

Waste management in Hong Kong/business opportunities

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Introduction

Waste and waste management create a number of challenges for the Hong Kong (HK) government. These challenges could be potential business opportunities for Dutch companies while contributing to a more livable and sustainable city. The government has repeatedly stated that money is not their primary concern in dealing with waste.

This report aims to provide Dutch companies with possibilities of the waste management market in HK. HK could be a good first step onto the immense Mainland Chinese market as well. The sense of urgency of the new HK government of tackling waste issues is promising.

Challenges in HK:

- Large quantities of waste are produced and not recycled
- Lacking of right incentives and regulation to reduce waste substantially
- Landfills will be soon exhausted
- Lack of space hampers extension or new landfills
- Insufficient infrastructure to handle waste efficiently
- Public opposition against planned incinerator, public distrust
- Not sufficient awareness in HK among residents and business that waste is a problem and solving it will cost money

Framework

What HK needs is a comprehensive legislation, regulation, a tax and incentive framework to tackle the waste problem comprehensively. As of yet there are some voluntary schemes which will probably be insufficient. Furthermore, on short notice, HK needs alternative disposal options for its landfills. The end goal should not be just to deal with waste, but also produce less of it at the source and make businesses and consumers active and responsible stakeholders.

Overview and data of the market

- HK produces around 13500 tons of waste daily, which is mostly disposed of at landfills since there are no large-scale modern waste treatment facilities.
- HK's daily generation and disposal of waste per kg/person rate is high compared to other major Asian cities such as Seoul, Tokyo and Taipei.
- Projections are that the first of the three major landfills will be full in 2014/2015, and the other two by 2018. Therefore, alternatives for landfills are necessary, since HK lacks space to keep extending these on the long term.
- Government solutions to tackle these issues: "reduce, recycle and develop proper waste management"
 - (i) strengthening efforts in promoting waste reduction at source and recycling at source
 - (ii) introducing modern facilities for waste treatment
 - (iii) extending the existing landfills in a timely manner

In view of the lead time required for planning and construction of waste treatment facilities, it is desirable for HK to commence the preparatory work for the first integrated waste management facility

(IWMF) with a treatment capacity of 3 000 tpd and two organic waste treatment facilities (at Siu Ho Wan and Sha Ling respectively).¹

There is a lot to be done persuading people that these facilities are safe and good solutions for a problem in the making. Public outreach should be part and parcel of these efforts, and perhaps Dutch companies and/or government institutions can make a contribution here.

Proposed action by HK authorities

Hereunder a more detailed description of what solutions the HK government envisages with regard to the different challenges of waste management.

1. Incinerator

The HK government plans to build an incinerator on the shores of Shek Kwu Chau Island, a small Island near Lantau Island. The Integrated Waste Management Facilities (IWMF) will have a treatment capacity of 3000 tons of waste per day during the first phase.

Tender information: Is not to be expected within a year. It will take at least eight years from now before the incinerator will be in operation according to the HK government. The Environmental Protection Department (EPD) has put a price tag of 1.5 billion euros on building the incinerator and estimates that it will cost approximately 35 million euros a year to run. There is a lot of resistance in HK for building the incinerator.

HK needs to do a lot of outreach to take away the mistrust of the people. Perhaps Dutch companies can contribute here. A visit to Amsterdam and The Hague might be interesting for the HK government and other interested parties (NGO's, LegCo members, civil organizations) in order to obtain a clear view of how the AEB incinerator operates in reality and how the Dutch government dealt with public resistance regarding the incinerator.

2. Organic Waste Treatment Facilities (OWTF)

Food waste accounts for about one third of the 9000 tons of municipal solid waste (MSW) disposed of every day in HK's landfills. HK Government planned to build two OWTFs in HK by adopting *anaerobic digestion* for biogas production. Tender for the first OWTF plant to handle 200 tons per day will be issued in Jan 2013. Contract Let: January, 2014. Project Commencement Date: February 2014. This will be a design, build & operate tender and need to be commissioned within 27 months after contract awarded. The awarded company will have 15 years of operation. Contact person.^{II} The second OWTF plant is under planning and tender will be issued in 2017 to handle 300 tons per day.

3. Extension of Landfills

Half of HK's waste is being disposed of by landfills, while HK has very little territory available. HK government's policy is to expand the landfills. It seems there is no other option on the short term to dispose of the waste. However, it takes years to extend an existing landfill site. The proposed landfill extensions of NENT, SENT and WENT can be found here:

http://www.epd.gov.hk/epd/english/news_events/legco/files/120326a_Annex_eng.pdf

The prequalification invitation date for the landfill in North East New Territories (NENT) starts in April 2013. The Tender Invitation Date is due on October 2013. The contract let: October, 2014. Project Commencement November 2014. Expected of the contract is 144 months. Major activity: Development and management (including design, construction, operation, restoration and

¹ <http://www.info.gov.hk/gia/general/201202/01/P201202010268.htm>

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aftercare) of the Northeast New Territories landfill extension. Contact person.^{III} There are no tender dates available yet for the other two landfills.

4. Mobile Waste Electrical and Electronic Equipment (WEEE)

A prequalification notice for WEEE treatment and recycling facility at Eco Park, HK has been released in December 2012, the deadline for applying for this prequalification is February 27nd of 2013. http://www.epd.gov.hk/epd/english/business_job/business_opp/files/WEEE_Facility.pdf
The project is a design, build & operate contract for 10 – 15 years with fixed operating fee provided and 30000 tons of waste each year is to be treated. The tender invitation date is April, 2013. Contract let is December 2013. The project commencement date is December 2013. Contact person.^{IV} Both ATAL Environmental Engineering and the Green Council (NGO in HK) would like to get in touch with interested Dutch companies which are experienced in WEEE facilities or operation.

5. North Lantau Transfer Station (NLTS)

Tender has been out since December 14th 2012, closing date is February 22nd at 12.00 noon 2013. The scope of the Contract comprises (a) the design and construction of refurbishment and modification works to the existing North Lantau Transfer Station (NLTS); (b) the maintenance of the NLTS; and (c) the operation of waste transfer services including the transportation of containerized waste by marine vessel from the NLTS to the West New Territories (WENT) Landfill for disposal. This Contract is scheduled to commence on 1 June 2013, following the expiry of the existing contract (Contract No. EP/SP/20/94) for the design, construction, operation and maintenance of the NLTS. Tender:
http://www.epd.gov.hk/epd/english/business_job/business_opp/files/Tender_notice_20121214_eng.pdf

6. Glass Recycling

There are a few voluntary programs which gradually reach out to more people. The HK government intends a mandatory producer responsibility scheme in the near future after consultation. The goal is to turn up to 50000 tons of waste into resource.

7. Sludge Treatment

The EPD, after going through an open tender procedure, has awarded a contract to design, build and operate a sludge treatment facility equipped to treat 2,000 tons of sludge a day at maximum capacity at Tsang Tsui, Tuen Mun, to VW-VES (HK) Limited, a subsidiary of Veolia Environment. In addition to being a major treatment facility applying advanced technology, the plant will have leisure, educational and landscaped facilities for the public.

8. Recycling Waste

EPD figures show that only 1 percent of recycling occurs in HK, the rest of waste for recycling is exported to mainland China. There is virtually no recycling industry in HK. As the government encourages more recycling business, a high demand on advanced recycling technologies or equipment in HK exists.

Business opportunities for Dutch companies

Based on our preliminary market research there are a number of possibilities for Dutch companies in the HK market, in addition to the aforementioned opportunities above.

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Energy from Waste

Dutch plants are very innovative and state of the art which means no risk for dioxin emissions and in line with high energy efficiency criteria (87% of the Dutch capacity meets the European R1 criteria). Experienced Dutch companies could be interested to the upcoming incinerator project in HK.

Gas recovery from landfills

The Netherlands has extensive expertise in extraction of gas from landfills and landfills sites. Gas recovery at least doubles when using an appropriate capping system developed by Dutch companies. Also gas recovered from a landfill site can be converted to renewable electricity or combustible methane gas. Seeking cooperation with existing landfill operators in HK could be an option to enter the market.

Separation techniques

A well spread infrastructure of separation plants is needed to sort out the E-waste from different waste streams. Dutch companies also have long standing experience in producing Solid Recovered Fuel (SRF) from mixed wastes.

Composting

Dutch companies have a long proven track record in composting and anaerobic digestion by using modern high performing in vessel composting facilities. Dutch companies experienced in composting could be interested in the coming two OWTFs tenders in HK in 2013 and 2017.

Consultants-Advisors-Experts

Well-known Dutch consultancies should also keep an eye on the upcoming EIA reports or site investigation (for the incinerator) consultancy tenders in the coming years. The Netherlands have a proven track record on how to engage the wider public regarding controversial projects like incinerators in close vicinity of residential areas.

Waste transfer

There is a need of expertise on taxation, incentives, legislation and regulation in HK with regards to waste and waste management. The HK government asked the consulate specifically for tax experts. After the planning and decision making process there will be a demand to help implement and execute effective waste management. The Dutch government could set up a G2G program in this field.

Market competitors

Sita and Veolia are major waste service providers in HK. As a consequence of the level of expertise of both these French companies in landfill operations, which is currently the main waste treatment in HK, these companies were able to dominate the waste management market in HK. However, the HK government wants to focus on sustainable ways to dispose HK's waste, thus focusing on more technological advanced solutions. In HK, Sita operates eleven solid waste transfer stations, two of the three strategic sanitary landfills (WENT and NENT, both among the largest landfill in the world), and seven restored landfills. Through its wholly-owned subsidiary Waylung Waste Services Limited, Sita is a major player in waste collection, street cleansing and composting. Veolia HK operates the other major landfill in HK; SENT along with some other waste treatments. A third competitor in HK is Remondis, a German company which has not been able to obtain any contract until present. Furthermore, US based company 'Waste Management', has an alliance with HK company Swire.

Way forward

- Interested companies should contact the Consulate General in HK for additional and more sector specific information via betty.liu@minbuza.nl or hon-ea@minbuza.nl
- Tentatively there is a mission planned for the Secretary for Environment in 2013 to China. Companies could join this mission, the Consulate will provide tailor made match making.
- Some HK parties have expressed interest in Dutch technologies and knowledge, for example the incinerator in Amsterdam (AEB). It could be an idea to invite these organizations to the Netherlands if deemed useful.
- Prequalification invitation date for the WEEE Tender is due on the 27th of February 2013. Interested companies should contact ATAL & Green Council a.s.a.p.
- Set up a consortium of interested Dutch companies under the Partners for International Business Program of the EVD. Besides G2G activities, a number of promotional activities (missions, seminars) and/or studies can be set up. Under the Program the EVD can finance a part of these activities.