妥善處理迫切廢物問題
綜合廢物管理設施
Tackling Imminent Waste Management Problem
Integrated Waste Management Facilities

2011年3月1日
1 March 2011

AECOM

廢物管理政策
Waste Management Policy

減廢 . 回收
Reduce & Recycle

及時擴建堆填區
Timely Landfill Extension

現代化處理設施
Modern Facilities for Waste Treatment

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選擇技術的過程
Selection of Technology

2002年開始有系統及透明的技術選擇
Systematic and transparent process in 2002

59份本地及海外意向書
59 proposals from local and overseas

諮詢小組成員: 環保團體、專業團體和學術界
Advisory Group: green groups, professional and academic sectors

贊成以焚化技術作為核心技術
Agreed incineration as core technology

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確認核心技術的過程
Confirmation of Core Technology

檢討最先進的技術
Reviewed most advanced technologies

確認以焚化技術作為核心技術
Reconfirmed incineration as core technology

於2009年得到環境諮詢委員會同意
ACE agreed in 2009

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選址的過程
Site Selection

初步選出21個考慮地點
21 possible sites identified

篩選出8個地點
8 sites shortlisted

最後選出2個地點作評估
2 sites for final evaluation

選址結果在2008年向屯門區議會、離島區議會、環境諮詢委員會及立法會簡介
Findings presented to TMDC, IDC, ACE and LegCo in 2008

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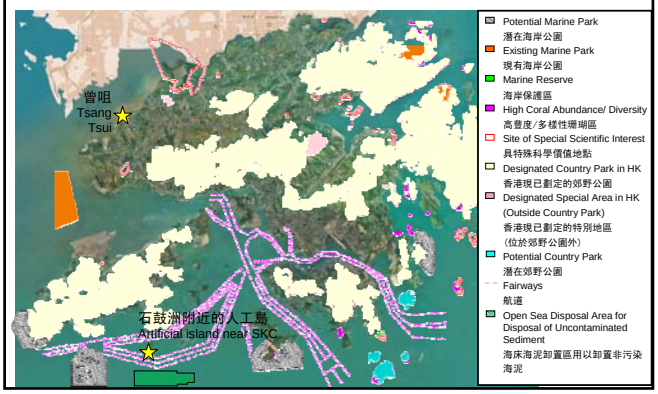
選址研究 – 不考慮的區域
Areas of Exclusion



選址研究 – 21考慮地點
Site Selection – 21 Possible Sites

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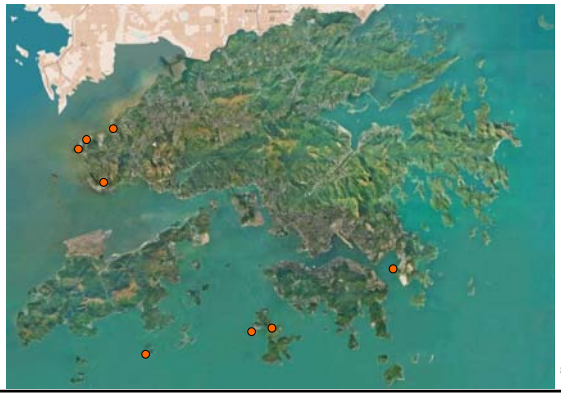
選址研究 – 8個篩選地點
Site Selection – 8 Shortlisted Sites



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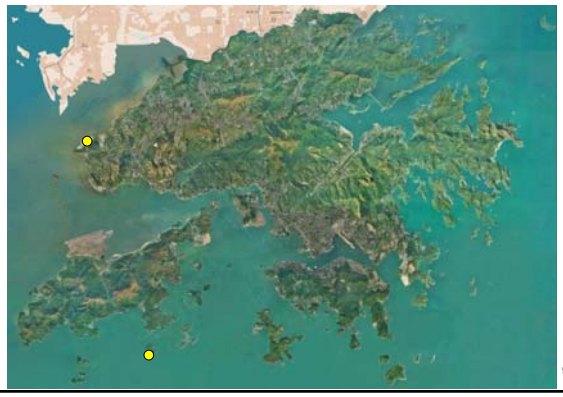
選址研究 – 2個選擇地點
Site Selection – 2 Selected Sites



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考察日本廢物焚化設施(2009)
Visit to Incineration Facilities in Japan (2009)

26位屯門及離島區區議員考察東京及大阪4個焚化處理設施

26 TMDC & IDC members visited 4 incineration facilities in Tokyo and Osaka

綜合廢物管理設施的效益
Benefits of IWMF

大幅減少廢物體積達九成

Substantially reduce the volume of waste by 90%

轉廢為能 (產生每年約4億8千萬度電, 可供十萬戶家庭使用)

Recover energy and generate electricity from waste (~ 480 million kilowatt-hours of electricity per year for use by 100,000 households)

減少温室氣體排放 (每年約44萬噸二氧化碳)

Reduce greenhouse gas emissions (~ 440,000 tons CO_2 /year)

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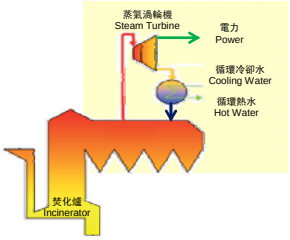
綜合廢物管理設施的主要組成部份
Key Components of IWMF

① 機械式分類及回收設施
Mechanical Sorting and Recycling Facility

Courtesy: www.theskip.net

② 廢物熱能回收及發電系統
Waste Heat Recovery and Power Generation System



④ 環境教育中心
Environmental Education Centre

③ 先進的焚化設施
Advanced Incineration Facility

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先進焚化技術 – 3T技術
Modern Incineration Technology – 3T

溫度850°C或以上可以完全分解有機物

Temperature at least 850°C to completely destroy organic matters

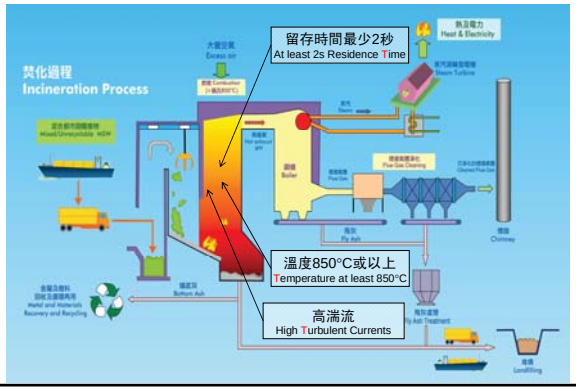
高湍流可以達至完全燃燒

High **T**urbulent Currents to achieve complete combustion

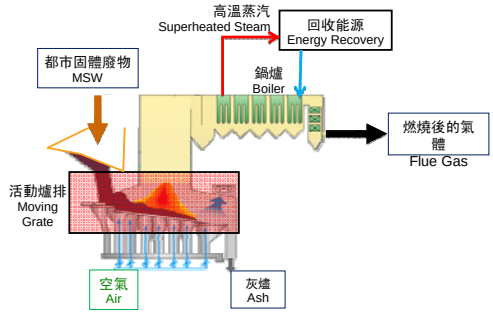
煙氣在850°C或以上留存時間最少2秒可以達至完全燃燒

At least 2s residence **T**ime at 850°C or above to achieve complete combustion

先進焚化技術 – 流程圖
Modern Incineration Technology – Process Flow Diagram



先進焚化技術 – 活動爐排
Modern Incineration Technology – Moving Grate



- 大部份廢物焚化設施採用活動爐排技術(>900個設施)

Majority MSW incineration facilities adopting moving grate (>900 plants)

先進焚化技術 – 活動爐排
Modern Incineration Technology – Moving Grate

優點 Merits

有充分經驗證的紀錄
Proven experience

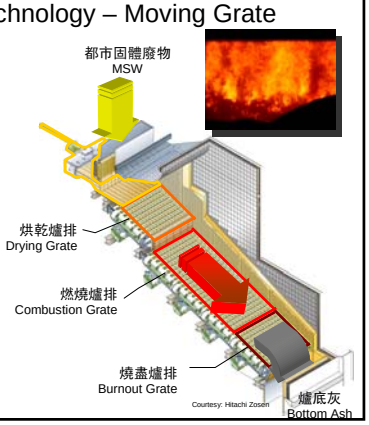
系統安全可靠
Safe and robust system

達到歐盟煙囪排放標準
Meeting EU Emission Standards

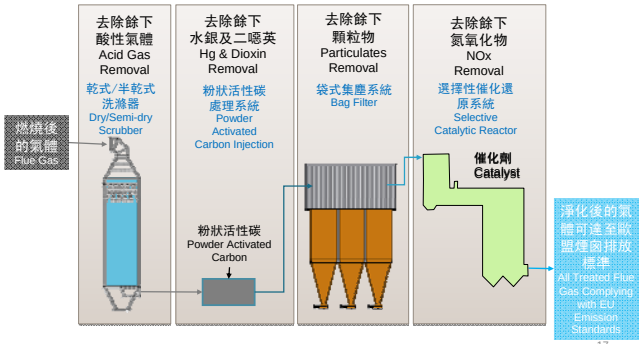
建造及營運成本低
Low construction and operation costs

佔地面積小
Small footprint

>10 家主要供應商
>10 major suppliers



先進焚化技術 - 煙道氣體淨化及控制系統
Modern Incineration Technology – Flue Gas Cleansing and Control System



現代焚化爐例子
Examples of Modern Incineration Facilities

附屬社區設施例子
Examples of Associated Community Facilities

教育中心
Education Centre

舞洲固體廢物焚化廠
Maishima MSW Incineration Plant

休閒中心
Recreational Centre

川口市朝日環境中心
Asahi Clean Center

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環境影響評估研究
EIA Study

兩個選址 - 三個情景:
Two Potential Sites - Three Scenarios:

曾咀選址
Tsang Tsui site

石鼓洲附近的人工島
Artificial island near Shek Kwu Chau

兩個選址並存
Co-existing scenario

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環境影響評估研究
EIA Study

評估兩個選址於三個情景下在工程施工及運作期間所產生的累積環境影響、並提出緩解措施以確保對環境的影響可達至可接收水平
Identifying cumulative impacts for two sites under three scenarios during construction and operation phases, recommending mitigation measures to ensure impacts at acceptable levels

環評是根據《環境影響評估條例》及《 環境影響評估程序技術備忘錄》進行
In accordance with Environmental Impact Assessment Ordinance and Technical Memorandum on EIA Process

評估的範圍涵蓋空氣、噪音、水質、廢物、生態、漁業、健康、景觀及視覺、文化遺產
Assessment covering air, noise, water, waste, ecology, fishery, health, visual & landscape, cultural heritage

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空氣質素評估
Air Quality Assessment

三維光化學的空氣質素模型
3-D photochemical air quality model

考慮了區域性(包括珠江三角洲) 和本地 (包括電廠、汽車、海事活動等)排放源所造成的累積影響
Cumulative impact taking into account regional (including PRD) and local (including power plant, vehicular & marine activities, etc) emission sources

完全符合歐盟煙囪排放標準，及進行嚴緊空氣監測
Fully comply with EU Emission Standards & close monitoring of air quality

主要空氣污染物 Major Air Pollutants	歐盟煙囪排放標準 (日平均) EU Emission Standards (daily average)
可吸入懸浮粒子 (毫克/立米) Respirable Suspended Particulates (mg/Nm^3)	10
氮氧化物 (毫克/立米) Nitrogen Oxides (mg/Nm^3)	200
汞 (毫克/立米) Mercury (mg/Nm^3)	0.05
二噁英和呋喃 (納克/立米) Dioxins & Furans (ng-TEQ/Nm^3)	0.1

空氣質量監測
Air Quality Monitoring

煙道氣體排放連續監測系統
Continuous Emission Monitoring System

主控制室
Main Control Room

定期煙道氣體採樣
Regular Emission Sampling

實驗室測試
Laboratory Testing

監測參數
Monitoring Parameters

可吸入懸浮粒子、有機化合物、氯化氫、氟化氫、二氧化硫、一氧化碳、氮氧化物、汞、鎘和鉈、重金屬總含量、二噁英和呋喃
Respirable Suspended Particulates, Organic Compound, HCl, HF, SO_2, CO, NO_x, Hg, Cd & Tl, Total Heavy Metals, Dioxins & Furans

監測數據將於環保署網站公佈
Air quality data will be published on the EPD's website

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零污水排放
Zero Wastewater Discharge

自建污水處理設施作循環再用，零污水排放
On-site wastewater treatment plant for reuse, zero wastewater discharge

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融合周邊環境
Matching with Surrounding Environment

和附近的設施（例如污泥處理設施、龍鼓灘發電 廠）性質相近，能與環境配合

Compatible with the surrounding context with nearby facilities of similar nature (e.g. Sludge Treatment Facilities, Black Point Power Station)

將設施佔地減至最少

Minimize site layout and footprint

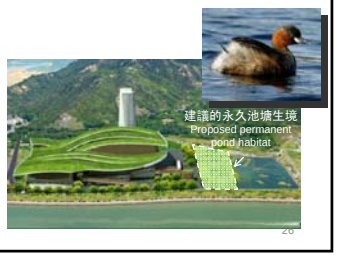
顧及海洋生態
Caring Marine Ecology

選址避免生態保護區

Site location avoided conservation zones

建議緩解措施包括提供約1. 2公頃的永久池塘生境緩解對小鷿鷉的影響

Mitigation measure including provision of 1.2ha permanent pond habitat to mitigate impact to Little Grebe



飛灰處理
Fly Ash Management

混合英泥在廠內加以固化

Cement solidification in the IWMF

檢定後運往堆填區

Compliance check before disposal at landfill

符合國際要求

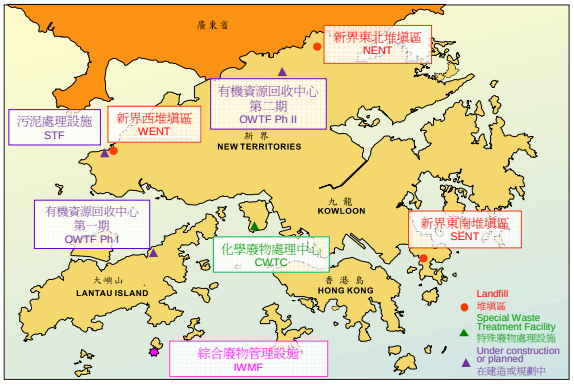
In line with international practices

環境影響評估研究結論
EIA Study Conclusion

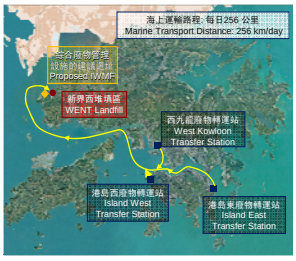
採取先進技術及適當的緩解措施後，在兩個選址、三個情景下興建現代化的焚化設施，在環境上都是可以接受

With advanced technologies and implementation of appropriate mitigation measures, construction of modern incineration facilities at two sites under three scenarios is environmentally acceptable

選址傾向 - 廢物設施的均衡布局
Site Preference - Balanced Distribution of Waste Facilities



減省運輸路程
Savings in Transport Distance



曾咀 – 約每年94, 000公里

TTAL - about 94,000 km/yr

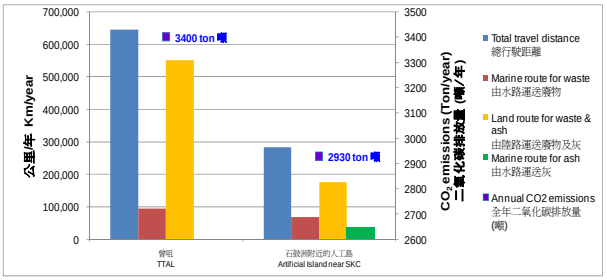
毗鄰石鼓洲的人工島 – 約每年69, 000公里

Artificial Island near SKC - about 69,000 km/yr

毗鄰石鼓洲的人工島 :減省 27%

Artificial Island near SKC : Reduce 27%

減省二氧化碳排放量
Savings in CO_2 Emission



毗鄰石鼓洲的人工島 ：減省 14% (約20,000棵樹)
Artificial Island near SKC : Reduce 14% (~20,000 nos. of tree)

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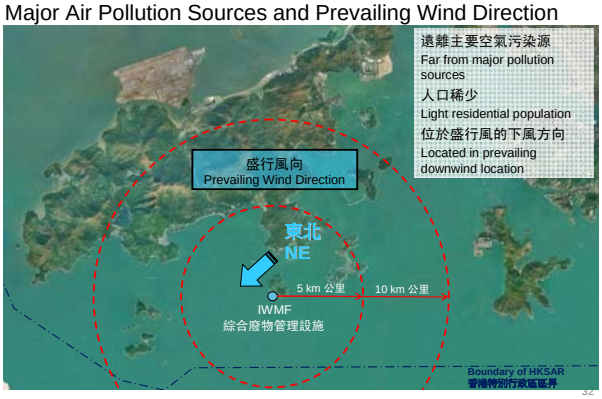
空氣污染源及盛行風向的考慮
Major Air Pollution Sources and Prevailing Wind Direction



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優質配套社區設施
Quality Community Facilities

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未來路向
The Way Forward

環評報告諮詢公眾意見 EIA report for public inspection	2011年2月-3月 February - March 2011
根據前濱及海床填海工程(條例第127章) 刊憲 Gazette under Foreshore and Sea-bed (Reclamations) Ordinance (Cap.127)	2011年4月 April 2011
石鼓洲分區計劃大綱圖 Outline Zoning Plan	2011年4月 April 2011
向立法會申請撥款 Legco Funding	2012年初 Early 2012
啟用日期 Commissioning	2018年 Year 2018

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答問時間
Q&A

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