be blended with motor vehicle diesel in line with overseas practices.

Discussion by the Subcommittee on Issues Relating to Air, Noise and Light Pollution

22. The ANLP Subcommittee held a series of meetings to discuss the Hong Kong Government's measures to tackle air pollution and made a number of recommendations in this regard. The recommendations, as set out in paragraph 138 the Report of the ANLP Subcommittee, are hyperlinked in **Appendix I** for members' reference.

Council questions

23. Hon CHOY So-yuk, Hon Tanya CHAN and Hon CHAN Hak-kan raised questions relating to regional air quality at the Council meetings on 21 May 2008, 21 December 2011 and 11 June 2014 respectively. Details of the Council questions are hyperlinked in **Appendix I** for members' ease of reference.

Latest development

24. The Administration will brief the Panel on the joints efforts with Guangdong in tackling air quality issues in the PRD region, including the latest collaboration initiatives of the two places in response to the State Council's 10 measures in combating Mainland's air pollution, at the special meeting on 17 July 2014.

Relevant papers

25. A list of relevant papers since the fourth Legislative Council is in **Appendix I**.

List of relevant papers

Council/ Committee	Date of meeting	Paper
Panel on Environmental Affairs	28 January 2008	<p>Administration's paper on "Progress of Measures to Improve Air Quality" (LC Paper No. CB(1)647/07-08(15)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0128cb1-647-15-e.pdf</p> <p>Updated background brief on air pollution control prepared by the Legislative Council Secretariat (LC Paper No. CB(1)647/07-08(16)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0128cb1-647-16-e.pdf</p> <p>Administration's report on "Mid-term Review of the Pearl River Delta Regional Air Quality Management Plan" (LC Paper No. CB(1)666/07-08(04)) http://www.legco.gov.hk/yr07-08/chinese/panels/ea/papers/ea0128cb1-666-4-ec.pdf</p> <p>Minutes of meeting (LC Paper No. CB(1)1040/07-08) http://www.legco.gov.hk/yr07-08/english/panels/ea/minutes/ea080128.pdf</p>
Panel on Environmental Affairs	16 July 2008*	<p>Administration's paper on "Progress of Measures to Improve Air Quality" (LC Paper No. CB(1)2176/07-08(01)) http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/eacb1-2176-1-e.pdf</p>

Council/ Committee	Date of meeting	Paper
Subcommittee on Improving Air Quality	13 January 2009	<p>Administration's paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan to Achieve 2010 Emission Reduction Targets" (LC Paper No. CB(1)531/08-09(01)) http://www.legco.gov.hk/yr08-09/english/panels/ea/ea_iaq/papers/ea_iaq0113cb1-531-1-e.pdf</p> <p>Background brief on the Pearl River Delta Regional Air Quality Management Plan prepared by the Legislative Council Secretariat (LC Paper No. CB(1)547/08-09(01)) http://www.legco.gov.hk/yr08-09/english/panels/ea/ea_iaq/papers/ea_iaq0113cb1-547-1-e.pdf</p> <p>Minutes of meeting (LC Paper No. CB(1)732/08-09) http://www.legco.gov.hk/yr08-09/english/panels/ea/ea_iaq/minutes/iaq20090113.pdf</p> <p>Administration's follow-up paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan to Achieve 2010 Emission Reduction Targets" (LC Paper No. CB(1)733/08-09(04)) http://www.legco.gov.hk/yr08-09/english/panels/ea/ea_iaq/papers/ea_iaq0212cb1-733-4-e.pdf</p> <p>Administration's response to questions raised at the meeting on 13 January 2009 (LC Paper No. CB(1)1463/08-09(01)) http://www.legco.gov.hk/yr08-09/english/panels/ea/ea_iaq/papers/ea_iaq0113cb1-1463-1-e.pdf</p>

Council/ Committee	Date of meeting	Paper
Subcommittee on Improving Air Quality	5 August 2009*	Administration's paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan to Achieve 2010 Emission Reduction Targets" (LC Paper No. CB(1)2437/08-09(01)) http://www.legco.gov.hk/yr08-09/english/panels/ea/papers/eacb1-2437-1-e.pdf
Subcommittee on Improving Air Quality	4 January 2010	Administration's paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan to Achieve 2010 Emission Reduction Targets" (LC Paper No. CB(1)750/09-10(01)) http://www.legco.gov.hk/yr09-10/english/panels/ea/ea_iaq/papers/ea_iaq0104cb1-750-1-e.pdf Minutes of meeting (LC Paper No. CB(1)1246/09-10) http://www.legco.gov.hk/yr09-10/english/panels/ea/ea_iaq/minutes/iaq20100104.pdf
Subcommittee on Improving Air Quality	3 August 2010*	Administration's paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan to Achieve 2010 Emission Reduction Targets" (LC Paper No. CB(1)2690/09-10(01)) http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/eacb1-2690-1-e.pdf

Council/ Committee	Date of meeting	Paper
Subcommittee on Improving Air Quality	28 January 2011	<p>Administration's paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan to Achieve 2010 Emission Reduction Targets" (LC Paper No. CB(1)1132/10-11(01)) http://www.legco.gov.hk/yr10-11/english/panels/ea/ea_iaq/papers/ea_iaq0128cb1-1132-1-e.pdf</p> <p>Updated background brief on the Pearl River Delta Regional Air Quality Management Plan prepared by the Legislative Council Secretariat (LC Paper No. CB(1)1132/10-11(02)) http://www.legco.gov.hk/yr10-11/english/panels/ea/ea_iaq/papers/ea_iaq0128cb1-1132-2-e.pdf</p> <p>Minutes of meeting (LC Paper No. CB(1)1632/10-11) http://www.legco.gov.hk/yr10-11/english/panels/ea/ea_iaq/minutes/iaq20110128.pdf</p> <p>Administration's supplementary paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan to Achieve 2010 Emission Reduction Targets" (LC Paper No. CB(1)2184/10-11(01)) http://www.legco.gov.hk/yr10-11/english/panels/ea/ea_iaq/papers/ea_iaq0128cb1-2184-1-e.pdf</p>
Subcommittee on Improving Air Quality	31 August 2011*	<p>Administration's paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan" (LC Paper No. CB(1)2968/10-11(01)) http://www.legco.gov.hk/yr10-11/english/panels/ea/papers/eacb1-2968-1-e.pdf</p>

Council/ Committee	Date of meeting	Paper
Subcommittee on Improving Air Quality	1 February 2012*	Administration's on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan" (LC Paper No. CB(1)972/11-12(01)) http://www.legco.gov.hk/yr11-12/english/panels/ea/ea_iaq/papers/ea_iaq1124cb1-972-1-e.pdf
Subcommittee on Improving Air Quality	17 July 2012*	Administration's paper on "Progress of Measures under Pearl River Delta Regional Air Quality Management Plan" (LC Paper No. CB(1)2370/11-12(01)) http://www.legco.gov.hk/yr11-12/english/panels/ea/papers/eacb1-2370-1-e.pdf
Subcommittee on Issues Relating to Air, Noise and Light Pollution	27 February 2014*	Report of the Subcommittee on Issues Relating to Air, Noise and Light Pollution to the Panel on Environmental Affairs (LC Paper No. CB(1)1003/13-14(01)) http://www.legco.gov.hk/yr13-14/english/panels/ea/ea_anlp/reports/ea_anlpcb1-1003-1-e.pdf

* Date of issuance of papers

Hyperlinks to relevant Council Questions:

Date	Council Question
21 May 2008	Council question raised by Hon CHOY So-yuk http://www.info.gov.hk/gia/general/200805/21/P200805210211.htm
21 December 2011	Council question raised by Hon Tanya CHAN http://www.info.gov.hk/gia/general/201112/21/P201112210348.htm
11 June 2014	Council question raised by Hon CHAN Hak-kan http://www.info.gov.hk/gia/general/201406/11/P201406110401.htm

Hyperlinks to relevant documents:

Government bureau/department	Document
Environment Bureau in collaboration with Transport and Housing Bureau Food and Health Bureau Development Bureau	A Clean Air Plan for Hong Kong http://www.enb.gov.hk/sites/default/files/New_Air_Plan_en.pdf
Environmental Protection Department, HKSAR and Guangdong Provincial Environmental Monitoring Centre	Pearl River Delta Regional Air Quality Monitoring Network – A Report of Monitoring Results in 2013 http://www.epd.gov.hk/epd/english/resources_publications/files/PRD_2013_report_en.pdf

**Average Annual Pollutant Concentrations and Statistics on
Regional Air Quality Index of the Air Quality Network (2006-2013)**

Year	Average annual concentration ^a				Regional Air Quality Index meeting Class 2 of NAAQS ^b in a year
	Sulphur dioxide	Nitrogen dioxide	Ozone	Respirable suspended particulates	
2006	0.047	0.046	0.048	0.074	68.4%
2007	0.048	0.045	0.051	0.079	66.2%
2008	0.039	0.045	0.051	0.070	71.1%
2009	0.029	0.042	0.056	0.069	75.1%
2010	0.025	0.043	0.053	0.064	77.4%
2011	0.024	0.040	0.058	0.064	76.8%
2012	0.018	0.038	0.054	0.056	84.4%
2013	0.018	0.040	0.054	0.063	82.0%

- Remarks:
- a. All concentration units are in milligrams per cubic metre.
 - b. The Class 2 National Ambient Air Quality Standards ("NAAQS") are applicable to general residential areas.

國務院大氣污染防治十條措施

- 一是減少污染物排放。全面整治燃煤小鍋爐，加快重點行業脫硫脫硝除塵改造。整治城市揚塵。提升燃油品質，限期淘汰黃標車。
- 二是嚴控高耗能、高污染行業新增產能，提前一年完成鋼鐵、水泥、電解鋁、平板玻璃等重點行業"十二五"落後產能淘汰任務。
- 三是大力推行清潔生產，重點行業主要大氣污染物排放強度到2017年底下降30%以上。大力發展公共交通。
- 四是加快調整能源結構，加大天然氣、煤制甲烷等清潔能源供應。
- 五是強化節能環保指標約束，對未通過能評、環評的項目，不得批准開工建設，不得提供土地，不得提供貸款支持，不得供電供水。
- 六是推行激勵與約束並舉的節能減排新機制，加大排污費徵收力度。加大對大氣污染防治的信貸支持。加強國際合作，大力培育環保、新能源產業。
- 七是用法律、標準"倒逼"產業轉型升級。制定、修訂重點行業排放標準，建議修訂大氣污染防治法等法律。強制公開重污染行業企業環境信息。公佈重點城市空氣質量排名。加大違法行為處罰力度。
- 八是建立環渤海包括京津冀、長三角、珠三角等區域聯防聯控機制，加強人口密集地區和重點大城市PM_{2.5}治理，構建對各省（區、市）的大氣環境整治目標責任考核體系。
- 九是將重污染天氣納入地方政府突發事件應急管理，根據污染等級及時採取重污染企業限產限排、機動車限行等措施。
- 十是樹立全社會"同呼吸、共奮鬥"的行為準則，地方政府對當地空氣質量負總責，落實企業治污主體責任，國務院有關部門協調聯動、倡導節約、綠色消費方式和生活習慣，動員全民參與環境保護和監督。