



環境保護署

ENVIRONMENTAL PROTECTION DEPARTMENT

## *Integrated Waste Management Facilities*

Focus Group Meeting

May 2009

AECOM



## *Meeting Rundown*

### **Introduction**

**20 min** Background Presentation by Engineering Consultants

### **Discussion**

**90 min** Your Concerns:-

- Technical
- Environmental
- Traffic
- Social
- Economic
- Others

### **Closing Remarks & Acknowledgement**



## ***INTRODUCTION***



### ***Background***

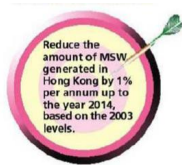
- Municipal Solid Waste Problem
- Treatment Technologies for IWMF
- Potential Sites for IWMF
- Engineering Investigation and Environment Impact Assessment
- Public Engagement Process

## Integrated Waste Management Facilities

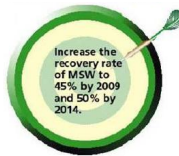
- To tackle the MSW problem
- ⇒ **A Policy Framework for the Management of MSW**



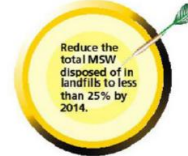
### Waste Avoidance & Minimization



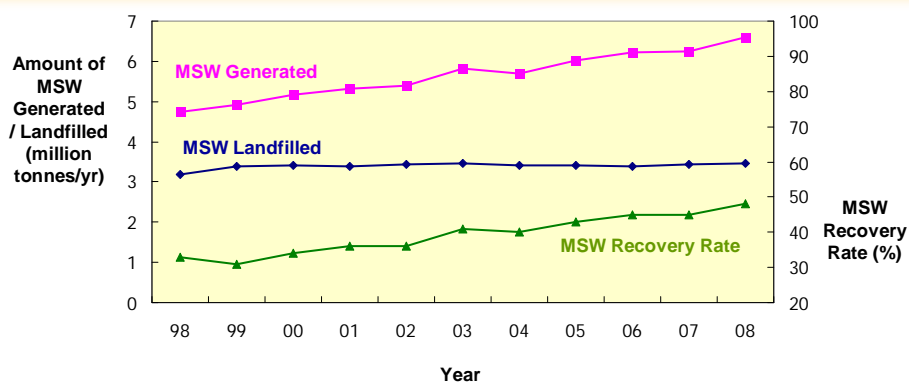
### Reuse, Recovery & Recycling



### Bulk Reduction & Disposal (Development of Integrated Waste Management Facilities)

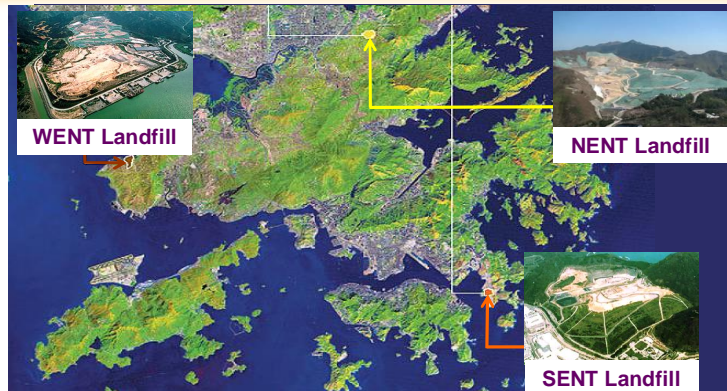


## Trend of MSW Generation



- Increasing trend over the past years
- There is still a substantial amount of unavoidable MSW requiring disposal (~9,500 tonnes per day in 2008)

## ***Need for Alternative Disposal Means***



The current practice of disposing unavoidable MSW at landfill is not sustainable:

- Limited landfill life, there is an urgent need to prolong the landfill life.
- Long-term land resource use and environmental burdens arising from landfilling of waste.



## ***Waste Management Strategy***

### IWMF Phase 1

- Mixed waste
- Core facility: employs thermal treatment technology
- Demonstration-scale recycling facility for mixed waste

### Other Waste Facilities

- Organic Waste Treatment Facility (OWTF) at a separate location to treat source-separated organic waste
- Sludge Treatment Facility (STF) at a separate location to treat sewage sludge produced during wastewater treatment



## ***Integrated Waste Management Facilities (IWMF)***

- Policy Framework (2005-2014)
- Aims to treat unavoidable MSW, bulk reduction
- Developed in phases
- Capacity of First Phase of IWMF - about 3,000 tpd
  - good economy of scale
  - comparable to other densely populated cities with similar demographic and geographic situations
- Capacity of Remaining Phase(s) of IWMF
  - to be determined at a later stage
- Area required for the First Phase of IWMF
  - about 10 hectares



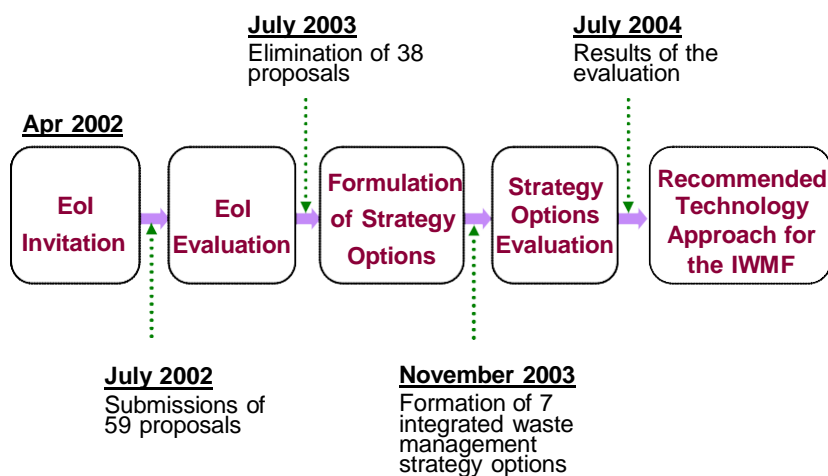
## ***Expression of Interest (Eoi)***

- Aims to identify suitable MSW treatment technologies for Hong Kong
- In April 2002, local and overseas companies were invited to submit a proposals on waste treatment technologies for the Government
- An Advisory Group (AG) comprising members from professional bodies, green groups and academic sectors was set up to assess the proposals and to recommend suitable waste treatment technologies for Hong Kong.

## **AG Members & Evaluation Criteria**

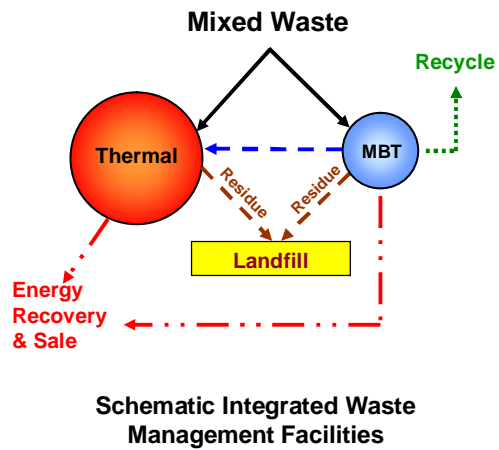
Advisory Group (AG) on Waste Management Facilities	Sub-Groups				
	Environment	Technology	Social	Economics	Consumer
Mr. Keith K K Kwok 郭家強先生 Prof. C S Poon 潘智生教授 Prof. Joseph Lee 李行偉教授 Dr. Man Chi Sum 文志森博士 Prof. Francis Lui 雷鼎鳴教授 Ms. Connie Lau 劉燕卿女士 Prof. Wong Tze Wai 黃子惠教授 Mrs. Teresa Wong 黃珍妮女士 Prof. Lam Kin-che 林健枝教授	Prof. C S Poon 潘智生教授 Mr. Edwin Lau 劉祉鋒先生 Prof. Ho Kin-chung 何健宗教授 Dr. Ng Cho-nam 吳祖南博士 Prof. Lam Kin-che 林健枝教授 Dr. Gordon Ng 吳庭亮博士 Mr. Maurice Lee 李榮護先生	Prof. Joseph Lee 李行偉教授 Dr. Albert Koenig 黃立人博士 Dr. C K Chan 陳澤強博士 Prof. Herbert Fang 方漢平教授 Mr. C M Lin 連燦明先生	Dr. Man Chi Sum 文志森博士 Mr. Michael Lai 賴錦璋先生 Mr. Chua Hoi-wai 蔡海偉先生 Dr. Elaine Chan 陳綺文博士 Mr. Apo Leong 梁寶森先生	Prof. Francis Lui 雷鼎鳴教授 Dr. Luk Yim-fai 陸炎輝博士 Dr. Liu Chun-wah 廖振華博士 Mr. Wong Pit-kwong 王必光先生 Mr. Mak Nak-keung 麥力強先生	Ms. Connie Lau 劉燕卿女士 Mrs. Katherine Shum 沈吳斐娟女士 Ms. Jasminia Cheung 張王珪於女士 Dr. Ng Tat Lun 伍達輪博士 Dr. W K Lo 盧偉國博士

## **Eol Evaluation Process**



## ***IWMF Treatment Technology***

- Core Treatment - Advanced Thermal Incineration
  - Bulk reduction of volume of MSW for disposal
  - Recovery of energy by incorporating "Waste-to-Energy" system
- Recovery of recyclables
  - Sorting and recycling recyclables by Mechanical-Biological Treatment plant (MBT)
- Comply with the most stringent international emission standards



## ***Incineration Plant - Worldwide Examples***





## *Site Selection for IWMF*

- Reported to ACE Waste Management Subcommittee on 6 July 2006 that a site search exercise would be initiated
- CDM International Inc. was engaged to carry out the site search
- Worked closely with Government Departments
- Completed in January 2008
- Presented the findings to ACE and LegCo EA Panel in early 2008



## *Site Selection for IWMF Phase 1*

- [LegCo EA Panel Paper](#), [CB(1)724/07-08(01)] )  
<http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/eacb1-724-1-e.pdf>  
<http://www.legco.gov.hk/yr07-08/chinese/panels/ea/papers/eacb1-724-1-c.pdf>
- [ACE Paper](#), [9/2008]  
[http://www.epd.gov.hk/epd/english/boards/advisory\\_council/files/ACE\\_Paper\\_9\\_2008.PDF](http://www.epd.gov.hk/epd/english/boards/advisory_council/files/ACE_Paper_9_2008.PDF)



## ***Identification of Potential Sites***

### ■ AG recommended to exclude the following areas:

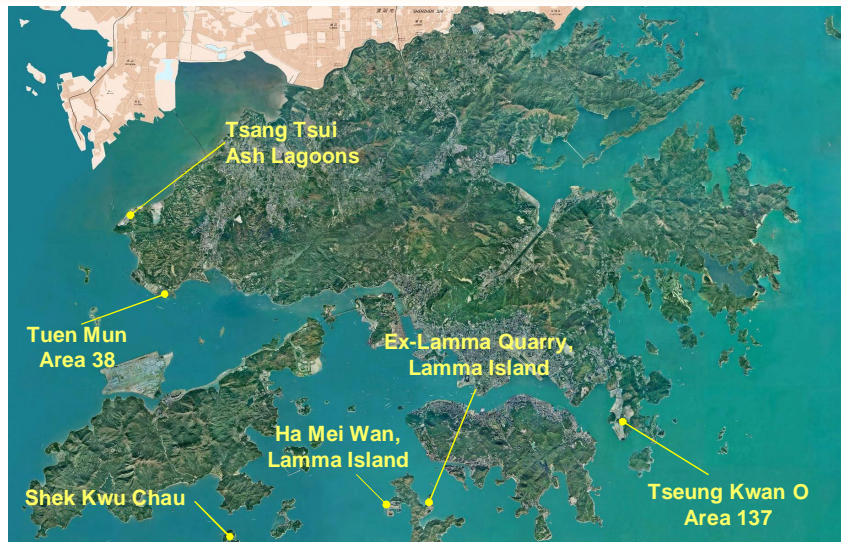
- All area without marine access
- Area very exposed to wave or typhoon if island is chosen
- All areas for Residential and Commercial Use;
- All 23 existing or potential Country Parks;
- All existing or potential Marine Parks and Marine Reserves;
- All Sites of Special Scientific Interest (SSSI) (including buffer areas);
- All Special Areas (outside Country Parks);
- All Restricted Areas (Wildlife); The RAMSAR Site (including buffer area);
- All Green Belt (GB) and Urban Fringe Parks;
- All Conservation Areas (CA);
- All Coastal Protection Areas (CPA);
- All Water Gathering Grounds;
- All Wetlands Areas;
- All Fish Culture Zones;

## ***Identification of Potential Sites***

### ■ AG recommended to exclude the following areas (Cont')

- All Proposed Fisheries Protection Areas;
- All Gazetted Beaches;
- All Declared Monuments, Graded Historical Buildings and Structures, Deemed Monuments and Archaeological Sites;
- All Cemeteries, Burial Grounds or Grave Zones;
- All Fairways and Shipping Lanes and Port Areas;
- All Tunnels and Roads, existing and proposed Railways;
- All Airports and Restricted Areas around them (including the Military Airport);
- All Other Major Infrastructure (including Castle Peak Firing Range);
- All Major Tourism Development Areas; and
- All Priority Sites for Enhanced Conservation promulgated under the New Nature Conservation Policy.

## 6 Potential Sites



## Methodology of Site Search for IWMF

- 5 main categories
  - Environmental
  - Engineering / Technical
  - Economics
  - Social
  - Consumer & User (Community Impacts)

## ***Methodology of Site Search for IWMF***


- 20 Selection criteria from 5 main categories

•Major Criteria	•Environmental	•Technical/ •Engineering	•Economic s	•Social	
1. Air Quality	√				
2. Noise	√				
3. Visual and Landscape	√				
4. Ecology (Terrestrial)	√				
5. Drainage, Water Quality, Marine Ecology & Fisheries	√				
6. Land Use				√	
7. Land Ownership				√	
8. Traffic Impact				√	
9. Community Impacts					√
10. Ease of Integration with Existing or Planned MSW Infrastructure		√			

## ***Methodology of Site Search for IWMF***

- 20 Selection criteria from 5 main categories (cont.)

•Major Criteria	•Environmental	•Technical/ •Engineering	•Economics	•Social	•Consumer •& User
11. Site Access		√			
12. Constraints to Site Layout		√			
13. Utilities		√			
14. Duration		√			
15. Construction Risk		√			
16. Operational Risk		√			
17. Capital Cost			√		
18. Operating Cost			√		
19. Opportunity Cost of Land			√		
20. Hazard to Life	√				



### ***Consultant's Recommendation***

- Recommend Tsang Tsui Ash Lagoons Site and Shek Kwu Chau Site to be taken forward for detailed engineering and EIA studies.

### ***Locations of Potential Sites for IWMPF***



Tsang Tsui

Shek Kwu Chau

## ***Shek Kwu Chau Site***



### ***Key Features of Shek Kwu Chau site***

- Terrestrial ecology - some fauna species of special ecological interest. However, development will be on reclaimed land only.
- Marine ecology - Water quality, marine ecology and fishery may be impacted during the construction period, can possibly be mitigated.
- Would involve reclamation, statutory gazetting procedures, and installation of power lines.
- The compatibility of the IWMF with the adjacent rehabilitation centre will need to be carefully studied.
- Marine transport only

## ***Tsang Tsui Site***



### ***Key Features of Tsang Tsui Ash Lagoons site***

- Synergy effect for locating right next to the WENT Landfill → could share facilities like berthing facilities .
- Near existing power plant → Surplus energy can easily be connected to the power grid.
- Both marine and land transport of waste are possible
- No reclamation is required. No marine ecological impact.



## ***Engineering Investigation and Environment Impact Assessment***

- Engineering Investigation (EI) Study
  - MSW treatment technology review
  - Energy export & recycling options
  - Transportation & procurement arrangements
  - Engineering assessments including traffic impact
  - Engineering design including reclamation etc
- Environment Impact Assessment (EIA) study
  - Assessment of potential impacts arising from the construction and operation of the IWWMF at the two potential sites
  - Recommendation of suitable mitigation measures
- Public Engagement



## ***Programme***

- EI and EIA studies
  - Commenced in Nov 2008
  - Conducting surveys, reviews, public engagement etc & agreeing assessment methodologies with relevant authorities
  - Completion: by 2010

⇒ Final recommendation on site selection
- IWWMF Phase 1
  - Tentatively, commissioning: 2015/2016



## ***Public Engagement***

- Public engagement events held in 2008:-
  - 30 Meetings & Public Forums with DCs and Stakeholders
  - 25 Exhibitions
- Public engagement will continue throughout the EI and EIA studies

## ***Public Engagement Process***

<b>Events</b>	<b>Time</b>	<b>Purpose</b>
Focus Group Meetings	May 2009 – Jun 2009	To identify the concerns of the interested groups on key issues such as site selection, environmental & health risk, etc.
Public Workshops & Site Visits	Jan 2010 – Feb 2010	To update the public on the latest study progress, report major comments received, discuss local enhancement opportunities, present possible solutions/mitigations, and provide opportunity to visit the two sites.
Town Hall Meeting	Sep 2010 – Oct 2010	To present the findings of the EI and EIA studies and the engagement, report the analysis of key issues and areas of concern, and propose enhancement and/or mitigations.





## ***Public Engagement Process***

- Our continuous public engagement process involves other public engagement activities, such as exhibition, website, newsletter.
- Please visit our website [www.iwmf.hk](http://www.iwmf.hk) for information and updates about this project
- and share with us your view anytime by:-

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138 Shatin Rural Committee Road  
Shatin, New Territories, Hong Kong

Attn: IWMF Project Team



## ***DISCUSSION***