

# FINDINGS OF PUBLIC CONSULTATION ON REVIEW OF AIR QUALITY OBJECTIVES

## PURPOSE

This paper summarises key findings of the public consultation on the Review of the Air Quality Objectives (AQOs) for public information.

## BACKGROUND

2. The current AQOs, which were promulgated in 1987 under the Air Pollution Control Ordinance (Cap. 311), set out the concentration limits of seven key air pollutants<sup>1</sup> in the ambient air. In 2006, the World Health Organisation (WHO) updated its air quality guidelines (AQGs), taking into account new scientific findings on the health implications of air pollution. We commissioned a consultancy study in 2007 to review the AQOs (the Review) with reference to the WHO AQGs and practices of other advanced countries. The Review has recommended a new set of AQOs and a host of air quality improvement measures required for attaining the proposed new AQOs. In July 2009, we launched a four-month public consultation on the recommendations.

3. During the consultation, we encouraged the general public to express their views by distributing widely the consultation documents and questionnaires. We also held a public forum and a total of 69 meetings with key stakeholders (**Annex A**) including this Panel, the Advisory Council on the Environment, the Sustainable Development Council, District Councils, Heung Yee Kuk, professional bodies, chambers of commerce, trade organizations, green groups and other relevant parties. We also solicited views of the community through the Public Affairs Forum managed by the Home Affairs Bureau.

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<sup>1</sup> The seven key air pollutants include sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), total suspended particulates (TSP), respirable suspended particulates (RSP or PM<sub>10</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>) and lead (Pb).

## **KEY FINDINGS OF PUBLIC CONSULTATION**

### **Overall Responses**

4. The four-month public consultation solicited views from a broad spectrum of the community. The general feedback from the written submissions and our meetings with the stakeholders is summed up below –

- (a) the community had a strong aspiration for effective actions, including further co-operation with the Mainland, to improve our air quality. Overall, the majority of the respondents support in general the proposed set of new AQOs, which represents a combination of the interim and ultimate air quality targets set out in the WHO AQGs, and package of air quality improvement measures. Some respondents were of the view that Government should adopt the ultimate targets set out in the WHO AQGs;
- (b) many respondents indicated that they were willing to bear some of the costs arising from the implementation of the proposed measures. Some also called for Government to bear part of the costs so as to reduce their impacts, particularly on the low income families; and
- (c) the public would like to see a clear timeline as to when the proposed measures for attaining the proposed new AQOs could be implemented. They also called for strategic planning, effective prioritization and integrated coordination among the various policy bureaux and departments under the steer of a high-power body to lead and oversee the implementation of the proposed air quality improvement measures.

### **Questionnaires**

5. We received a total of 2,175 written submissions, of which 1,716 submissions were in the form of completed questionnaires. 1,182 were submitted in some standard formats prepared separately by Clean Air Network and Green Peace.

6. The feedback has revealed a broad-based support from the community to update the existing AQOs to render better protection of public health. The public in general were willing to share the cost of implementation for clean air. There was an overwhelming support from the community to take forward the air quality improvement measures as soon as possible. A breakdown of the questionnaire findings is at **Annex B**. Views expressed via the standard forms prepared by Clean Air Network and Green Peace were in favour of adopting a tighter set of new AQOs. On the other hand, the majority of the views expressed by other individuals found the proposed new AQOs agreeable.

### **Public Forum**

7. At the public forum conducted on 10 October 2009, many participants expressed their concerns on the air pollution in Hong Kong and urged the Administration to set a clear timeline for taking forward the air quality improvement measures. While there was no disagreement on taking health protection as the primary consideration in updating the AQOs, there were divergent views on whether the staged approach should be taken for achieving the ultimate WHO AQGs. A summary of the views gathered at the forum is at **Annex C**.

### **District Councils and Heung Yee Kuk**

8. All the 18 District Councils (DCs) and Heung Yee Kuk (HYK) supported in general that the existing AQOs need updating. The majority of the DC and HYK members spoken on the subject considered the proposed new AQOs and a staged approach for progressive achievement of the ultimate WHO AQGs reasonable and agreeable. Overall, there was a general support for the implementation of the proposed air quality improvement measures for attaining the proposed new AQOs. There were concerns about their cost impacts such as increase in electricity tariff and bus fare as well as the operating cost of the business sector. In this regard, some DC and HYK members opined that Government should fully consider the impacts on the affected businesses, extent of acceptance by the public and stakeholders and cost implications when deciding on the way forward. As for the proposed traffic management measures, some

members from those DCs with existing pedestrianisation schemes raised concerns about the adverse impacts of such schemes on the operation of the businesses in the areas, noise nuisance to the local residents and public order problems associated with such schemes. There were also diverse views on the proposal for bus route rationalization. In general, DCs in urban areas intersected with major traffic corridors were more supportive of bus route rationalization. Other DCs were concerned about the resulting inconvenience to local residents. To help garner support from the affected residents for bus route rationalization, some DC members suggested that greater fare concessions and better-equipped bus interchange facilities should be provided.

### **Advisory Bodies**

9. We also consulted a number of advisory bodies including the Advisory Council on the Environment, Sustainable Development Council, Transport Advisory Committee, Energy Advisory Committee and Local Vessels Advisory Committee. Members of these advisory bodies were in general supportive of the proposal. Some requested for a clear timeframe for implementation and believed that concerted efforts of Government departments would be crucial to taking forward those measures that cut across different policy areas. They expected that implementation details would need to be carefully worked out as some of the measures relating to the power and transport sectors would have substantial impacts on the community. They also called for closer collaboration with the Guangdong authorities to improve regional air quality. Some members considered it necessary for Government to take a more proactive and leading role in tackling air pollution and make the necessary financial commitment to help introduce the measures.

### **Views on Specific Questions**

10. We highlighted nine specific questions in the consultation document to solicit the views of the community for mapping out the best way forward for updating the AQOs and implementing the proposed air quality improvement measures. Key responses to these questions are summarized in the ensuing paragraphs.

### *Need to Update the AQOs*

11. There was a clear consensus in the community that the existing AQOs should be updated. Some respondents also pointed out that air pollution would reduce our competitiveness as a financial centre and our attraction to tourists and talented professionals.

### *Protection of Public Health*

12. The community also had a clear consensus on the proposition that protection of public health should be the key consideration in updating the AQOs. Some medical professionals also highlighted the susceptibility of children to the adverse health effects of air pollution. That said, while agreeing to the need to better protect public health, some members of the trade and business sectors cautioned against ignoring practicability as well as the affordability of the relevant stakeholders and the community as a whole in updating the AQOs and pursuing the necessary emission control measures.

### *Benchmarking against WHO AQGs and Staged Approach*

13. The majority of the respondents agreed that the new AQOs should be benchmarked against the WHO guidelines. They also agreed that Government should tighten the AQOs progressively with a view to eventually adopting the ultimate targets in the WHO guidelines. Some respondents, notably green groups and some academics, held different views and urged Government to adopt the ultimate WHO's AQGs immediately as the new AQOs to provide greater driving force to improve air quality. There were also suggestion that Hong Kong should not fall behind our competitors such as Singapore and other Mainland cities in terms of environmental quality.

### *The Proposed New AQOs*

14. Noting that the proposed new AQOs are comparable with those of the European Union except for particulates, the majority of the respondents found the proposed new AQOs agreeable. However, some respondents considered it practicable for Hong Kong to adopt the next interim target for

the daily limits of sulphur dioxide. Likewise, some also suggested that the daily limits for respirable suspended particulates (PM10) and fine suspended particulates (PM2.5) could be further tightened. As noted above, there were also views which urged Government to adopt the ultimate WHO's AQGs as the new AQOs.

### *Regular Review Mechanism*

15. The need for a regular review mechanism was widely supported. There were diverse views on the frequency of the review. While the majority of the respondents supported a review cycle of no less than every five years, some preferred a more frequent review cycle. Apart from review frequency, some respondents suggested that the review be made a statutory requirement and conducted by an independent body of air and public health experts.

### *Proposed Air Quality Improvement Measures*

16. There was a general support for Government to introduce the proposed air quality improvement measures. Recognizing that the proposed measures were still in conceptual stage, key stakeholders also highlighted the need to be further consulted when the implementation details of the measures had been worked out. Some respondents also suggested additional air quality improvement measurements such as increasing the licence fees of polluting vehicles so as to encourage early replacement of these vehicles, and adding environmental performance as one of the criteria for granting franchises to bus operators.

17. In addition, some respondents stressed the need for strategic planning, effective prioritization and integrated coordination among the various policy bureaux under the steer of a high-level body to lead and oversee the implementation of the proposed air quality improvement measures. There were also views that Government should take an integrated and systematic approach that sought to instill a behavioural change of polluters through both "carrot and stick". A summary of the comments on the proposed air quality improvement measures is given at **Annex D**.

### *Pace of Implementing the Proposed Measures*

18. The majority of the respondents would like to have the proposed air quality improvement measures implemented as soon as possible. Some considered that for those measures which had mature technology and were less controversial such as mandatory implementation of Building Energy Codes, , tree planting/roof-top greening, energy standards for domestic electrical appliances, they should be implemented immediately. Some asked that a clear timeline for implementing the measures and ultimately attaining the proposed new AQOs be mapped out.

### *Paying the Price for Clean Air*

19. The majority of the respondents indicated their willingness to pay for the costs arising from implementation of the proposed air quality improvement measures. Many of them considered that all parties including the polluters, consumers and Government should bear the costs for implementing the proposed improvement measures. The trades, in particular operators from the transport, aviation and marine sectors, would like Government to incentivize the expedited replacement of their old equipment.

### *Other Views*

20. As many of the recommended improvement measures cut across different areas and sectors, some respondents considered that greater political commitment, leadership and better co-ordination across the political spectrum (including Government, legislators, major political parties and community leaders at the district level) are crucial to their early implementation. There were also views that Government should take the lead to set an example for the public and exhibit greater accountability, transparency and high-level coordination among various policy bureaux on air quality improvement.

21. Some respondents also pointed out that closer collaboration with the Guangdong Government would be essential for improving the regional and Hong Kong's air quality.

**Environment Bureau/Environmental Protection Department  
June 2010**

**List of Briefing Sessions Held/Attended during the Consultation**

**Central Policy Unit**

Focus Group Meeting	4 September 2009
Focus Group Meeting	21 October 2009
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	<b>Subtotal : 2 meetings</b>

**Community Group**

Society for Community Organization	29 November 2009
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	<b>Subtotal: 1 meeting</b>

**District Councils (DCs)**

DC Consultation (one meeting for each DC and one briefing to DC chairmen)	1 September to 24 November 2009
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	<b>Subtotal: 19 meetings</b>

**Green Groups**

Green Group Liaison Meeting	22 October 2009
Clean Air Network	29 October 2009
Clean Air Action's open forum	29 November 2009
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	<b>Subtotal: 3 meetings</b>

**Industry and Business Groups**

British Chamber of Commerce	14 September 2009
American Chamber of Commerce	17 September 2009
Hong Kong General Chamber of Commerce	25 September 2009
Business Environment Council	28 September 2009
Chinese General Chamber of Commerce	5 October 2009
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	<b>Subtotal: 5 meetings</b>

**Legislative Council**

EA Panel Subcommittee Meeting	29 July 2009
EA Panel Subcommittee Meeting	6 October 2009
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	<b>Subtotal: 2 meetings</b>

### **Political Parties**

Liberal Party	8 September 2009
Civic Party	9 October 2009
Democratic Alliance for the Betterment of Hong Kong	12 October 2009
Democratic Party	9 November 2009
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	<b>Subtotal: 4 meetings</b>

### **Power Plants**

The Hongkong Electric Company Limited	23 September 2009
The China Light and Power Company Limited	24 September 2009
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	<b>Subtotal : 2 meetings</b>

### **Professional Institutions**

Professional Institutions – Engineering and Planning	26 August 2009
Professional Institutions – Medical	28 August 2009
Hong Kong Institute of Engineers	11 September 2009
Hong Kong Institute of Engineers - Env Division	16 September 2009
Transport Policy Committee of the Chartered Institute of Logistics and Transport	6 October 2009
The Hong Kong Women Professionals and Entrepreneurs Association	15 October 2009
Hong Kong Institute of Environmental Impact Assessment	29 October 2009
Hong Kong Paediatric Society	2 November 2009
HK Medical Association	5 November 2009
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	<b>Subtotal: 9 meetings</b>

### **Statutory and Advisory Bodies**

Heung Yee Kuk	15 September 2009
Energy Advisory Committee	22 September 2009
Transport Advisory Committee	28 October 2009
Local Vessels Advisory Committee (LVAC)	30 October 2009
Sustainable Development Council	30 October 2009
Advisory Council on the Environment (ACE)	9 November 2009

Town Planning Board 13 November 2009  
**Subtotal: 7 meetings**

**Think Tank**

Civic Exchange 25 September 2009  
**Subtotal: 1 meeting**

**Transport Trades**

Ferry operators 8 September 2009  
Hong Kong Airport Authority 30 September 2009  
Franchised Bus operators 2 October 2009  
Non-Franchised Bus operators 2 October 2009  
Public Light Bus trade 6 October 2009  
27 October 2009  
Hong Kong Airline Service Providers  
Association 27 October 2009  
Container Terminal Operators 2 November 2009  
Taxi trade 2 November 2009  
17 November 2009  
Goods Vehicle Drivers 6 November 2009  
Truck Industry 10 November 2009  
Vehicle maintenance trades 12 November 2009  
Motor Vehicles Supplier associations 18 November 2009

**Subtotal: 14 meetings**

**Total: 69 meetings**

### Results of Questionnaires

We received 1,716 submissions in the form of completed questionnaires. Of these, 1,182 were in some standard formats prepared by Clean Air Network (395 submissions) and Green Peace (787 submissions). The rest were returns made by individuals using the questionnaire in the consultation document. The following gives a summary of the responses set out in these returns with Group I being a breakdown of those coordinated by Clean Air Network and Green Peace and Group II being a breakdown of those made by the individuals –

	Agree		Disagree		No comment / undefined	
	I	II	I	II	I	II
Need to update AQOs	85%	93%	7%	4%	8%	3%
Protecting public health as the key consideration	98%	92%	0%	5%	2%	3%
Willing to bear costs for clean air	92%	67%	8%	26%	0%	7%

	Agree		Disagree		No comment / undefined	
	I	II	I	II	I	II
New AQOs to benchmark against WHO AQGs and adopt staged approach towards achieving WHO AQGs	38%	68%	62% <sup>[1]</sup>	22% <sup>[2]</sup>	0%	10%
Proposed AQOs acceptable	< 1%	67%	95% <sup>[1]</sup>	24% <sup>[3]</sup>	5%	9%

<sup>[1]</sup> All explicitly suggested stricter AQOs or full adoption of ultimate WHO AQGs

<sup>[2]</sup> Of which 16% explicitly suggested stricter AQOs or full adoption of ultimate WHO AQGs

<sup>[3]</sup> Of which 16% explicitly suggested stricter AQOs or full adoption of ultimate WHO AQGs

	Agree		Disagree / Suggest more frequent review		Disagree / Suggest less frequent review		No comment/ undefined	
	I	II	I	II	I	II	I	II
Regular AQOs review in no less than 5 years	40% [4]	66%	60% [5]	24%	0%	5%	0%	5%

Group	'Immediately' or 'Now'		<= 1 year		2-3 years	
	I	II	I	II	I	II
Timeframe for implementation of proposed control measures	35%	22%	21%	13%	44%	15%

> 3 years		As soon as possible		No comment / undefined	
I	II	I	II	I	II
0%	4%	~0%	32%	< 1%	14%

[4] 71 responses (i.e., 6.0 % of all the questionnaires received under Group I) suggested also that the Review should be conducted in every 5 years by an independent body

[5] 624 responses (i.e., 52.8% of all the questionnaires received under Group I) suggested also that the Review should be conducted in every 3 years by an independent body

## **Summary of the Views Expressed at the Public Forum**

At the public forum held on 10 October 2009, most participants expressed their concerns on the air pollution in Hong Kong and urged the Administration to set a clear timeline for pursuing the proposed air quality improvement measures. While there was no disagreement on taking health protection as the primary consideration in updating the AQOs, there were however some divergent views on whether the staged approach should be taken for achieving the ultimate WHO AQGs. Some participants suggested that more stringent targets should be adopted in respect of the daily limits of sulphur dioxide (SO<sub>2</sub>) and particulate matters (PM). Some participants put forward suggestions for improving roadside and general air quality. Views expressed by the participants at the forum are summarized in the following sections.

### **Underlying Considerations in Setting the New AQOs**

- Government should regard better protection of public health as the primary consideration for updating the AQOs. In deciding on the updating, the number of exceedances to be experienced or increase in costs should not form part of the consideration.
- It was suggested that the current level of air pollution in Hong Kong had caused a considerable number of premature deaths and increase in hospital admissions. The new AQOs could bring improvement to the public health and significantly reduce the number of hospital admissions.
- Government should release more information, especially that on the health impacts of air pollution, so as to enhance public awareness and understanding of the matter.
- Government could consider sustainability as another factor in updating the AQOs.
- Government ought to further consider from a macro point of view impact of

the new AQOs on human beings, plants and ecological environment.

### **Participants' Opinions Towards the Proposed New AQOs**

- The participants held different views on the approach for establishing the new AQOs. To achieve the ultimate WHO standards, some participants agreed with the staged approach while others suggested the immediate adoption of the ultimate standards.
- In updating the AQOs, some suggested that Government should set the AQOs based solely on health consideration. The availability of practicable air quality improvement measures for attaining the new objectives should not form part of the consideration.
- Some participants questioned the notion of deliverability as an overriding consideration in setting the proposed new AQOs. They criticized that so doing could distract public attention from the health impacts of air pollution.
- It is important for Government to help the public to understand the adverse impacts of AQO exceedances on them and the actions they could take to alleviate the impacts.
- When a stringent set of AQOs was introduced, the local industry would probably come up with creative ideas and methods to meet with it for their own 'survival'. These ideas and methods could turn into business opportunities and thus help foster the growth of the local environment industry.
- There were also views that Government should come up with plans for improving the air quality in a comprehensive manner. Hong Kong should develop its own air quality guidelines to suit the local situation instead of following the guidelines of WHO.

### **Timetable**

- The Government should expedite the updating of the AQOs and put forward a timetable for action.

## **Roadside Air Pollution**

- Some participants raised concern over the roadside pollution levels, particularly in respect of respirable suspended particulates, exceeded the respective standards persistently for more than a decade. This reflected the lack of a monitoring and reviewing system for delivering the AQOs. Government should install more monitoring stations and review the air quality measurement data and control measures. It should also consider establishing a regular review mechanism. Moreover, the additional air quality measurement data could also help citizens better understand the effectiveness of the control measures.
- To address pollution caused by vehicles and industrial fuels, higher environmental standard should be set to govern such fuels.

## **Switching off Idling Engines**

- Some speakers voiced their support for switching off idling engines which could improve air quality as well as reduce emission and nuisance to people in the vicinity.

## **Encouraging Bicycles as a Form of Transportation**

- Participants generally agreed to establish more cycling tracks, which should serve not only recreational purpose but as a mode of “zero-emission” transportation.
- Bicycles should be considered as another mode of transportation in both urban areas and the New Territories. Government should refer to the experience in the use of bicycles in Tokyo and London and facilitate the dual use of roads for both pedestrians and cyclists.
- Apart from improving air quality, cycling could help promote healthy and quality lifestyles.

### **Low Emission Zones**

- Some participants doubted the effectiveness of low emission zones (LEZ) in improving air quality in busy areas such as Mong Kok and worried about the consequential exacerbation of the congestion problem. Some were concerned about the potential inconvenience to local residents and businesses in the affected district.
- However, some participants opined that successful establishment of LEZ in densely populated areas could significantly resolve the roadside air pollution problem.

### **Reduction in SO2 Emission**

- To reduce SO2 emission, some participants agreed to the recommendation that power companies should use 50% natural gas for electricity generation. Some further suggested that all ocean-going vessels should be required to use ultra low sulphur diesel.
- Regarding the emission control for SO2, some participants considered the WHO IT-1 standard too low and proposed to adopt WHO IT-2 standard so as to protect public health.

### **Environmental Impact Assessment (EIA)**

- Some raised concern over the huge amount of air pollutants emitted during construction of major infrastructure projects such as railways and the Central-Kowloon Route. Government should require the project proponents to conduct EIA study prior to the commencement of the construction work. To safeguard public health, no construction works could start until satisfactory completion of the EIA study.

### **Carbon Emission Control**

- Government should launch publicity and educational programmes to encourage low carbon lifestyles.
- In addition, Government should encourage the public to pay more attention

to the conservation of energy, such as switching off unnecessary air-conditioning and lighting.

**Summary of Comments on the  
Proposed Phase I Air Quality Improvement Measures**

***Emission Capping and Control***

(a) *Increasing the ratio of natural gas in local electricity generation to 50% with additional emission abatement measures*

1. Noting its high emission reduction potential, respondents generally supported this proposed measure. Some respondents advocated higher priority to be accorded for its implementation to inspire public's confidence in Government's determination to improve air quality. Some cautioned against the consequential impacts on electricity tariffs and would like to see the impacts minimized. There were also calls for subsidy to expedite the upgrading of electricity generation facilities and financial assistance to support research on and application of renewable energy. Some opined that future emission caps for the power sector should take account of the expected growth in electricity demand, a balanced fuel mix so as to secure a safe, reliable and efficient supply of electricity at a reasonable price and with low environmental impacts.

2. Power companies were on the whole supportive of this proposed measure and asked for sufficient lead time for making the necessary preparation.

(b) *Early retirement of aged/heavily polluting vehicles*

3. There was a strong support for the replacement of aged and polluting vehicles for improving roadside air quality. At the same time, we also note the concern on the consequential cost impacts such as bus fares, which would hit low income families the hardest. Many suggested that Government should provide subsidy or incentive to help alleviate the cost impacts to the transport trade and the community. There was also suggestion that Government should encourage the public to use more public transport and reduce the use of private vehicles.

4. Some respondents, including some professional bodies, however,

expressed reservation about providing subsidy to encourage early retirement of old vehicles. There was also a suggestion that the licence fees for polluting vehicles should be increased to discourage their continued usage. As for franchised buses, it was suggested that Government should consider adding the environmental performance of buses as one of the criteria for granting franchises to encourage the use of cleaner bus fleets.

5. Amongst the views submitted by the transport trades including franchised bus companies, they were unanimous in urging Government to subsidize the early replacement of these more polluting vehicles. Some considered that indiscriminate phasing out of these vehicles would lead to unnecessary wastage of resources. Other views expressed include-

- ‘buying back’ polluting vehicles instead of subsidizing the purchase of new vehicles;
- extension of this initiative to cover motorcycles; and
- thorough study on the performance of new vehicles in Hong Kong’s environment before they were introduced.

(c) Wider use of hybrid/electric or other environment-friendly vehicles

6. Similar to the proposed earlier replacement of Euro III diesel commercial vehicles, many respondents, in particular, the transport trades, considered that Government should give financial support or subsidy to promote wider use of environment-friendly vehicles such as electric vehicles. There were also suggestions that more resources should be given on research and development of fuel-cell vehicles and Government should take the lead to purchase more environment-friendly vehicles.

(d) Ultra low sulphur diesel (ULSD) for local vessels

7. While supporting the proposed measure, local vessel and ferry operators expressed concern about the possible increase in the operating costs, technical feasibility and the possible adverse effects on existing engines and their performance. Some respondents, however, proposed extending the control also to ocean-going vessels. In addition, some proposed that-

- subsidies or other measures to offset the price premium of ULSD over

conventional diesel should be provided to local vessels to help them switch to ULSD;

- ship owners should be allowed to use alternative technologies available to reduce emissions, especially for the aged vessels;
- the measure should only be applicable to new vessels; and
- exemption should be given to fishing boats and high-speed vessels.

(e) Selective catalytic reduction (SCR) for local vessels

8. Some respondents considered that subsidy should be provided for retrofitting local vessels with SCR devices. Local ferry operators were concerned about cost implications, technical feasibility, the space constraints for retrofitting SCR devices and low exhaust temperatures of their vessels which would hinder the effective operation of the devices.

(f) Electrification of aviation ground support equipment

9. Other than the respondents from the relevant trades, there were no major comments on this measure. Noting that electrification of many aviation ground support equipment, in particular, the specialized equipment, was not yet feasible, the trades suggested that the use of other low emission equipment should be allowed as alternatives. They also pointed out that the measure would not be viable without substantial incentivisation from Government.

(g) Emission control for off-road vehicles/equipment

10. Only a few respondents commented on the proposal. They were mainly from the relevant trades and professional institutions. In general, they supported the use of proven devices to reduce the emissions of off-road vehicles/equipment but considered that strong financial incentives should be provided. Some respondents considered that this measure should be implemented immediately.

(h) Strengthening volatile organic compounds control

11. Only one comment was received on this proposed measure. It suggested that Government should strengthen control on VOC species that had a higher reactivity in ozone formation.

## ***Transport Management***

### *(i) Low Emission Zones*

12. While supporting this measure in general, many respondents suggested that Government should carefully consider the impacts on the public and related businesses before implementation. Some were of the view that special consideration should be given to vehicles on special or emergency duties and businesses and residents within the LEZs. The respondents from the transport trades questioned the effectiveness of this measure in improving air quality because of the possible shift of the pollution to districts outside the LEZs. They would like to be consulted when details were available.

### *(j) Car-free zone/pedestrianisation scheme*

13. Some District Council members expressed concerns over the potential inconvenience and nuisance caused by pedestrianisation schemes to the local residents. Some respondents, including certain professional associations, were supportive of this proposed measure. A respondent also suggested a holistic approach should be taken to develop world-class pedestrianisation schemes for Hong Kong and the responsibility for overseeing the improvements to the pedestrian environment should be placed on one of the policy secretaries.

14. Respondents from the transport and motor vehicle trades, on the other hand, objected on the ground that the measure could not improve air quality because the emissions only shifted elsewhere and it could cause inconvenience to the public and the affected vehicles. Some franchised bus operators advocated that any future car-free zone/pedestrianization scheme should be designed to give priority to mass transit facilities.

### *(k) Bus route rationalization*

15. Many respondents from the transport trades supported the proposed measure. Franchised bus operators, while in general supportive of the proposal, pointed out that the willingness of the affected local residents to accept service cut was pivotal to its eventual implementation. They were also concerned about the adverse effects of unjustified bus trip reduction on their profitability

and competitiveness.

16. To overcome resistance at the local level, some suggested the provision of fare concessions to promote and widen bus/public transport interchange scheme. Some were concerned that the road space so freed up would be taken up by private cars. Some respondents suggested there should be a central coordinating unit within Government to lead and oversee the implementation of bus route rationalization.

### ***Infrastructure Development and Planning***

#### *(l) Expand rail network*

17. The majority of the respondents were supportive of this proposed measure. A few passenger-carrying trades expressed concern over the adverse impact on their businesses and the livelihood of their workers as a result of an over-expanded rail-based transport system.

#### *(m) Cycling network to major public transport hubs*

18. Recognising cycling as a potential mode of transport which is emission-free, many respondents supported this measure to connect cycling network to public transport hubs in new development areas. Some even considered that this should be extended to the urban areas as well. Many called for a holistic approach to ensure a well-designed cycling network with properly managed parking areas. There were also views that a policy secretary should be designated to oversee the relevant programmes.

### ***Energy Efficiency Measures***

#### *(n) Mandatory implementation of Building Energy Codes*

19. This proposed measure was well received by the respondents. Some would like to see greater commitment by Government, e.g., by replacing all the inefficient lighting fixtures in the existing and newly built government facilities, restricting the level of lighting and air-conditioning in shopping malls and limiting excessive outdoor advertising panels. There was also a suggestion that

Government should provide financial and other support to promote energy efficiency for residential and commercial buildings.

(o) Energy efficiency standards for domestic electrical appliances

20. Same as the previous measure, this proposal received broad-based support from all sectors. There were also suggestions that Government should subsidize the public to replace selected home appliances with more energy efficient models.

(p) Light-emitting diode or equivalent alternatives for traffic signal/ street lighting

21. Responses to this proposed measure were positive. Some respondents considered that Government should give more resources on the research and development on the use of LED or solar energy for lighting. Some also suggested Government to specify the use of energy efficiency measures such as LED light in all government contracts, replacing all T8 or incandescent light bulbs in public housing estates and government premises with energy efficient alternatives.

(q) Tree planting/roof-top greening

22. This proposed measure also received good support from the respondents. Some further proposed that sufficient space should be allowed for tree planting in future developments and that the provision of subsidy to owners of private buildings should be considered for greening the rooftops.

(r) District cooling system for Kai Tak Development

23. Positive feedbacks were received from the respondents. Some suggested the extension of district cooling to other large-scale developments such as the West Kowloon Cultural District, the proposed North East New Territories development or even large housing estates and private commercial/residential developments.

## *Other Air Quality Improvement Measures*

24. Some respondents put forward the following additional measures to improve air quality-

- Banning idling vehicles.
- Replacing private cars with LPG (or electric or hybrid) ones in phases; extending the use of LPG to light goods vehicles; and implementing trial schemes to use CNG (compressed natural gas) or LNG on commercial vehicles, including non-franchised buses.
- Modernising the tramway; implementing pilot electric trolley buses; undertaking trial of hybrid double-deck buses and electric taxis, light buses, and commercial vehicles.
- Introducing electronic toll charging technology to reduce pollution at toll plazas and to facilitate quicker development of electronic road pricing.
- Supporting in-principle the proposals to replace pre-Euro and Euro I to III vehicles with Euro V vehicles. However, in view of the substantial financial impact on the trade concerned, focus should be on pre-Euro and Euro I vehicles first.
- Early implementation of some of the Phase 2 measures including-
  - requiring the use of low sulphur diesel for ocean-going vessels;
  - increasing the use of renewable energy;
  - electronic road pricing for vehicles in congested areas.
- Educating vehicle owners about the importance of vehicle maintenance.
- Enhancing the competency of those working in the vehicle services trade.
- More enforcement work against smoky vehicles, and more emphasis on vehicle maintenance.
- Providing on-shore power supply for ocean-going vessels.
- Better town planning against wall buildings to facilitate better air ventilation.
- More publicity and educational campaigns by joining efforts with schools and relevant organizations to promote public awareness about the environment, encourage more community participation in greening and environmental protection and induce changes in life style of individuals.

- Enhanced programmes on cleaner production for Hong Kong-owned factories in the PRD region.
- Combating light pollution.

25. Some local concern groups also put forth proposals for dealing with local pollution issues including dust pollution from MTR projects, emissions from joss paper burning, cooking fumes and emissions from funeral parlours, etc.