File Ref.: EP CR 9/150/34

LEGISLATIVE COUNCIL BRIEF

AIR POLLUTION CONTROL (AMENDMENT) BILL 2013

INTRODUCTION

At the meeting of the Executive Council on 5 February 2013, the Council ADVISED and the Chief Executive ORDERED that the Air Pollution Control (Amendment) Bill 2013 (at Annex A) should be introduced into the Legislative Council.

JUSTIFICATIONS

- 2. In the Air Pollution Control Ordinance (APCO) (Cap. 311), the Air Quality Objectives (AQOs) of Hong Kong are stipulated as the air quality that should be achieved and maintained in order to promote the conservation and best use of air in the public interest. The AQOs are also benchmarks for assessing the air quality impact of specified processes under the APCO and of designated projects under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499).
- 3. The current AQOs have been in place since 1987¹. Following the release of new Air Quality Guidelines (AQGs) by the World Health Organization (WHO) in 2006, we commissioned a consultancy study in 2007 on updating the AQOs and consulted the public on the recommendations in 2009. In January 2012, the Government announced the decision to update the AQOs with effect from early 2014 subject to the passage of relevant legislation in 2013. The new AQOs are benchmarked against a combination of both interim and ultimate targets of the AQGs of WHO (see <u>Annex B</u>), and are broadly comparable to the air quality standards adopted in the European Union and United States.

Transitional Arrangement for Ongoing Infrastructure Projects

4. When implementing the new AQOs, we will include a transitional arrangement for designated projects with Environmental Permits (EP) granted under the EIAO before the commencement of the new AQOs. For these projects, an application for variation of EP lodged within 36 months of the commencement of the new AQOs will be considered on the basis of the old AQOs. This time-limited transitional

¹ The AQOs were laid down in the Air Control Zones (Consolidation) Statement of Air Quality Objectives (Cap. 311H) in 1987. The Statement and the empowering provision for its publication were subsequently repealed, and the same AQOs were set out in the Technical Memorandum for Specifying Air Quality Objectives for Hong Kong in 1994.

arrangement serves to preserve the integrity of the environmental impact assessment (EIA) system and provide regulatory certainty for project proponents who have already completed the EIA process.

Air Quality Improvement Measures and Periodic Review of the AQOs

5. To attain the new AQOs, we have been taking forward a wide range of air quality improvement measures targeting at various key emission sources including power plants, vehicles and marine vessels. (A list of the measures is at Annex C.) We also announced in November 2012 a joint emission reduction plan with Guangdong up to 2020. Underlining our on-going commitment to protecting public health and improving air quality, we have undertaken to review the AQOs at least once every five years after the commencement of the new AQOs.

THE BILL

- 6. The main provisions of the Amendment Bill are -
 - (a) a new Schedule 5 to the APCO setting out the new AQOs that will come into effect on 1 January 2014 (see clause 7);
 - (b) a substantive provision in the Amendment Bill to provide for the continued application of the old AQOs (i.e. the AQOs set out in an existing TM issued under section 7(1A) of the APCO) for applications for variations of EP submitted before 1 January 2017, where the EP concerned was issued before 1 January 2014 (see clause 8);
 - (c) a provision to repeal section 7 of the APCO, which currently empowers the Secretary for the Environment (SEN) to promulgate AQOs by issuing a TM subject to negative vetting (see clause 4); and
 - (d) a new section 7A of the APCO providing for the periodic review of the AQOs by SEN, at least once every five years, with a report to the Advisory Council on the Environment (ACE) (see clause 5).

The existing provisions being amended are at Annex D.

LEGISLATIVE TIMETABLE

7. The legislative timetable will be as follows -

Publication in the Gazette 15 February 2013

20 March 2013

First Reading and commencement of Second Reading debate

Resumption of Second Reading debate, committee stage and Third Reading

To be notified

IMPLICATIONS OF THE PROPOSAL

8. The proposal has economic, financial, civil service, environmental and sustainability implications as set out at <u>Annex E</u>. The proposal is in conformity with the Basic Law, including the provisions concerning human rights. The proposed amendments to the APCO do not change the binding effect of the APCO.

PUBLIC CONSULTATION

9. We conducted a four-month public consultation in 2009 on the proposal to update the AQOs. After the announcement of Government's decision in January 2012 to adopt the new AQOs, we briefed ACE and the LegCo Subcommittee on Improving Air Quality in March and April 2012 respectively.

PUBLICITY

10. We will publish the Amendment Bill in the Gazette on 15 February 2013. A spokesman will be available for press enquiries.

ENQUIRY

11. For any enquiry relating to this brief, please contact Mr W.C. Mok, Assistant Director of Environment Protection (Air Policy), at 3509 8618.

Environment Bureau / Environmental Protection Department February 2013

A BILL

To

Amend the Air Pollution Control Ordinance to set out air quality objectives in the Ordinance; to provide for the review of those objectives with a view to promoting the conservation and best use of air in the public interest; and to provide for related matters.

Enacted by the Legislative Council.

Part 1

Preliminary

1. Short title and commencement

- (1) This Ordinance may be cited as the Air Pollution Control (Amendment) Ordinance 2013.
- (2) This Ordinance comes into operation on 1 January 2014.

Annex A

Аіг	Pollution	Control ((Amendment)	Bill 2013
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Part 2 Clause 2

2

Part 2

Amendments to Air Pollution Control Ordinance

2. Air Pollution Control Ordinance amended

The Air Pollution Control Ordinance (Cap. 311) is amended as set out in sections 3 to 7.

- 3. Section 2 amended (interpretation)
 - (1) Section 2, definition of air quality objective—

Repeal

"an air quality objective established by the Secretary under section 7"

Substitute

"the air quality objective referred to in section 7A(1)".

(2) Section 2, definition of technical memorandum—

Repeal

"7,".

4. Section 7 repealed (Secretary to establish quality objectives)

Section 7—

Repeal the section.

5. Section 7A added

Before section 8—

Add

"7A. Air quality objectives

- (1) Schedule 5 prescribes the air quality objectives for an air control zone.
- (2) Subject to subsection (3), the Secretary may from time to time review the air quality objectives for an air control zone to ensure that they are the objectives that should be achieved and maintained in order to—
 - (a) promote the conservation of air in the zone in the public interest; and
 - (b) promote the best use of air in the zone in the public interest.
- (3) A review under subsection (2) must be carried out at least once in every review period.
- (4) As soon as reasonably practicable after a review is carried out under subsection (2), the Secretary must submit to the Advisory Council on the Environment a report of the review.
- (5) In this section, a reference to an air control zone includes a part of an air control zone.
- (6) In this section—

review period (檢討期) means—

- (a) the period of 5 years beginning on 1 January 2014;
- (b) each successive 5-year period.".
- 6. Section 45 amended (Advisory Council on the Environment)

Section 45—

Repeal

"7"

Air Pollution Control (Amendment) Bill 2013

Part 2 Clause 7

4

Substitute

"7A".

7. Schedule 5 added

After Schedule 4—

Add

"Schedule 5

[s. 7A]

Air Quality Objectives

Part 1

Preliminary

1. Interpretation

In this Schedule—

fine suspended particulates (微細懸浮粒子) means suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less;

respirable suspended particulates (可吸入懸浮粒子) means suspended particles in air with a nominal aerodynamic diameter of 10 µm or less.

2. Application

The air quality objectives set out in this Schedule are prescribed for every air control zone.

3. Reference conditions

All measurements of the concentration of gaseous air pollutants set out in Part 2 of this Schedule are to be adjusted

Part 2 Clause 7

6

to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.

Part 2

Concentration Limits of Air Pollutants

4. Sulphur dioxide

- (1) The concentration limit of sulphur dioxide in air averaged over a reference period is 500 μg/m³ and the number of reference periods in which the limit is exceeded should not be more than 3 per calendar year.
- (2) The concentration limit of sulphur dioxide in air averaged over a day is $125 \,\mu\text{g/m}^3$ and the number of days on which the limit is exceeded should not be more than 3 per calendar year.
- (3) For the purposes of subsection (1), a reference period is—
 - (a) the first 10 minutes of a day; or
 - (b) each successive 10-minute period of the day.

5. Respirable suspended particulates

- (1) The concentration limit of respirable suspended particulates in air averaged over a day is 100 μg/m³ and the number of days on which the limit is exceeded should not be more than 9 per calendar year.
- (2) The concentration of respirable suspended particulates in air averaged over a calendar year should not exceed 50 µg/m³.

6. Fine suspended particulates

- (1) The concentration limit of fine suspended particulates in air averaged over a day is 75 μg/m³ and the number of days on which the limit is exceeded should not be more than 9 per calendar year.
- (2) The concentration of fine suspended particulates in air averaged over a calendar year should not exceed 35 µg/m³.

7. Nitrogen dioxide

- (1) The concentration limit of nitrogen dioxide in air averaged over an hour is 200 μg/m³ and the number of hours in which the limit is exceeded should not be more than 18 per calendar year.
- (2) The concentration of nitrogen dioxide in air averaged over a calendar year should not exceed 40 μg/m³.

8. Ozone

- (1) The number of days on which the maximum daily 8-hour mean concentration of ozone in air exceeds 160 μg/m³ should not be more than 9 per calendar year.
- (2) For the purposes of subsection (1), the maximum daily 8-hour mean concentration of ozone in air is selected by examining 8-hour running averages, calculated from hourly data and updated each hour.
- (3) Each 8-hour running average calculated for the purposes of subsection (2) is assigned to the day on which the 8-hour period ends, that is—
 - (a) the first calculation period for a day is the period from 5 p.m. on the previous day to 1 a.m. on that day; and

(b) the last calculation period for a day is the period from 4 p.m. to 12 midnight on that day.

9. Carbon monoxide

- (1) The concentration of carbon monoxide in air averaged over an hour should not exceed 30 000 μg/m³.
- (2) The maximum daily 8-hour mean concentration of carbon monoxide in air should not exceed 10 000 μg/m³.
- (3) For the purposes of subsection (2), the maximum daily 8-hour mean concentration of carbon monoxide in air is selected by examining 8-hour running averages, calculated from hourly data and updated each hour.
- (4) Each 8-hour running average calculated for the purposes of subsection (3) is assigned to the day on which the 8-hour period ends, that is—
 - (a) the first calculation period for a day is the period from 5 p.m. on the previous day to 1 a.m. on that day; and
 - (b) the last calculation period for a day is the period from 4 p.m. to 12 midnight on that day.

10. Lead

The concentration of lead in air averaged over a calendar year should not exceed $0.5 \mu g/m^3$.".

Air Pollution Control (Amendment) Bill 2013

Part 3	
Clause	1

8

Part 3

Transitional Provision Relating to Air Quality
Objectives Published in Technical Memorandum Issued
under Section 7(1A) of Air Pollution Control Ordinance

- 8. Effect of air quality objectives published in technical memorandum issued under repealed section 7(1A)
 - Subject to subsection (2), the air quality objectives published in the APCO technical memorandum cease to have effect on the expiry of 31 December 2013.
 - (2) For an application made before 1 January 2017 under section 13(1) of the Environmental Impact Assessment Ordinance (Cap. 499) for a variation of the conditions of an environmental permit issued before 1 January 2014—
 - (a) the air quality objectives published in the APCO technical memorandum as in force immediately before 1 January 2014 continue to have effect as a criterion for evaluating air quality impact under section 1.1(a) of Annex 4 to the EIAO technical memorandum—
 - (i) for the purposes of sections 5, 6, 7 and 8 of the Environmental Impact Assessment Ordinance (Cap. 499), as applied in relation to the application because of section 13(4) of that Ordinance; and
 - (ii) for the purposes of section 13(5)(b) of that Ordinance; and
 - (b) the air quality objectives referred to in section 7A(1) of the Air Pollution Control Ordinance (Cap. 311) as in force on or after 1 January 2014 do not have effect as such a criterion for those purposes.

- (3) In this section—
- APCO technical memorandum (《空氣污染管制條例技術備忘錄》) means the technical memorandum issued under the repealed section 7(1A) on 24 June 1994;
- EIAO technical memorandum (《環評條例技術備忘錄》) means the technical memorandum published under section 16(5) of the Environmental Impact Assessment Ordinance (Cap. 499) on 16 May 1997;
- repealed section 7(1A) (已廢除的第 7(1A)條) means section 7(1A) of the Air Pollution Control Ordinance (Cap. 311) repealed by section 4.

Air Pollution Control (Amendment) Bill 2013

Explanatory Memorandum Paragraph 1

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Explanatory Memorandum

The object of this Bill is to amend the Air Pollution Control Ordinance (Cap. 311) (*principal Ordinance*) to set out air quality objectives in the principal Ordinance and to provide for the review of the air quality objectives by the Secretary for the Environment (*Secretary*).

- 2. Clause 1 sets out the short title and provides for commencement.
- 3. Clause 4 repeals the power of the Secretary to establish air quality objectives by a technical memorandum.
- 4. Clause 5 adds a new section 7A to the principal Ordinance to provide that air quality objectives are prescribed in the Schedule 5 to the principal Ordinance. The new section 7A also provides for the review of the air quality objectives by the Secretary. The Secretary is required to submit a report of the review to the Advisory Council on the Environment.
- 5. Clause 7 adds a new Schedule 5 to the principal Ordinance. The air quality objectives are prescribed in the new Schedule 5.
- 6. Clause 8 provides that the air quality objectives published in the technical memorandum issued under section 7(1A) of the principal Ordinance on 24 June 1994 ceases to have effect on the expiry of 31 December 2013. However, for an application under section 13(1) of the Environmental Impact Assessment Ordinance (Cap. 499) for a variation of the conditions of an environmental permit issued before 1 January 2014, if the application is made before 1 January 2017, the air quality objectives published in that technical memorandum will continue to have effect as a criterion for evaluating the impact on air quality for the purposes of section 13 of that Ordinance.

The New AQOs for Hong Kong

Pollutants	Avg. Time	Existing AQOs		Proposed AQOs				
		(μg/m ³)	No of Exceed- ances Allowed	WHO IT-1 ^[3] (μg/m ³)	WHO IT-2 ^[3] (μg/m ³)	WHO IT-3 ^[3] (μg/m ³)	WHO AQG (µg/m³)	No of Exceed- ances Allowed
Sulphur	10-min			-	-	-	500	3
Dioxide (SO2)	24-hr	350	1	125	50	ı	20	3
Respirable	24-hr	180	1	150	100	75	50	9
Suspended Particulates (PM10)	Annua 1	55	NA	70	50	30	20	NA
Fine	24-hr	-		75	50	37.5	25	9
Suspended Particulates (PM2.5)	Annua 1			35	25	15	10	NA
Nitrogen	1-hr	300	3	-	-	-	200	18
Dioxide (NO2)	Annua 1	80	NA	ı	ı	-	40	NA
Ozone (O3)	8-hr	240 [1]	3	160	ı	-	100	9
Carbon	1-hr	30,000	3	1	1	-	30,000	0
Monoxide (CO)	8-hr	10,000	1	-	-	-	10,000	0
Lead (Pb)	Annua 1	1.5 [2]	NA	-	-	-	0.5	NA

Proposed new AQOs

There is no existing 8-hour AQO for ozone in Hong Kong. The figure presented above is the 1-hour AQO.

There is no annual AQO for lead in Hong Kong. The figure presented above is the 3-month AQO.

The WHO accepts the need for governments to set national standards according to their own particular circumstances. The WHO guidelines therefore also suggest interim targets (ITs) on SO2, PM10, PM2.5 and O3 to facilitate a progressive approach for achieving the ultimate AQGs and provide milestones in achieving better air quality.

Air Quality Improvement Measures

1. Emission Capping and Control

- (i) Increasing the ratio of natural gas in local electricity generation to 50% with additional emission abatement measures
- (ii) Early retirement of aged / heavily polluting vehicles
- (iii) Earlier replacement of Euro III commercial diesel vehicles with models meeting latest Euro standards
- (iv) Wider use of hybrid / electric vehicles or other environmentfriendly vehicles with similar performance
- (v) Use of 0.05% sulphur diesel for local vessels
- (vi) Measures to reduce nitrogen oxides emissions from Government vessels
- (vii) Electrification of aviation ground support equipment
- (viii) Emission control for off-road vehicles / equipment
- (ix) Strengthening volatile organic compounds (VOC) control

2. Traffic Related Measures

- (x) Low emission zones
- (xi) Car-free zone / pedestrianization scheme
- (xii) Bus route rationalization

3. Infrastructure Development and Planning

- (xiii) Expand rail network
- (xiv) Develop cycle tracks in new development areas

4. Energy Efficiency Measures

- (xv) Mandatory implementation of the Building Energy Codes
- (xvi) Energy efficiency standards for domestic electrical appliances
- (xvii) Light-emitting diode (LED) or equivalent alternatives for traffic signal / street lighting
- (xviii) Tree planting / skyrise greening
- (xix) District cooling system for Kai Tak Development

5. Measures outside the AQOs Review

- (xx) Retrofit Euro II and III franchised buses with selective catalytic reduction devices to reduce their nitrogen oxides emissions
- (xxi) Introduce a more stringent regime to control emissions from LPG and petrol vehicles through remote sensing equipment and dynamometer tests
- (xxii) Require ocean-going vessels to switch to cleaner fuels while berthing at Pearl River Delta (PRD) ports and setting up an Emission Control Area in PRD waters over the longer term

Existing Provisions to be Amended by the Air Pollution Control (Amendment) Bill 2013

I. Provisions of the Air Pollution Control Ordinance (Cap. 311)

Section 2 Interpretation

In this Ordinance, unless the context otherwise requires -

. . . .

"air quality objective" (空氣質素指標) means an air quality objective established by the Secretary under section 7;

...

"technical memorandum" (技術備忘錄) means a technical memorandum issued under section 7, 9 or 26G;

. . .

Section 7 Secretary to establish quality objectives

- (1) The Secretary shall, after consultation with the Advisory Council on the Environment, establish for each air control zone air quality objectives or different objectives for different parts of a zone.
- (1A) The Secretary may publish air quality objectives for an air control zone by issuing a technical memorandum which may specify different objectives for different parts of the zone.
- (2) The air quality objectives for any particular air control zone or part thereof shall be the quality which, in the opinion of the Secretary, should be achieved and maintained in order to promote the conservation and best use of air in the zone in the public interest.
- (3) Any air quality objective may be amended from time to time by the Secretary, after consultation with the Advisory Council on the Environment.

Section 45 Advisory Council on the Environment

If any question arises as to who are the body of persons for the time

being constituting the Advisory Council on the Environment mentioned in sections 6, 7, 37 and 43 the matter shall be referred to the Chief Secretary for Administration, who shall determine the question by certificate under his hand.

II. Technical Memorandum for Specifying Air Quality Objectives for Hong Kong(At Appendix) Appendix to Annex D

TECHNICAL MEMORANDUM FOR SPECIFYING AIR QUALITY OBJECTIVES FOR HONG KONG

TECHNICAL MEMORANDUM FOR SPECIFYING AIR QUALITY OBJECTIVES FOR HONG KONG

Issued under subsection 7(1A) of the Air Pollution Control Ordinance

- 1. The air quality objectives set out in the Schedule shall apply to all air control zones described in Schedules 1 to 10 of the Air Pollution Control (Air Control Zones) (Declaration) (Consolidation) Order (Cap. 311 sub. leg. E).
- 2. All measurements of air pollutants in the Schedule shall be adjusted to a reference temperature of 298K and a reference pressure of 101.325 K Pa.

SCHEDULE

(A) SULPHUR DIOXIDE

- (i) The concentration of sulphur dioxide in air averaged over any one hour shall not exceed 800 microgrammes per cubic metre on more than three occasions per year.
- (ii) The concentration of sulphur dioxide in air averaged over any 24 hour period shall not exceed 350 microgrammes per cubic metre more than once per year.
- (iii) The concentration of sulphur dioxide in air averaged over a year shall not exceed 80 microgrammes per cubic metre.

(B) TOTAL SUSPENDED PARTICULATES

- (i) The concentration of total suspended particulates in air averaged over any 24 hour period shall not exceed 260 microgrammes per cubic metre more than once per year.
- (ii) The concentration of total suspended particulates in air averaged over a year shall not exceed 80 microgrammes per cubic metre.

(C) RESPIRABLE SUSPENDED PARTICULATES

- (i) The concentration of respirable suspended particulates in air having a nominal aerodynamic diameter of 10 micrometres or less, averaged over any 24 hour period, shall not exceed 180 microgrammes per cubic metre more than once per year.
- (ii) The concentration of respirable suspended particulates in air having a nominal aerodynamic diameter of 10 micrometres or less, averaged over a year, shall not exceed 55 microgrammes per cubic metre.

(D) NITROGEN DIOXIDE

- (i) The concentration of nitrogen dioxide in air averaged over any one hour shall not exceed 300 microgrammes per cubic metre on more than three occasions per year.
- (ii) The concentration of nitrogen dioxide in air averaged over any 24 hour period shall not exceed 150 microgrammes per cubic metre more than once per year.
- (iii) The concentration of nitrogen dioxide in air averaged over a year shall not exceed 80 microgrammes per cubic metre.

(E) CARBON MONOXIDE

- (i) The concentration of carbon monoxide in air averaged over any one hour shall not exceed 30 000 microgrammes per cubic metre on more than three occasions per year.
- (ii) The concentration of carbon monoxide in air averaged over any 8 hour period shall not exceed 10 000 microgrammes per cubic metre more than once per year.

TECHNICAL MEMORANDUM FOR SPECIFYING AIR QUALITY OBJECTIVES FOR HONG KONG

(F) PHOTOCHEMICAL OXIDANTS DETERMINED BY MEASUREMENT OF OZONE

(i) The concentration of photochemical oxidants in air averaged over any one hour shall not exceed 240 microgrammes per cubic metre on more than three occasions per year.

(G) LEAD

(i) The concentration of lead in air averaged over any 3 month period shall not exceed 1.5 microgrammes per cubic metre.

Implications of the Proposal

Economic Implications

Implementation of the new AQOs would help combat air pollution, thereby improving quality of life, reducing medical costs and indirectly raising labour productivity. The consultant in the AQOs review has estimated that about 4,200 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) upon attainment of the new AQOs¹. There will be other health benefits, such as less people contracting asthma or other respiratory diseases. In addition, better air quality and visibility would help attract more tourists and foreign investments, and are conducive to attracting talents to stay and work in Hong Kong. All these would contribute to reinforcing Hong Kong's position as a world city and leading international business hub. The proposal would also add impetus to the development of environmental industry.

- 2. The more stringent AQOs would incur notable costs for the affected businesses, especially the power and transport sectors, in implementing emission reduction measures. When increases in their operating costs are passed on to users including other business sectors and consumers, the costs of living and doing business in Hong Kong would increase, with compounding effects on inflation. The increased burden of costs would impact most on the lower-income households. Sectors with low profit margin and/or high usage of electricity e.g. public services, hotels and catering, laundry, commercial arcades etc. would be most affected if electricity tariff increases substantially. For infrastructural projects, to comply with the new AQOs may lead to higher mitigation costs.
- 3. The consultant has advised that, for indicative purpose, the annualised cost incurred by the public for implementing 19 air quality improvement measures in Phase 1 would be about \$596 million². The amount is significantly lower than the anticipated benefit of \$1,228

¹ It should, however, be noted that these public health benefits are by no means definitive as the assessment is subject to different assumptions being used.

² The costs include the incidental capital and operational costs on the entire community as a consequence of implementing the measures. For those measures involving accelerated replacement of assets, the residual values of the assets but not the entire costs of replacement are included.

million³ per year due to the improvement of public health⁴.

Environmental Implications

4. The new AQOs aim at better protection of public health against air pollution. To achieve them, the Government will continue to develop and implement air quality improvement measures and collaborate with Guangdong to deliver joint emission reduction targets. We expect that the emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x), respirable suspended particulates and volatile organic compounds (VOC) would be reduced by around 25%, 10%, 10% and 5% respectively by 2015 as compared to the emission levels in 2010. By 2020, the emissions of these four key pollutants would be further reduced by 35%, 20%, 15% and 15% respectively as compared with the 2010 levels. The public health benefits will be significant.

Sustainability Implications

5. The tightening of the AQOs can help improve Hong Kong's air quality. The proposal is conducive to the sustainability principles of seeking opportunities to enhance environmental quality, and providing a living environment which promotes and protects the health of the public.

Financial and Civil Service Implications

- 6. Since the new AQOs will be much more stringent than the old AQOs promulgated in 1987, capital works projects will likely require more vigorous mitigating measures and longer lead time to implement when the new AQOs have come into force. We are unable to quantify at this juncture the additional compliance costs for those projects that will be subject to the new AQOs, since many of them are still in early planning stage.
- 7. The implementation of air quality improvement measures to achieve the new AQOs would have resource implications for relevant bureaux/departments. The proposed measures include incentivising the early replacement of heavily polluting diesel commercial vehicles (for which we have reserved \$10 billion), tightening control on marine emissions by mandating fuel switch at berth and lowering the sulphur content of local vessel fuel. The financial and civil service implications of these measures will be assessed in the light of further studies and

³ The principal benefits of the air quality improvement measures included in the consultant's estimation are reduction in the cost of illness both in terms of the short-term acute impact and the longer-term chronic impact; and a lesser material benefit arising from reduced maintenance and repair of buildings and structures with less air pollution and acid rain.

⁴ The estimation of the economic cost focuses on the cost of the proposals to the community as a whole. The economic cost and benefit have been estimated based on a host of assumptions; they are subject to uncertainties and should not be taken as definitive. The actual costs and benefits would very much depend on the timing, implementation details, the market situations and the community's response etc. when the individual measures are taken forward.

consultation. Any requirement for additional resources will be justified and sought via the established mechanism.