

**For discussion
25 February 2002**

Legislative Council Panel on Environmental Affairs

**Inviting Expressions of Interest in Providing
Integrated Waste Treatment Facility(ies)**

Purpose

This paper sets out Government's plan to invite expressions of interest from the local and international waste management industry in providing integrated waste treatment facility(ies) in Hong Kong.

Background

2. At present, over 6 million tonnes of wastes are disposed of in our three landfills each year. About 52% of them are municipal solid waste, 41% construction and demolition (C&D) waste, and 7% other wastes such as sludge and animal carcass. In 2000, Hong Kong people produced about 5.2 million tonnes of municipal solid waste of which about 1.8 million tonnes (34%) were recovered.

3. The three landfills at Tseung Kwan O, Nim Wan and Ta Kwu Ling occupy 270 hectares of land. When planned in the 1980s, they were expected to serve our need for waste disposal till 2020. However, as the amount of waste requiring disposal has been increasing (the average growth rate for municipal solid waste is 3.5% each year in the past five years), the landfills have been filling up much faster than planned. By the end of 2001, we only had a remaining landfill capacity of around 114 million tonnes. We project that the existing landfills would only last 10 to 15 years if waste continues to grow at the current trend. The landfills may be saturated even earlier if we fail to prevent C & D materials from being dumped there or if we fail to achieve the recycling target of 40% for municipal solid waste by 2007.

4. Like other economies, our waste management strategy comprises three key elements, namely waste avoidance and reduction in the first place; followed by reuse and recycling; and finally treatment and disposal of unrecyclable waste. On waste prevention and recycling which has been our main focus in tackling the waste problem, we informed Members through Paper CB(1)2103/00-01(06) in September 2001 of our new initiatives and our target of raising the overall recovery rate of municipal solid waste from 34% in 2000 to 40% in 2007. We have been making progress in the past few months. A brief progress report on the actions that we have taken to reduce and recycle waste is at **Annex**. These actions have contributed to the increasing level of public participation in waste prevention and recovery. We will continue our work in this area, particularly in involving the community and the business sector in this pursuit.

5. However, we cannot count on waste reduction and recycling alone in dealing with this problem since clearly not all wastes are recyclable. Our estimate is that even if we are able to reduce waste as much as possible, and meet our target recycling rate of 40% by 2007, there will still be about 4 million tonnes of unrecyclable wastes that need to be handled. Integrated waste treatment facility(ies) would be needed to reduce the volume of unrecyclable waste that requires disposal while the existing landfills would have to be extended or new ones developed to serve as final repositories for residual waste emerging from integrated waste treatment facility(ies) and waste that cannot be treated.

6. Given Hong Kong's land constraints, it is extremely difficult to find suitable sites for new landfills. We are studying the possible extension of existing landfills and development of new landfills and plan to present findings to this Panel early next year.

Invitation for Expressions of Interest on Integrated Waste Treatment Facility(ies)

7. Integrated waste treatment facility(ies) focuses primarily on

waste treatment but also embodies waste recovery and recycling at the same location so that municipal solid waste could be managed more efficiently and in a sustainable manner. These facilities are commonly used in other economies to reduce the volumes of wastes before their final disposal in landfills since this would help prolong the life of landfills and reduce the demand for resources in provisioning of landfills. However, it should be noted that integrated waste treatment facility(ies), even combined with our waste reduction efforts, would not have any significant impact in conserving the life of the three existing landfills. This is because commissioning of such facilities would require a relatively long lead-time of around 10 years but the existing landfills are expected to be filled up in around 10 – 15 years. Having said that, such integrated waste treatment facility(ies), coupled with persistent recycling programmes, would help slow down the rate in filling up the extended or new landfills. As mentioned in paragraph 4 above, our priority last year was to step up our waste reduction and recycling programmes. Now that the various programmes have been put in place for vigorous implementation, our next focus would be to plan for the establishment of integrated waste treatment facility(ies) in Hong Kong.

8. There are various technologies in waste treatment, including some new and innovative ones that have emerged lately. To make sure that we would not miss out any potential conventional and innovative waste treatment technologies, we will kick off a search in April 2002 by inviting technology suppliers and facilities operators from Hong Kong and other places to express interest in developing modern integrated waste treatment facility(ies) in Hong Kong. Under this expressions of interest (EoI) exercise, proponents would be invited to provide us with technical, financial, operational, and other relevant information on their waste treatment technologies/facilities. A detailed assessment of the EoI submissions and public consultation would be carried out before a decision is made on the technology(ies) to be adopted in Hong Kong. We maintain an open mind on the technology(ies) but would ensure that they would meet the highest international environmental standards and be cost-effective.

9. The call for EoI will be widely publicized through the Government gazette, internet, technical journals, local and overseas newspapers, and consulate generals/trade commissions in Hong Kong. The EoI exercise is not and does not form part of any procurement or tender pre-qualification exercise. Those taking part in this EoI exercise will not be given any advantage or preferential treatment in any subsequent procurement or tender exercise.

10. Interested parties will be asked to submit detailed information in the following areas together with figures, statistics, graphics, technical drawings and photos etc. where appropriate in their proposals :

- (a) Technology Information – including details of the treatment and recovery technology and the process involved, the waste types/composition and throughput that it can handle, the pollution control technologies, output and residual products and their marketability, flexibility for expansion or reduction in capacity, land and infrastructural requirements, compatibility with our existing waste management system, reliability and total lead-time.
- (b) Environmental Information – including emissions to air and water, residual solid waste, greenhouse gas, energy consumption, odour, noise, visual impact, and risks of accidents.
- (c) Social Information – including likely community perception, constraints to adjacent development, and employment opportunities.
- (d) Economic Information – including likely capital and operating costs (with reference to similar facilities elsewhere), and possible sources of revenue.

11. As any new integrated waste treatment facility(ies) would incur huge capital investment, we will need to make sure that all the

proposed technologies/facilities are reliable in treating large quantities of waste and would be able to meet our long-term waste management needs. Hence, we plan to consider only proven technologies/facilities that are able to treat at least 500 tonnes of municipal solid waste per day per site (i.e. over 150,000 tonnes a year). Mere conceptual proposals or laboratory scale technologies would not be considered.

Advisory Group

12. To increase transparency and to assist the Government in considering the EoI submissions, an Advisory Group (AG) would be set up. This Group, to be chaired by the Secretary for the Environment and Food, would comprise representatives of the Advisory Council on the Environment (ACE) and the Waste Reduction Committee, members of professional institutions and academia, and community organizations. The Director of Environmental Protection will also be a member. The Group will be responsible for refining the proposed assessment criteria (para. 13 below), evaluating the EoI submissions, and making recommendations to the Government on viable technology(ies) based on the EoI submissions for public consultation purposes.

Proposed Assessment Criteria

13. The Government would first screen out those proposals that do not meet the minimum handling volume of 500 tonnes per day per site. Qualified proposals would be evaluated in accordance with the following key assessment criteria, subject to any modifications advised by the AG:

- (a) Waste Minimization/Resource Recovery - This will focus mainly on the technology's ability to deliver a sustainable, cost-effective waste processing and disposal method to divert solid waste from landfills. In addition, its ability to facilitate waste avoidance/recycling and beneficial re-use of resources will be assessed.

- (b) Environmental Concerns - The technology must be ecologically sustainable. We will assess the impact of the proposed technology/facility(ies) on the environment in terms of local (odour, noise, etc.), regional (air emission, residual waste disposal, wastewater disposal, etc.) and global (such as greenhouse gas) impacts.
- (c) Social Impacts - The technology must provide a solution that satisfies the community's needs and expectations for proper waste management, and will not bring about unnecessary constraints to developments in the neighbourhood of the facility(ies).
- (d) Economic Viability - The technology must provide a cost-effective and efficient waste management system for a small place with a huge population.
- (e) Compatibility - As an integral part of HK's long term waste management strategy, the proposed technology must be compatible in strategic planning and operational needs (scale, required footprint, etc.) with the existing waste management system in respect of waste collection, transportation, storage, treatment and disposal.
- (f) Performance and Operational Reliability - The assessment will cover the reliability of the technology and experience/track record of the supplier/operator in treating solid waste. It will also cover the technology's ability to treat waste input which may vary in composition and quantity over time.

Location(s) of Integrated Waste Treatment Facilities

14. On the basis of the evaluation by and recommendations of the AG, the Government would consult the public on the technology(ies)/facility(ies) to be adopted in Hong Kong. The choice of

technology(ies) would be a key factor in determining the number and the size of sites required for establishing the integrated waste treatment facility(ies). Once we have decided on the technology(ies) to be adopted, we will then consider the possible location(s) to site the facility(ies), assess the engineering, environmental and economic viability of the site(s) concerned, and carry out public consultation on the proposed location(s).

15. Members may be aware that in the Waste Reduction Framework Plan issued in 1998, waste-to-energy recovery was recommended as one of the integrated waste treatment technologies to be adopted in Hong Kong. Following this recommendation, the Environmental Protection Department initiated in 1999 an environmental impact assessment and feasibility study for waste-to-energy facilities. That study will continue in parallel, but without prejudice to the forthcoming EoI exercise. The findings of that study will be taken into account when we consider the site location(s) after a decision on the waste treatment technology(ies) has been made.

Timetable

16. We plan to invite EoI in developing integrated waste treatment facility(ies) in Hong Kong in April 2002. We will allow three months for interested parties to formulate and submit their proposals. The assessment process will start in July and is expected to last about three to six months (i.e. between October and December 2002), depending on the number and complexity of the proposals received. We plan to consult LegCo, ACE, and the public towards the end of this year on the recommended technology(ies)/facility(ies).

17. Assuming a decision could be reached on the choice of technology(ies), we may kick off in 2003 the EIA study(ies) for the integrated waste treatment facility(ies). We will consult the public around late 2004 upon completion of the EIA for the proposed facility(ies). If everything proceeds according to schedule, construction of the facility(ies) might commence in 2008, with a view to being commissioned by 2012 at the earliest.

18. We will make reports to this Panel as we reach each critical milestones e.g. the outcome of the EoI exercise and the outcome of the technical assessment.

Landfill Charging

19. Landfill charging is an essential component of our waste management strategy as it provides an economic incentive for waste producers to reduce waste and/or to carry out sorting to facilitate reuse/recycling. It would also ensure that costly landfills are not used for dumping construction and demolition (C&D) materials which should be directed to public filling areas for reclamation purpose. Experience in many places like Shenzhen, Shanghai, Taipei, USA, Canada, most European countries, Japan and Singapore has shown that landfill charging is one of the most common and effective measures to reduce waste.

20. There is a need to focus first on C&D waste as Hong Kong currently generates around 14 million tonnes of C&D materials each year. About 11 million tonnes (80%) are reused in reclamation works or recycled but the remaining 20%, most of which are C&D waste, are dumped in our landfills, and they account for about 40% of the waste disposed of at landfills each year.

21. C&D waste is mainly generated from construction sites (about 70-80%) and renovation of domestic/commercial premises (about 20-30%). The key sectors affected by a landfill charging scheme would be developers and contractors who are waste producers, and waste haulers who transport C&D waste to landfills. The scheme would also impact on general members of the public as and when they undertake renovation. However, they are unlikely to be affected by the scheme on a regular basis like developers, contractors, and waste haulers.

22. We have been discussing the details of a landfill charging scheme with the relevant trades. Through our discussions, we are aware that they have two major concerns. Contractors are concerned about the

impact of the charging scheme on running contracts. As such contracts are signed before the implementation of the scheme, they would have difficulty in recovering the charge from developers. Waste haulers are concerned about the need to pay the charge at the landfill gate, which means that they would have to collect or recover the charge from the waste producers. They believe this would lead to bad debts and cash flow problems. They suggest the Government should establish a direct settlement system to charge all C&D waste producers direct.

23. Taking into account the concerns of the construction industry and waste haulers, we carried out further consultation on a scheme including the following features :

- a) in accordance with the polluters-pay principle, our intention is to charge all C&D waste at around \$125 per tonne so as to recover fully the capital (\$56) and recurrent costs (\$69) of the three existing landfills in 2001;
- b) exempt all construction contracts that have already commenced and/or that are signed before the implementation of the scheme;
- c) establish a direct settlement system so that major C&D waste producers (i.e. contractors) would pay the landfill charge direct to the Government, thereby obviating the need for waste haulers working for them to collect/handle such charge; and
- d) charge waste haulers the remaining 20 – 30% C & D waste arising mostly from ad hoc renovation works as there are no effective means to extend the direct settlement system to small C&D waste producers. (Please see paragraph 25 below.) However, to allay waste haulers' concern on cash flow problems, they would be billed on a monthly basis and given a credit period. Furthermore, a security deposit will not be required.

24. Waste producers and waste haulers consider that the proposed charging rate is too high and should be lowered. In addition, notwithstanding the introduction of a direct settlement system for construction sites that covers about 70-80% of C&D waste, waste haulers still reject the proposal on the ground that they would have to pay/handle the charge on behalf of small C&D waste producers.

25. A direct settlement system for major C&D waste producers is feasible since all construction sites are highly visible and works therein could only commence after the contractors concerned have obtained the relevant permits/approvals from the Government. On the other hand, there is currently no requirement for home/office renovation projects to be registered or approved. It is therefore not possible to track down small C&D waste producers. We do not favour any scheme that does not cover renovation waste producers, because it is extremely difficult to differentiate C&D waste coming from construction and renovation sites. Any such exemption is likely to create immense opportunities for abuse. We therefore consider that any charging scheme should apply to all C&D waste producers.

Conclusion

26. Members are invited to comment on the proposed EoI exercise and offer their views on the proposed landfill charging scheme.

Environment and Food Bureau
Environmental Protection Department

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Progress on Waste Recycling Initiatives

Long-term and Short-term Land for Recycling Industry

- A four-month preliminary study on the development and arrangement of the Recovery Park commenced in late November 2001.
- Two more sites in Tai Po would also be made available for waste recycling operations under short-term tenancies in the first half of 2002. Will continue to identify new sites for use by recycling operations.

Enhancing Public Education and Community Involvement

- Preparation is in hand to submit an application for seeking approval of the Finance Committee for injecting \$100 million into the Environment and Conservation Fund, primarily for use by district organizations and green groups to organize community-based recycling projects with sustainable impact.
- Participating schools in recycling programme has increased from around 400 from last academic year to 800 plus so far. Housing Department started a trial to place waste separation bins on each floor in two public housing estates in November 2001.
- We have launched a large scale publicity campaign, including two Announcements of Public Interests, visits by theme van on waste problems to shopping centers and schools, special campaigns/exhibitions, etc.

- We are providing training for 5,000 voluntary Environmental Protection Ambassadors.
- Together with green groups and Education Department, we are developing education materials on waste recycling/separation for use by teachers in schools.

Recycling Bins and Collection Service for Recyclables

- The number of recycling bins in public places and schools has increased from around 8,000 to 13,000 by the end of 2001. Together with another 6,600 recycling bins in private housing estates, we have now around 19,500 all over the territory.
- Collection of recyclables from public places, leisure facilities, Government buildings, and country parks have also been contracted out since mid-December 2001 so as to ensure that they would be picked up properly and delivered to recyclers for recycling purposes.
- Environmental Protection Department has also launched a pilot collection scheme for plastic bottles in 250 public/private housing estates.
- Number of enquiries on EPD's hotline has increased on average from 10 before September to around 100 each day.

Government Leadership

- Government is developing a procurement guideline for departments to use green products (e.g. recycled papers, printer cartridge), extending the pilot scheme for using retreaded tyres in its heavy vehicle fleet and using more compost made from organic waste in greening.

Producer Responsibility Schemes

- We are discussing with various industries the feasibility of developing voluntary producer responsibility schemes. As a start, we are joining hands with mobile phone manufacturers/service providers on a mobile phone battery recycling programme.

Other New Initiatives

- We issued in end November 2001 invitations for expressions of interest on recycling of glass bottles and waste tyres so that the private sector could offer us good suggestions for handling such wastes.
- We plan to establish a pilot plant to recycle electrical and electronic goods at one of our refuse transfer stations.
- Tenders will be invited in the next few months for the establishment of a composting plant at Ngau Tam Mei to recycle organic waste.