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來函檔號 YOUR REF: CB1/PS/3/08
電話 TEL. NO.: 25946031
圖文傳真 FAX NO.: 25720306
電子郵件 E-MAIL:
網址 HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Headquarters
33/F, Revenue Tower,
5 Gloucester Road,
Wan Chai, Hong Kong.

環境保護署總部
香港灣仔
告士打道五號
稅務大樓三十三樓

CB(1) 1257/08-09(03)

Clerk to Panel on Environmental Affairs
Legislative Council Building
8 Jackson Road
Central
Hong Kong
(Attention: Miss Becky YU)

7 April 2009

Dear Miss YU,

Panel on Environmental Affairs
Subcommittee on Improving Air Quality
Follow-up actions arising from the meeting on 19 March 2009

We refer to your two letters dated 20 March 2009. Please find attached the requested information:

Attachment 1: The Expected Number of Exceedances if World Health Organization's Air Quality Guidelines and the Interim Targets were adopted in Hong Kong

Attachment 2: The Health Impacts and Medical Cost Associated with Each Type of Pollutant

Attachment 3: The Methodology, Assumptions and Raw Data for the Cost-benefit Analysis in respect of the Proposed Different Emission Control Measures Required to Achieve the Proposed New Air Quality Objectives (AQOs)

Attachment 4: The Costs to be Borne by Different Parties and the Periods within which the Costs are expected to be Recouped

Attachment 5: The Air Quality Monitoring at the Tap Mun Air Quality Monitoring Station

Attachment 6: The Minutes of the Meetings of the Advisory Panel for the AQO Review

Attachment 7: Amend the Air Pollution Control Ordinance (Cap. 311) to State it Clearly that AQOs are Set to Protect Public Health

Attachment 8: The Dates and Names of Parties Consulted at the Two Public Fora on the New AQOs

Attachment 9: The Principles Adopted for Setting the New AQOs

Yours sincerely,

(W C MOK)
for Director of Environmental Protection

Attachment 1

The Expected Number of Exceedances
if World Health Organization's Air Quality Guidelines and the Interim Targets were adopted in Hong Kong

The following table shows the predicted number of exceedances of the Air Quality Guidelines and Interim Targets of the World Health Organization after the implementation of the Phase I measures proposed by the AQO Review Consultant. It also presents the numbers of exceedances actually observed in 2007 and 2008.

Air Pollutant	Averaging time	Concentration (ug/m3)	Predicted No. of Exceedances (with Phase I measures implemented)	No. of Exceedances in 2007 [1]	No. of Exceedances in 2008 [1]
SO2	10-min	AQG: 500	0	13	20
	24-hour	IT-1:125	1	0	3
		IT-2: 50	78	90	89
		AQG: 20	208	300	286
RSP	24-hour	IT-1: 150	0	8	4
		IT-2: 100	9 [2]	72	51
		IT-3: 75	86	136	134
		AQG: 50	210	236	211
	Annual	AQO: 55	✓	✓	✓
		IT-2: 50	[✓]	×	×
		IT-3: 30	×	×	×
		AQG: 20	×	×	×
FSP	24-hour	IT-1: 75	9 [3]	50	39
		IT-2: 50	109 [3]	139	129
		IT-3: 37.5	197 [3]	199	192
		AQG: 25	257 [3]	259	285
	Annual	IT-1: 35	[✓]	×	×
		IT-2: 25	×	×	×
		IT-3: 15	×	×	×
		AQG: 10	×	×	×
NO2	1-hour	AQG: 200	12	76	84
	Annual	AQG: 40	✓	×	×
Ozone	8-hr	IT-1: 160	8	18	29
		AQG: 100	65	169	185

(SO2 stands for sulphur dioxide; RSP for respirable suspended particulates; FSP for fine suspended particulates (i.e. PM2.5); NO2 for nitrogen dioxide.)

Note: [1] 2007 and 2008 figures are presented for comparison only.
[2] A few spots at the border might have higher number of exceedances.
[3] The present air quality model does not provide for the prediction of the FSP

levels. The number of exceedances of FSP is estimated by assuming that the level of FSP is roughly equal to about 70% of that of RSP.

"✓" denotes "compliance with the AQO".

"×" denotes "non-compliance with the AQO".

" [✓]" denotes compliance over nearly the whole of Hong Kong except those remote areas close to the boundary.

Attachment 2

The Health Impacts and Medical Cost Associated with Each Type of Pollutant

The following are the health impacts of each type of pollutant:

Pollutants	Acute Impacts	Chronic Impacts
Particulate Matter (PM-10 and PM-2.5)	• Lung inflammatory reactions • Respiratory symptoms • Adverse effects on the cardiovascular system • Increase in medication usage • Increase in hospital admissions • Increases in short-term mortality	• Increases in cardio-pulmonary and lung cancer mortality • Increases in lower respiratory symptoms and reduced lung function in children • Increases in chronic obstructive pulmonary disease and reduced lung function in adults
Nitrogen Dioxide	• Changes in pulmonary function in asthmatics • Increases in bronchial responsiveness in asthmatics	• Decreases lung function • Increases in risk of respiratory symptoms
Sulphur Dioxide	• Changes in pulmonary function and respiratory symptoms in asthmatics	• Increases in mortality
Ozone	• Increases in lung inflammation • Increases in lung permeability • Increases in respiratory symptoms • Decreases in mucociliary clearance rates	• Reduction in lung function growth in children

In estimating the medical cost in the cost-benefit analysis, the AQO Review Consultant (the Consultant) has considered both acute and chronic impacts.

2. In assessing the acute medical cost due to air pollution, the Consultant has made reference to the findings of the following two studies conducted by health experts of local universities for the Environmental Protection Department (EPD) -

(a) "Final Report for the Provision of service for Study of Short Term Health Impact and Costs due to Road Traffic-Related Air pollution" prepared by the Chinese University of Hong Kong and University of Hong Kong for the EPD in March 2002; and

(b) "A Comparative Study of the Effects of Air pollution on General Practitioner Consultations in Hong Kong and London, Supplement to Final Report" prepared by

Professor Wong Tze-wai of the Chinese University of Hong Kong for the EPD in August 2003.

3. The acute medical cost figures from the two studies are summarized below-

	Acute Medical Cost Due to 10 µg /m^3 Change of the Respective Air Pollutant	
	Excluding productivity loss (HK$ M)	**Including productivity loss (HK$M)**
Ambient Air		
Nitrogen Dioxide	227.3	289.7
Respirable Suspended Particulates	114.3	142.6
Sulphur Dioxide	142.7	207.2
Ozone	178.9	213.4
Roadside Air		
Nitrogen Dioxide	140.7	179.3
Respirable Suspended Particulates	44.3	55.3
Sulphur Dioxide	12.8	18.7
Ozone	Not relevant	Not relevant

In his cost-benefit analysis, the Consultant has included productivity loss in his estimation of the acute medical cost.

4. There are no local data for the chronic medical cost due to air pollution. The Consultant has used the cost figures presented in the UK Report "An Economic Analysis to inform the Air Quality Strategy – Updated Third Report of the Interdepartmental Group on Costs and Benefits – 2007". Among air pollutants, fine suspended particulate (PM-2.5) has chronic impacts significantly higher than others and is taken to be the pollutant for estimating chronic medical cost. Based on the UK Report, the Consultant has estimated that a reduction of PM2.5 by 1 µg/m3 improvement over the whole territory of Hong Kong would have an annual health benefit of approximately HK$2.1 Billion.

Attachment 3

The Methodology, Assumptions and Raw Data for the Cost-benefit Analysis in respect of the Proposed Different Emission Control Measures Required to Achieve the Proposed New Air Quality Objectives (AQOs)

The cost-benefit analysis provides a broad indication of the relative cost-effectiveness of different emission control measures. The process involves weighing the total expected costs against the total expected benefits of each measure. In assessing the expected benefits, the same methodology as in the UK Report "*An Economic Analysis to inform the Air Quality Strategy – Updated Third Report of the Interdepartmental Group on Costs and Benefits – 2007*" has been adopted.

2. All costs and all benefits are expressed in money terms, and are adjusted for a period of 50 years and are expressed on a common basis in terms of their 'present value' at 2008. An annual 4% discount rate and an annual 2% inflation rate have been adopted.

Costs

3. The principal costs include the costs of the policy instruments (i.e. developing the policy and the implementation details), and any other incidental capital and operational costs on the entire community of Hong Kong as a consequence of implementation. According to the nature of the measures, the following assumptions have been made in estimating the capital costs-

(a) for those proposed measures which have already been commissioned or planned, such as expanding the rail network, their costs would not be included in the cost-benefit analysis as they would have already been borne by the respective projects;

(b) for those proposed measures involving accelerated replacement of assets, such as early retirement of aged/heavy polluting vehicles, only the residual values of the assets but not the entire cost of replacement would be included because the proposal has merely advanced their replacement; and

(c) for new proposed measures, e.g., district cooling system, full capital costs would be included.

4. Only the 'social costs' borne by the entire community are considered. It makes no distinction as to whether the costs would at the end of the day be borne by the Government, power companies, transport operators or the consumers.

Benefits

5. The benefits of pollution control considered are primarily cost savings of a direct nature (principally short and long term health related cost savings, including the reduced costs of illness and reduced premature mortality, and savings in electricity cost) and indirect nature (principally impacts on the workforce and costs of maintenance and repair to buildings and structures arising from material damage caused by the air pollutants, and some lesser items).

6. Health related benefits include the acute and chronic health benefits, which are estimated according to the following methods-

(a) Acute Health Benefits

The acute health benefits include the health care costs arising from-

(i) hospital admissions (public and private, accident and emergency, specialty and general outpatient) and clinical visits; and

(ii) productivity loss (public and private hospital visits, clinical visits and premature death).

The following is the underlying equation for estimating these costs-

Acute Health Benefits = Reduction in Population Weighted Average Ambient Exposure × Population Affected × Excess Health Risk Coefficient (per unit reduction of ambient exposure) × Cost of Health Risk

As explained in Attachment 2, the AQO Consultant (Consultant) has adopted the findings of the two local studies[1] done by health experts of local universities for the EPD except that the Consultant has updated their cost figures in respect of the current price levels and population.

(b) Chronic Health Benefits

The chronic health benefits are calculated by following equation-

Chronic Health Benefits = Attributable Life Year Lost from Chronic Exposure × Value of Statistical Life Year

where:

Attributable Life Year Lost from Chronic Exposure = Reduction in Population Weighted Average Ambient Exposure of PM-2.5 × Life Years Lost per Unit Hazard Rate × Unit Hazard Rate per ug/m3 PM-2.5

In the calculation, the Consultant has made the following additional assumptions -

(i) PM-2.5 is assumed to be equal to 0.7 × PM-10, which is supported by local particulates measurement data; and

(ii) the value of a Statistical Life Year is taken to be HK$ 435,000 (GBP

1 "Final Report for the Provision of service for Study of Short Term Health Impact and Costs due to Road Traffic-Related Air pollution" prepared by the Chinese University of Hong Kong and University of Hong Kong for the EPD in March 2002; and "A Comparative Study of the Effects of Air pollution on General Practitioner Consultations in Hong Kong and London, Supplement to Final Report" prepared by Professor Wong Tze-wai of the Chinese University of Hong Kong for the EPD in August 2003.

29,000)[2] ;

(iii) the Hazard Rate per ug/m3 PM-2.5 is assumed to be 0.6% per PM-2.5 ug/m3 as the 95% Confidence Interval of the rate is 0.2% to 1.1% per μg/m^3 PM-2.5[3];

(iv) the Life Years Lost per drop in hazard rate is taken to be 8,090 per year per 1% drop in Hazard Rate with reference to the 67,417 per year per 1% drop in Hazard Rate in the UK. The smaller value is due to the fact that the population in Hong Kong is only 12% of that in UK[4].

7. The "reduction in population weighted average ambient exposure" for calculating the health benefits is determined by air quality modeling by using the PATH model, which has been developed by EPD to cater for local situations. Firstly, the ambient air quality improvement due to change of emissions of different sectors would be determined by the air quality modelling with and without the respective sectoral emissions. The respective ambient air quality improvement attributable to an individual control measure in the respective sector would be determined by-

Ambient Air Quality Improvement by the Measure =
Sectoral Ambient Air Quality Improvement × (Emission Reduction by the Measure / Total Emission of the Sector)

8. The "reduction in population weighted average ambient exposure" would then be calculated by averaging the population weighted ambient air quality improvements at different areas under consideration.

9. The Consultant is now finalising the drafting of the report. Once it is finalized, we will publish the report on EPD's website which will have the full details on the methodology and assumptions of the control measures.

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2 Reference: UK (2007), An Economic Analysis to Inform the Air Quality Strategy, Updated 3rd Report of the Inter-departmental Group on Costs and Benefits

3 Reference: Pope et al. "Lung Cancer, Cardiopulmonary mortality, and long-term exposure to fine particulate air pollution, Journal American Medical Association, 2002"

4 Reference: Institute of Occupational Medicine, UK quoted in UK DEFRA (2007), An Economic Analysis to Inform the Air Quality Strategy, Updated 3rd Report of the Inter-departmental Group on Costs and Benefits

Attachment 4

The Costs to be Borne by Different Parties and the Periods within which the Costs are expected to be Recouped

Cost-benefit analysis is undertaken by the consultant to provide a systematic framework for providing a broad indication on the relative cost-effectiveness of different proposed control measures. However, the analysis only focuses on the economic cost of the proposals to the community as a whole. As these proposals are at conceptual stage, the estimates on costs and benefits are subject to uncertainties and variations depending on the timing, implementation details, market situations and community's responses, etc.. Another point to note is that in assessing the proposal to replace old vehicles or machineries, the economic analysis aims to reflect the cost in forfeiting their corresponding residual values in the case of advancing their retirement but not the overall replacement costs. Moreover, the analysis focuses mainly on the economic costs to be borne by the entire community, making no distinction as to whether the costs would eventually be borne by Government, the operators or consumers. Different measures would have different impacts on the community in terms of the magnitude and the affected sectors.

2. The cost and benefit values are assessed for a 50-year period from 2009. Instead of assessing the period of recouping the cost, the consultant uses the benefit-cost ratio for indicating the cost-effectiveness of the individual proposed control measure. The respective benefit-cost ratios of each of the proposed Phase I measures are presented in the following table for reference.

Phase I Measures				
		Cost – Benefit Analysis[1]		
Emission Capping and Control		**Cost ($M)**	**Benefit ($M)**	**Benefit-Cost Ratio**
1.	Increase ratio of natural gas in local electricity generation to 50% with additional emission abatement measures	2,032[7]	1,803	0.9
2.	Early retirement of aged / heavily polluting vehicles (pre-Euro, Euro I and Euro II commercial diesel vehicles and franchised buses)	3,882[2]	24,344	6.3
3.	Earlier uptake of latest Euro standard for commercial diesel vehicles of Euro III (assumed to be about 50%)	2,668[2]	6,134	2.3
4.	Wider use of hybrid / electrical vehicles or other environmentally friendly vehicles with similar performance (20% private cars and 10% franchised buses)	4,326[2]	2,417	0.56
5.	Ultra low sulphur diesel for local vessels	378	6,331	16.7
6.	Selective catalytic reduction for local vessels	249	74	0.30
7.	Electrification of aviation ground support equipment	224	3.8	0.02
8.	Emission control for off-road vehicles / equipment	845	2,123	2.5
9.	Strengthening VOC control for sealant and	18	124	6.9

	adhesives			
	Transport Management			
10.	Low emission zone (banning pre-Euro, Euro I , Euro II and Euro III commercial vehicles) for Central, Mong Kok and Causeway Bay	3,696	2,586	0.7
11.	Car-free zone / pedestrianisation scheme for Central, Mong Kok and Causeway Bay	42	400	10
12.	Bus route rationalization	14	548	39
Infrastructure Development and Planning				
13.	Expand rail network	Note [3]	3,850	Note [3]
14.	Cycling network to major public transport hubs	836	8	0.01
Energy Efficiency Measures [4] (mostly savings in energy cost)				
15.	Mandatory implementation of Building Energy Codes	95	2,634	28
16.	Energy efficient electrical appliances for domestic use	84	2,277	27
17.	LED for street lighting	47	105	2.2
18.	Tree planting / roof-top greening [5]	6,357	1,603	0.3
19	District cooling system for Kai Tak Development	2,788[6]	4,047	1.5

Notes:

[1] In its simplest form, the costs and benefits of each policy are quantified and valued in monetary terms. The cost-benefit analysis is subject to a wide range of assumptions used by the consultants for compiling the assessment of different control measures. As these assumptions are subject to change, the findings of the cost-benefit analysis should be read with caution. Nonetheless, it provides a systematic framework to compare the potential cost-effectiveness of different control measures.

[2] The cost of early retirement of the concerned vehicles is calculated based on the residual value foregone of these vehicles over the remaining period of their normal serviceable life. The upfront capital costs required for procuring the replacement vehicles would be higher than the figures set out in the table.

[3] The railway strategy includes North Island Line, Kwun Tong Line Extension, Kowloon Southern Link and Shatin Central Link. The railway strategy will have additional ride-on effect on improvement of air quality. Only benefit is presented.

[4] Benefits include material damage, energy saving, acute and chronic health benefits. For strategies 15, 16, 17 and 19 the majority of benefits are due to energy savings, not health benefits.

[5] No local emission and cost data. Estimates are based on overseas data for roof top greening of 10% of the urban area.

[6] The figure includes both the capital and operational costs of plant for the coming 50 years.

[7] The figure includes estimated costs due to increasing the ratio of natural gas in local electricity generation to 50%. It does not include estimates on additional emission abatement measures, which would be subject to further studies.

Attachment 5

The Air Quality Monitoring at the Tap Mun Air Quality Monitoring Station

The Tap Mun air quality data in the presentation of the AQO Review Consultant (Consultant) at the Subcommittee meeting held on 19 March 2009 were actual measurement data in 2007 but not the result of air quality modelling.

2. The Tap Mun Air Quality Monitoring Station is equipped with advanced monitoring equipment for measuring continuously the ambient levels of sulphur dioxide, nitrogen dioxide, ozone and particulate matters (both respirable suspended particulates (i.e. PM-10) and fine suspended particulates (i.e. PM-2.5).

3. Owing to its isolation from local emission sources, the Tap Mun Station can provide an insight on how our air quality is affected by sources outside Hong Kong and how best our air quality might reasonably be achieved even with maximum control of our local emissions.

4. As shown in the following table, the measured levels of sulphur dioxide, particulate matters (both PM-10 and PM-2.5) and ozone significantly exceeded the respective Air Quality Guidelines of the World Health Organization in 2006, 2007 and 2008.

Table: Compliance status of Tap Mun Air Quality Monitoring Station with WHO AQGs from 2006 to 2008

		WHO AQGs ($\mu g/m^3$)	Highest measured concentration ($\mu g/m^3$)			No. of exceedance of WHO AQGs		
			2006	2007	2008	2006	2007	2008
Sulphur Dioxide	10-min	500	257	297	409	0	0	0
	24-hr	20	87	57	71	76	103	63
Respirable Suspended Particulate (PM10)	24-hr	50	138	159	147	151	158	170
	1-yr	20	48	53	52	Non-compliant		
Fine Suspended Particulate (PM2.5)	24-hr	25	117	128	99	217	225	219
	1-yr	10	34	38	35	Non-compliant		
Nitrogen Dioxide	1-h	200	123	107	119	0	0	0
	1-yr	40	13	15	14	Compliant		
Ozone	8-hr	100	337	248	320	169	163	184

Attachment 6

The Minutes of the Meetings of the Advisory Panel for the AQO Review

We are seeking the consent of the Advisory Panel members to disclose the minutes of the meetings of the Advisory Panel to the public and still waiting for the reply from some members. We will submit the minutes once their consents are duly received.

Attachment 7

Amend the Air Pollution Control Ordinance (Cap. 311) to State it Clearly that AQOs are Set to Protect Public Health

The practice of stating "the protection of public health" as the purpose of Air Quality Objectives (AQOs) varies from country/economy to country/economy. Some countries/ economies, such as the United States and European Union, specify in their Acts or Directives the purpose of protecting public health, together with the other purposes including protection of welfare and environment. Others, such as Australia, only specify the purposes in their statutory or policy instruments, which in our case is the Technical Memorandum issued under the Air Pollution Control Ordinance, for promulgating the AQOs.

2. In setting the AQOs, some countries, in particular, the United States, are required under the law to consider only the health protection factor. Some others, e.g. the U.K., New Zealand and the Mainland, however, also prescribe in their legislations that cost effectiveness and economic factors need to be considered.

3. As for the Air Pollution Control Ordinance (Cap. 311), under section 7(2), it has already provided that the AQOs "should be achieved and maintained in order to promote the conservation and best use of air in the zone in the public interest." The protection of public health, even though not stated explicitly, is already a key consideration because to do otherwise will not be in "public interest". Having reviewed the practices of other countries/economies, it is considered that one possible option for further reinforcing the need to consider "the protection of public health" in setting the AQOs would be to spell out this principle in the Technical Memorandum under which the new AQOs are promulgated.

Attachment 8

The Dates and Names of Parties
Consulted at the Two Public Fora on the New AQOs

Two public fora were conducted on 18 December 2007 and 31 Janurary 2008, respectively, for the professionals and public/other stakeholders to solicit views on AQO Review. A total of 261 people attended these fora. Parties attended the fora are as follows-

(a) Chairman and Panelists

Professor LAM Kin-che (Chairman)
Prof. NG Cho-nam (Hong Kong University)
Mr. Carlson CHAN / Ms. Anissa WONG (Environmental Protection Department)
Prof. T.W. WONG (Chinese University of Hong Kong)
Prof. Alexis LAU (Hong Kong University of Science and Technology)
Mr. Richard LANCASTER / Mr. S.H CHAN (CLP Power Hong Kong Ltd.)
Mr. Sam TSOI (Ove Arup)

(b) Health Professionals

Name of Organisations	Number of People
Children 818 Health Professionals	*1*
Community Medicine HKU	*1*
Synovate Healthcare	*2*
Total:	4

(c) Environmental Professionals

Name of Organisations	Number of People
Air & Waste Management Association (AWMA) HK	*1*
ARUP	*4*
BioEm Disinfection Technology Limited	*2*
California Air Ltd	*3*
CH2M Hill Hong Kong Limited	*2*
Cinotech Consultants Limited	*1*
CIWEM Hong Kong	*3*
Earth Technologies Limited	*2*
ENSR Asia (HK) Ltd.	*4*
Environ Hong Kong Limited	*2*
Environmental Pioneers & Solutions Ltd	*1*
ERM Environmental Resources Management	*1*

Green Building Services Limited		*1*
Hinds International, (HK) Ltd		*1*
Hong Kong Environmental Protection Equipment Corp. Ltd		*1*
Hong Kong Indoor Air Quality Specialist Ltd		*2*
Mott Connell Ltd		*1*
Oxyvital Limited		*2*
Swire SITA Waste Service Ltd		*1*
YY Technology Co Ltd		*1*
	Total:	36

(d) Energy Professionals

Name of Organisations		Number of People
CLP Holdings Limited		*3*
CLP Power Hong Kong Limited		*9*
ExxonMobil Energy Limited		*2*
Hong Kong Electric Co., Ltd		*15*
The Hong Kong & China Gas Co. Ltd		*5*
Department of Mechanical Engineering, HKU		*1*
	Total:	35

(e) Transport and Logistics Professionals

Name of Organisations		Number of People
Airport Authority H. K.		*2*
Cathy Pacific Airways		*1*
Hong Kong Air Cargo Terminals Limited		*1*
Motorwave Co. Ltd		*1*
MTR Corporation		*4*
Tai Wo Motors Ltd		*1*
The Kowloon Motor Bus Co. (1993) Ltd		*1*
Yardway Motors Limited		*1*
	Total:	12

(f) Industry and Engineering Professionals

Name of Organisations	Number of People
The Hong Kong Institution of Engineers	*1*
Hong Kong Productivity Council	*4*

Anway Engineering Co. Ltd	*3*
China Overseas Building Construction Ltd	*1*
China State Constuction Engineering (HK) Ltd	*1*
CNIM Hong Kong Limited	*1*
Fabri - Technic Engineering & Trading Co. Ltd	*3*
Jardine Engineering Corporation (JEC)	*2*
John Swire & Sons	*1*
Kum Shing Group	*2*
Samfield Building Contractors Ltd	*3*
Du Pont China Limited	*1*
EDMS (Hong Kong) Limited	*2*
EESCO P2E2 Hong Kong Ltd	*4*
GELEC(HK)LTD	*2*
Gold Peak Industries (Holdings) Limited	*1*
Green Island Cement Co Ltd	*1*
ABB (Hong Kong) Limited	*2*
Hong Kong Science & Technology Parks Corporation	*1*
Shiu Wing Steel Ltd	*3*
港九電燃工程電業器材聯會	*1*
Total:	40

(g) Town Planning and Land Uses Professionals

Name of Organisations	Number of People
Centre of Urban Planning & Environmental Management, HKU	*2*
Geography Department, HKBU	*1*
Department of Land Surveying and Geo-Informatics, HK PolyU	*1*
Townland Consultants Ltd	*2*
Total:	6

(h) Academics

Name of Organisations	Number of People
The Chinese University of Hong Kong	*1*
The City University of Hong Kong	*7*
The Hong Kong Baptist University	*2*
The Hong Kong Polytechnic University	*4*
The Hong Kong University of Science & Technology	*13*

The University of Hong Kong	*4*
The Open University of Hong Kong	*2*
Total:	33

(i) Green Groups, Non-Government Organisations and Consulates

Name of Organisations	Number of People
ADM Capital Foundation	*1*
Business Environment Council	*4*
Civic Exchange	*4*
Green Power	*3*
Green Sense	*2*
Green2Greener	*1*
Greenpeace	*1*
HK- China Relation Strategic Development Research Fund	*1*
The Climate Group	*2*
WWF Hong Kong	*1*
Bristish Consulate General	*1*
Consulate General of Canada	*3*
Total:	24

(j) Trade, Chambers of Commerce

Name of Organisations	Number of People
Actuarial Society of Hong Kong	*1*
Ark Eden	*1*
Avery Dennison HK Ltd	*1*
Best Style Industrial Ltd	*1*
Chevaller Property Management Ltd	*1*
CHKC Building Management Ltd	*1*
Hong Kong Adventist College	*2*
Hong Kong Bank	*2*
Hong Kong Exchanges & Clearing Limited	*2*
Hong Kong Housing Society	*2*
Hong Kong Institute of Vocational Education	*6*
Hong Yip Service Company Ltd	*2*
IEC in Sports	*2*
ISS East Point Property Management Limited	*1*
KC Associates Ltd	*1*
Kerry Project Management (HK) Limited	*1*

King George V School		*3*
Li & Fung Limited		*1*
Life Air IAO Ltd.		*2*
Mattel Asia Pacific Sourcing Limited		*2*
PCPD Facilities Management Ltd.		*1*
PTC International Limited		*1*
Service Managers Association		*1*
SGS Hong Kong Limited		*3*
Shui On Properties Management Ltd		*1*
Sino Estate Management Ltd.		*8*
Sun Hung Kai Properties Ltd		*1*
Swire Properties Ltd.		*2*
Swiss Chamber of Commerce in Hong Kong		*1*
TUV SUD Hong Kong		*1*
Vocational Training Council		*7*
World Winner Production Ltd		*1*
Y.C. Technology Co. Ltd		*1*
Individuals without affiliation		*7*
	Total:	71

Attachment 9

The Principles Adopted for Setting the New AQOs

The following principles, which are in line with the guiding principles set out in the Air Quality Guidelines of the World Health Organisation, have been adopted in setting the new AQOs-

(a) Protection of public health

To uphold the principle of protecting public health as the key parameter.

(b) Progressive, forward-looking

To adopt a progressive, forward-looking approach having regard to local situation, long term goal of attaining WHO AQGs, technological developments and international practices in revising AQOs

(c) Regular review mechanism for updating AQOs

To achieve progressively the long term target of achieving the ultimate AQGs

2. Tacking account of the above principles, the practices adopted by advanced countries such as EU, the guiding principles recommended by WHO and local circumstances, the Consultant recommends to take a combination of ITs and AQGs for revising the AQOs, i.e.:

- WHO IT-1 for sulphur dioxide (24-hr), PM-2.5 and ozone
- WHO IT-2 for PM-10
- WHO AQG for nitrogen dioxide, sulphur dioxide (10-min), carbon monoxide and lead

Other than those for PM-10 and PM-2.5, these proposed new AQOs are comparable to those adopted by advanced countries, such as EU, USA and Australia. For PM-10 and PM-2.5, the respective limit values set out in WHO IT-2 and IT-1 are recommended as the levels of these air pollutants are heavily influenced by regional air pollution.