

**Commission on Strategic Development
Executive Committee**

Maintaining a Quality Environment for Hong Kong

Purpose

This paper aims to seek members' views on the important issue of maintaining a quality environment and provides a first attempt to address major issues concerning environmental protection.

Need for Quality Environment and Our Strategies in Achieving This Goal

2. Hong Kong is renowned as one of the world's most vibrant international cosmopolitan cities. To maintain our status as a world-class city, it is necessary not only to sustain our economic development, but also to maintain a quality environment to improve the quality of living. The Government is determined to maintain a quality environment in which every citizen can enjoy a healthy, prosperous and balanced lifestyle. A quality environment is also conducive to attracting talents, investors, entrepreneurs and tourists to visit, work and live in Hong Kong.

3. The Government is fully aware of the community's aspiration for a quality environment. However, it is a highly complex and multifaceted subject that concerns different sectors of the community and encompasses a host of issues including environmental protection, preservation of landmark and heritage buildings, urban planning, building design, cosmopolitan lifestyle, cultural and sports infrastructure and activities, etc. Members may wish to note that the Council for Sustainable Development has recently launched a public engagement process on population policy and quality of life is one of the major concerns raised by stakeholders. Members may wish to make reference to the discussion paper of the Committee on Social Development and Quality of Life (paper reference: CSD/SC/1/2007).

4. As one of the most imminent issues in pursuit of a quality environment, members are invited to first discuss the environmental protection policies and measures in Hong Kong at this meeting. Members are also invited to advise on the scope of aspects that should be examined separately at future meetings under the broad theme of “Quality Environment”.

Policies on Environmental Protection

5. Hong Kong’s 1,104 square kilometres of land is home to 6.9 million people. It also houses one of the world’s most vibrant economies. Steep mountains and strong planning controls have contained most of the population in under 230 square kilometres of urban development, while 43% of the territory have been designated by law as protected areas including country parks, special areas and conservation zonings. The concentration of population and economic activities in such a small space leads to intense pressures on the environment. This is compounded by the impact, particularly on air quality of development across the Pearl River Delta (PRD) region.

6. Environmental protection is a long-term undertaking and there are no magic bullets, no quick fixes, and certainly no simple laws that can solve our environmental problems overnight. Our approach in addressing environmental issues are guided by the following principles –

- (a) we set clear targets and milestones, taking into full consideration the need to strike a balance between protecting the environment and sustaining economic and social development, while harnessing technological advancement and economic tools to accelerate their attainment;
- (b) we strive to adopt the “polluter pays” principle to internalize social costs and to encourage people to pollute less;
- (c) where the market fails to find a solution on its own, the Government will intervene. Where appropriate, we will resort to legislative means; and
- (d) we promote community participation and education by raising awareness and devise practical response plans to tackle critical and difficult situations.

Air Quality

7. The improvement of air quality tops our environmental agenda. We tackle air pollution both through rigorous measures to reduce emissions from local sources and regional cooperation with the Guangdong Provincial Government.

Measures Targeting Hong Kong's Local Emission Sources

8. We have targeted vehicle emissions and power plants, which are the key sources of pollutant emissions in Hong Kong. Since 1999, we have –

- (a) provided a world class public transport system such that 90% of daily trips by our population are made by way of public transport;
- (b) required all franchised buses to adopt the best available environmental technology whenever new fleets are acquired. All buses from pre Euro to Euro II are to be fitted with continuous regenerating traps to reduce pollution;
- (c) rationalized bus routes to reduce traffic;
- (d) replaced diesel taxis with liquefied petroleum gas (LPG) taxis;
- (e) provided financial incentives for light buses to switch to LPG or electric models;
- (f) tightened emission standards for new vehicles to Euro IV;
- (g) introduced ultra low sulphur diesel (ULSD) and upgraded the statutory fuel standard to Euro IV;
- (h) made it mandatory for pre-Euro diesel vehicles to retrofit particulate removal devices;
- (i) more than doubled the fines for smoky vehicles and stepped up enforcement;
- (j) required power plants to maximize the use of natural gas, renewable energy and introduced demand side management;

- (k) asked power companies to install facilities to reduce emissions of sulphur dioxide (SO₂) and nitrogen oxides (NO_x); and
- (l) mandated the installation of vapour recovery systems for fuel unloading and refuelling processes at petrol stations.

These measures have proven to be effective, compared with 1999, respirable suspended particulates (RSP) and NO_x at roadside dropped by 13% and 19% respectively in 2006. The number of smoky vehicles spotted on the roads in 2006 also reduced by 80% compared to 1999.

9. New measures in the pipeline include –

- (a) we have launched an one-off \$3.2 billion grant scheme from 1 April 2007 to provide incentives for the early replacement of pre-Euro and Euro I commercial diesel vehicles, totalling about 74,000, with Euro IV models. The replacement programme will reduce up to 10% of NO_x and 18% of RSP of our total local emissions;
- (b) with effect from 1 April 2007, we provide purchasers of environment friendly private cars with a 30% reduction in First Registration Tax, subject to a cap of \$50,000 per vehicle;
- (c) we will consult the public shortly on whether legislation should be enacted to ban idling vehicles while waiting;
- (d) limits are being imposed in phases, starting 1 April 2007, on the VOC contents of paints, printing inks and selected consumer products; and
- (e) the legislation will be introduced for the implementation of a mandatory Energy Efficiency Labelling Scheme in the second quarter of 2007, covering three specified products; i.e. room air conditioner, refrigerator and compact fluorescent lamp.

10. Power generation accounts for over 90% of local SO₂ emissions and about half of NO_x and RSP emissions. The Government has imposed emission caps on power plants, which will be progressively tightened to meet the 2010 emission reduction targets. We also require power plants to regularly review and update their pollution control technology by the best

practicable means. We have also made clear that the need to protect our environment will be the focus of the post-2008 Schemes of Control. Their permitted rate of return will be linked to their achievement of the emission caps.

11. We have also commissioned a study to review Hong Kong's air quality objectives and long-term air quality management strategy. The study will make reference to the latest findings of research undertaken by the World Health Organization, the European Union and the United States, so as to formulate our long-term air quality management strategy. The review will include extensive consultation and public engagement. The Government hopes to finalize the new air quality objectives and the required long-term strategy on air quality by 2009. We expect that the new air quality strategy will have far reaching impact on a wide range of policy areas including energy, transportation, industrial production, urban planning and conservation as well as on the people's way of life.

Community Participation

12. Public participation features prominently in our fight against air pollution. We have enlisted the support of many schools and businesses to take part in the Action Blue Sky Campaign, which was launched in late July 2006 to raise the community awareness on environmental stewardship. The Council for Sustainable Development will soon launch a new round of engagement process to invite public views on measures to improve our air quality. Besides, our business community has taken the initiative to sign a Clean Air Charter, a business sector-wide effort to improve air quality in Hong Kong and the PRD. The Clean Air Charter is the focus of the Project Clean Air launched by the Business Coalition on the Environment, a coalition of 33 business associations coordinated by The Hong Kong General Chamber of Commerce.

Regional Cooperation

13. The Hong Kong SAR Government reached a consensus with the Guangdong Provincial Government in April 2002 to reduce, on a best endeavour basis, the emission of four major air pollutants, namely SO₂, NO_x, RSP and volatile organic compounds (VOC) by 40%, 20%, 55% and 55% respectively in the region by 2010, using 1997 as the base year. Achieving these targets will not only enable Hong Kong to meet its air quality objectives but also significantly improve the air quality of the PRD

and relieve the regional smog problem.

14. In December 2003, the two governments jointly drew up the PRD Regional Air Quality Management Plan with a view to meeting the above emission reduction targets. The PRD Air Quality Management and Monitoring Special Panel was also set up under the Hong Kong/Guangdong Joint Working Group on Sustainable Development and Environmental Protection to follow up the tasks under the Management Plan.

15. A number of initiatives have been implemented to facilitate monitoring and improvement of air quality in the region. Firstly, the PRD Regional Air Quality Monitoring Network, an initiative of the two sides, was commissioned on 30 November 2005. The public now have access to the PRD Regional Air Quality Index on the Internet. Apart from showing the air quality situation, the Index serves as an objective indicator which facilitates understanding of the effectiveness of the reduction measures and formulation of more effective strategies.

16. A framework for implementing emission trading for thermal power plants in the PRD Region on a pilot scheme basis has been announced on 30 January 2007. The pilot scheme seeks to provide a platform for the power plants in the PRD Region, if they so wish, to engage in emission trading as a cost-effective means to achieve emission reduction targets. We are now working with the Guangdong Government to advise eligible power plants of the pilot scheme so that they may identify suitable trading opportunities.

17. The Guangdong Province has undertaken the following initiatives –

- (a) from 2006 onwards, no coal-fired or oil-fired power plants will be planned in the PRD region;
- (b) Four large LNG power plants with a total capacity of over 4,000 MW are being constructed and will be commissioned in phases within the coming months;
- (c) Guangdong will continue with the retrofitting of flue-gas desulphurisation systems at existing power plants. It will strive to

complete the relevant major works for large-scale generation units by 2008;

- (d) Guangdong will speed up the introduction of National III motor vehicle emission standards (on a par with Euro III standards) in PRD cities. Guangzhou has implemented this measure since 1 September 2006;
- (e) leaded petrol will continue to be banned;
- (f) a pilot project will be implemented in Shenzhen to install vapour recovery systems at oil depots and petrol-filling stations to further control emissions of VOC effectively; and
- (g) PRD cities such as Shenzhen and Dongguan are stepping up enforcement action against polluting industries not complying with existing laws or standards.

Waste Management

18. Hong Kong has a very serious and imminent waste problem. In 2005, we disposed of 17,679 tonnes of solid waste every day. Although some 43% of waste generated is being recycled, most of our waste is being disposed of at the three strategic landfills (located in Tseung Kwan O, Tuen Mun and Ta Kwu Ling), in Hong Kong which are rapidly running out of capacity. To avert the crisis, we must reduce the amount of waste produced in the first place and then minimize the volume of unavoidable waste requiring disposal at the landfills. Following the Council for Sustainable Development's first engagement process in 2004 and 2005 seeking community views on, among other things, the sustainable management of solid waste and the consequential publication of the Government's first Sustainable Development Strategy for Hong Kong, the Government published "A Policy Framework for the Management of Municipal Solid Waste 2005-2014" (Policy Framework) in December 2005 which sets out a comprehensive plan to tackle the problem.

19. The territory-wide programme to promote the source separation of domestic waste now covers 30% of the population and our aim is to reach 80% by 2010. In addition, we will introduce statutory producer responsibility schemes (PRSSs) to share out the eco-responsibility of a product among the industries, the distributors and consumers. The

initially targeted products include plastic shopping bags, waste tyres and waste electrical and electronic equipment.

20. In view of the success of the Construction Waste Disposal Charging Scheme implemented in January 2006 which has resulted in a 40% reduction of such waste disposed of at the landfills, we also plan to introduce a municipal solid waste (MSW) charging scheme based on the “polluter pays” principle. A three-month trial scheme at 20 estates had recently been conducted to evaluate the logistics arrangements of using designated bags for domestic waste disposal. The collected data are being analyzed but preliminary results are generally positive.

21. Another important initiative in the Policy Framework underway is the establishment of the EcoPark in Tuen Mun to provide land on a long term basis at affordable costs for recycling and environmental industries, which will promote the development of a “circular economy” in Hong Kong by turning our waste into useful products so that they can be channelled back to our economic chain. This will be further enhanced if the public and private sectors step up their efforts in green production and procurement.

22. Even though the above measures will reduce the volume of waste to be generated and disposed of, there will still be considerable unavoidable waste that needs to be disposed of in our landfills. We need to extend the three strategic landfills, which have a remaining lifespan of four to eight years only. When more PRSs are successfully launched, we will impose landfill ban on targeted products which should go to the recycling stream instead.

23. Our overall objective is to reduce the total MSW disposed of in landfills to less than 25% by 2014. To achieve this, we will develop multi-technology, state-of-the-art integrated waste management facilities (IWMF) which will adopt thermal treatment as the core technology to reduce the volume of waste before final disposal. We have initiated a site search exercise to identify suitable sites that meet the technical and environmental requirements for the operation of such facilities. This will be followed by detailed feasibility and environmental impact assessment studies.

24. A number of issues have to be resolved for the development of the IWMF and winning public support is crucial. Even though the public are

becoming more receptive to the concept of thermal treatment (such as incineration and gasification) as a safe and environmental friendly technology, there will likely be strong local objection when suitable site(s) have been identified. We will launch public engagement as soon as possible, focusing on the necessity and safety of the proposed IWMF plus the associated local betterment measures such as the integration of social and recreational facilities that are common in similar facilities located in densely populated areas in Europe and Japan.

25. To this end, we have reserve \$10 million in the Environment and Conservation Fund to support public education programmes that promote our environmental initiatives under the Policy Framework. Our plan is to make use of this designated funding to organise seminars, exhibitions and study tours that will promote public awareness and acceptance of state-of-the-art waste treatment technologies and their possible application in Hong Kong.

26. Given the necessary resources and with public support, the MSW problems can be resolved in a sustainable manner if the initiatives are implemented according to the timetable and order set out in the Policy Framework.

Water Quality

27. Hong Kong has 1,651 km² of marine waters, and hundreds of rivers and streams. With a population of about 6.9 million, we rely heavily on our water environment for a variety of beneficial uses, including recreational amenities, mariculture, agriculture, transport, effluent discharge, sand borrowing and mud disposal. Healthy waters are also needed to support the wide diversity of aquatic life forms recorded here, including more than 120 freshwater fish species, 300 reef-associated marine fish species and 84 hard coral species.

28. We have established Water Quality Objectives (WQOs) for our waters which we seek to attain and maintain. The WQOs are benchmarks that set the standard for maintaining the environmental health of our water bodies. Based on these, we implement a variety of pollution control programmes and policies to protect our water environment.

29. Since the early 1990s we have been progressively upgrading our sewerage networks and our sewage treatment facilities. Over 93% of our

population is now served by public sewers and about 70% of the sewage collected receives chemically-enhanced primary (CEPT) or higher level treatment. Marine water quality has gradually improved and achieved a WQO compliance rate of above 85% in the last five years. The Stage 1 of the Harbour Area Treatment Scheme (HATS) has brought about noticeable water quality improvements, including preventing 600 tons of sewage sludge from getting into the harbour every day. The number of beaches with a “Good” ranking has increased from 9 in 1986 to 22 in 2006. The number of WQO-compliant rivers has increased from 2 in 1993 to 10 in 2006.

30. In order to further improve the water quality of our Harbour amidst continuous development of our urban areas, we plan to implement Stage 2 of HATS in phases. In the first phase (i.e. Stage 2A), the remaining untreated sewage in the HATS catchment (mainly from the northern and western parts of Hong Kong Island) will be transferred to the Stonecutters Island Sewage Treatment Works. The plant will be expanded to provide CEPT treatment and disinfection to all the HATS sewage. This phase is planned for completion by 2014 but part of the disinfection facility is proposed to be brought forward for commissioning in 2009. Stage 2B will involve building biological treatment facilities with the timing subject to a review in 2010/11.

31. Introduced in 1995, the Sewage Charge (plus the Trade Effluent Surcharge for 30 specific trades) is the first environmental charge in Hong Kong that put the polluter-pays principle to practice. Currently, the Government recovers 54% of the operating costs for sewage services through the Sewage Charge. Having regard to the polluter-pays principle and in order to ensure the availability of adequate recurrent funding to operate HATS Stage 2 and other sewerage works, we have recently introduced legislation setting out a ten-year schedule of sewage charge increases so that in ten years’ time 80% of the operating costs will be recovered from users.

32. Despite the good progress, much remains to be done to pursue the long-term goal of adequately protecting all of our waters. Several water bodies remain unsatisfactory including the semi-enclosed Deep Bay with naturally poor flushing capacity, the Western and Southern Waters which are under the influence of nutrient-rich Pearl River flow, beaches susceptible to pollution from unsewered villages, and rivers in the Deep Bay catchment.

33. We will keep our sewerage plans under constant review to address development needs, and continue our work aiming at extending the sewerage system to unsewered areas and upgrading sewage infrastructure. Furthermore, our WQOs were established two decades ago. In the light of identified needs and updated scientific findings, we plan to initiate a review of the marine WQOs, as a start, to ensure they are fit for their intended purpose.

Nature Conservation

34. Our nature conservation policy is to regulate, protect and manage natural resources that are important for the conservation of biological diversity of Hong Kong in a sustainable manner, taking into account social and economic considerations, for the benefit and enjoyment of the present and future generations of the community.

35. About 43% of the land in Hong Kong has been designated country parks or placed under other forms of statutory protection. This percentage compares favourably with other cities at a similar stage of economic development.

36. The Government promulgated the New Nature Conservation Policy in November 2004. Under the Policy, we proposed two measures to conserve ecologically important sites under private ownership, namely the Pilot Scheme for Management Agreements (MA) and Public-private Partnership (PPP). With grants of \$4.62 million from the Environment and Conservation Fund, three MA pilot projects were launched in end 2005. The progress has been satisfactory since its implementation. Over one million square feet of land is now under active conservation.

37. Under the PPP Pilot Scheme, developments at an agreed scale will be allowed at the less ecologically sensitive portion of a site, provided that the developer undertakes to conserve and manage the rest of the site that is ecologically more sensitive on a long-term basis. An inter-departmental task force was set up to examine the applications.

38. We need to consider the PPP applications on a case-by-case basis, having regard to factors including land administration and planning policies, the development plans and ownership of the land under application, current ecological conditions, expected ecological benefits of the projects, environmental impact of the proposed developments in the projects

(including related transport and sewage facilities), financial viability, monitoring mechanism and performance evaluation.

Strategic Issues for Consideration

39. We appreciate that the topic of “Quality Environment” covers a wide spectrum of issues. Against the above background, this paper provides a first attempt to address the major issues concerning environmental protection for discussion, including air quality, waste management, water quality and nature conservation. Members are invited to consider the following strategic issues –

Air Quality

- (a) measures to reduce air pollution will inevitably result in significant impacts on different sectors of the community, e.g. the power companies, public transport operators, the freight industries as well as individual citizens. The interests of different stakeholders are often divergent and conflicting. What should be done to enhance commitment and achieve consensus for actions amongst the stakeholders ?
- (b) effective reduction of air pollution in the Mainland is essential for improving air quality in Hong Kong. The Guangdong Provincial Government and HKSAR Government have both committed to achieving emission reduction targets by 2010. Are there additional initiatives which should be pursued to enhance cooperation and ensure results ?
- (c) Hong Kong businesses have a significant presence in PRD. Are there additional measures which should be pursued to encourage or require these businesses to improve their environmental performance in PRD which also have an impact on Hong Kong ?

Waste Management

- (d) one of the major obstacles in the development of the much needed waste treatment facilities, whether they are IWMF, landfill extension or sludge treatment, is the strong local objection as a result of the “Not-in-my-backyard” sentiment. What should be

done to garner community support so that the development of these facilities would not be delayed ?

- (e) polluter pays principle has been found as the most effective means to internalize social costs for waste treatment and to encourage people to pollute less. On the other hand, the implementation of the principle is always met with political resistance. What measures should be pursued to promote the implementation of this principle in waste management, for example in launching the municipal waste charging scheme and PRSs ?

Nature Conservation

- (f) how to strike a balance between the need to protect the rights of landowners over the use of their land, and the need to better protect ecologically important sites that are under private ownership ?

40. Apart from environmental protection, there are other aspects under the notion of “Quality Environment” that worth further consideration and discussion. Members are invited to advise on:

- (a) what are the specific priority areas that should be examined in-depth under the broad theme of “Quality Environment” ?
- (b) what are the specific principles and targets to be achieved under these identified priority areas ?
- (c) how should we further enhance public participation in the formulation of strategic objectives and specific measures regarding the maintenance of a quality environment ?

Environmental Protection Department
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