CB(1)1439/11-12(01)

發展事務委員會

Panel on Development

發展岩洞優化土地供應
1.岩洞發展長遠策略研究及
2.搬遷沙田污水處理廠往岩洞的可行性研究

Enhancing Land Supply by Cavern Development
1. Study on the long-term strategy for cavern development, and
2. Feasibility study on relocation of Sha Tin sewage treatment works to caverns

27.3.2012

發展局、土木工程拓展署及渠務署
Development Bureau,
Civil Engineering and Development Department, and
Drainage Services Department

2009-10 年施政綱領中有關
善用香港地下空間的新措施
New Initiative on the enhanced use of underground space as stipulated in the 2009-10 Policy Agenda

- 有計劃地善用岩洞，開發地下空間，促進香港可持續發展

  Planned enhanced use of rock caverns for development of underground space as part of Hong Kong's pursuit of sustainable development.

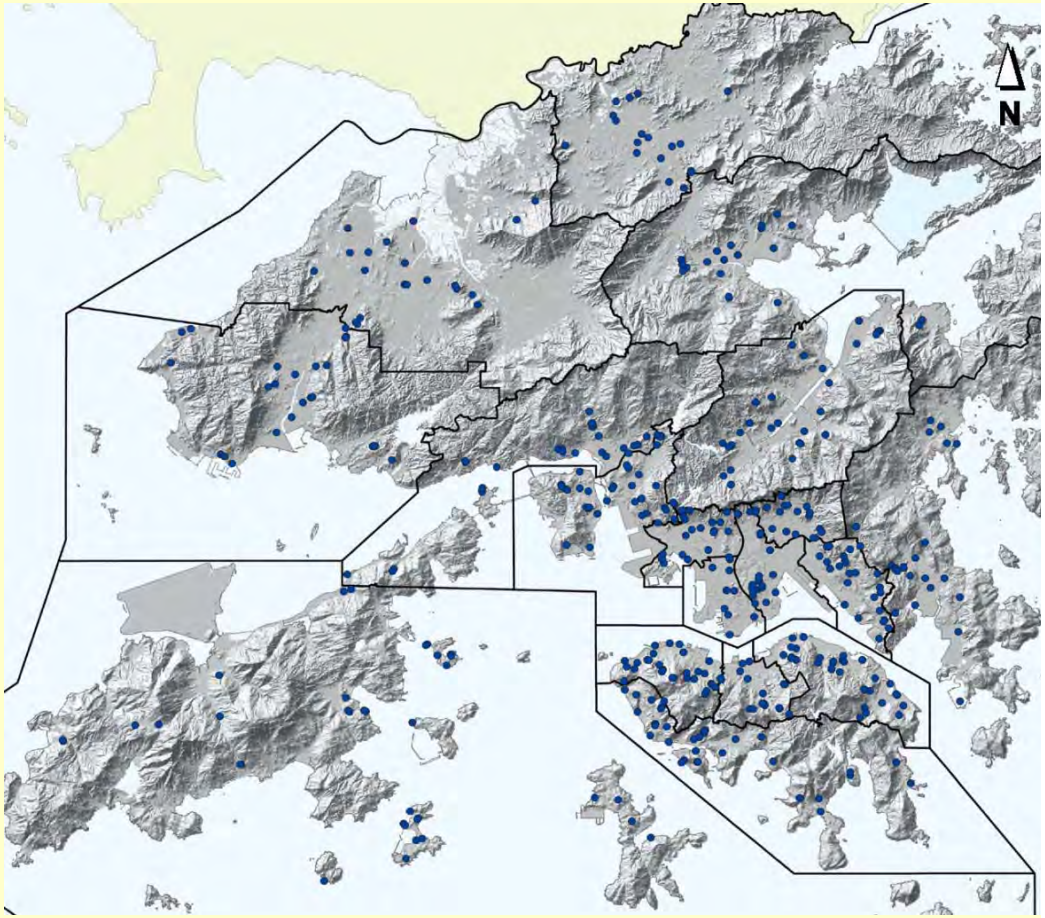
善用香港地下空間策略性研究的主要結果（一）
Key findings of the Study on the enhanced use of underground space of Hong Kong （1）

- 約64% 的香港土地適合發展岩洞。

  About 64% of Hong Kong's land is suitable for developing rock caverns.

- 從土地用途角度來看，有超過400 個現有政府設施有潛力遷移至岩洞。

  From the land use perspective, more than 400 existing government facilities have potential for relocating to rock caverns.



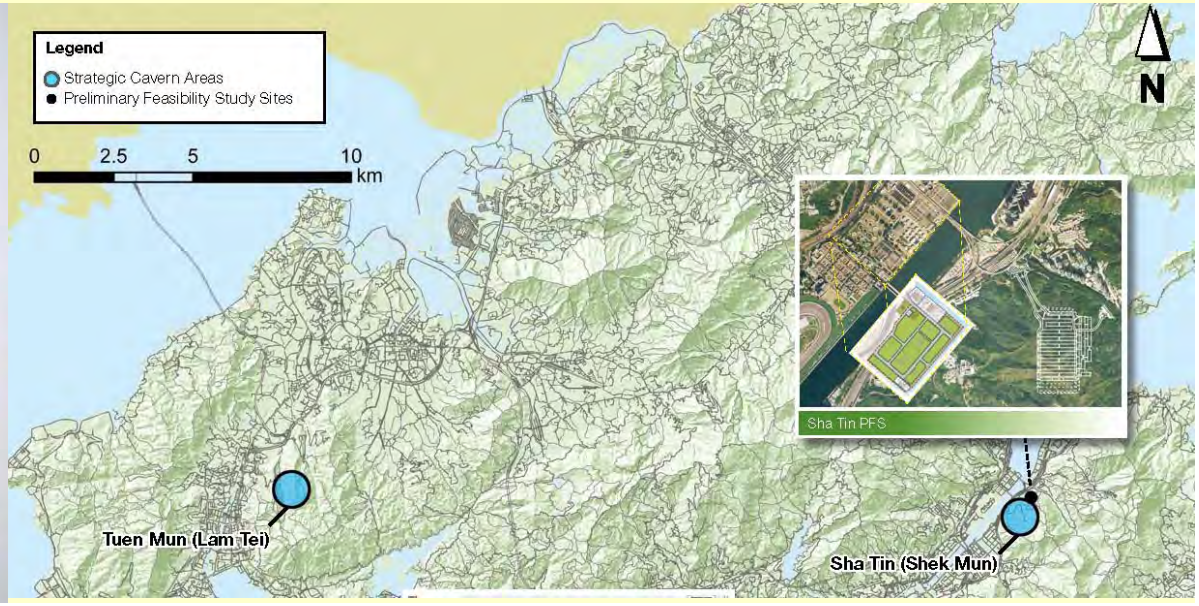
善用香港地下空間策略性研究的主要結果（二）
Key findings of the Study on the enhanced use of underground space of Hong Kong（2）

- 研究亦進行初步技術可行性評估，結果認為可搬遷沙田污水處理廠往岩洞，從而騰出約28公頃土地，做房屋及其他用途。建議再作詳細的可行性研究。
  The Study included a preliminary feasibility study. The results conclude that it is possible to relocate the Sha Tin sewage treatment works to caverns so as to release about 28 ha of land for housing and other uses. It was proposed that a detailed feasibility study be conducted.

- 提出進行岩洞發展長遠策略研究。
  Suggest study on long-term strategy for cavern development

2011年施政報告
2011 Policy Address

- 六項以創新思維開拓土地資源的措施
  Six innovative measures to increase land resources
- 包括積極利用岩洞重置現有公共設施，從而騰出原址作房屋和其他用途，初步選定的項目包括沙田污水處理廠
  Including active use of rock caverns for relocating existing government facilities, e.g. Sha Tin sewage works, to release the original sites for housing and other uses



「優化土地供應策略：維港以外填海及發展岩洞」公眾參與
Enhancing Land Supply Strategy – Reclamation outside Victoria Harbour and Rock Cavern Development Public Engagement

- 在2011年11月展開
  Kick-off in November 2011

  公眾普遍支持岩洞發展
  Public generally support cavern development

- 投資需與公眾得益取得平衡
  Capital investment should be weighed against public gains

- 無形益處，如改善環境、提供土地
  Intangible benefits, e.g. environmental improvement, land supply

我們建議進行下列研究 -
As a follow-up, we propose to carry out the following studies -

- 岩洞發展長遠策略研究
  Study on the long-term strategy for cavern development

- 搬遷沙田污水處理廠往岩洞的可行性研究
  Detailed feasibility study on the relocation of Sha Tin sewage treatment works to caverns

岩洞發展長遠策略研究
Study on long-term strategy for cavern development

有規劃地發展岩洞的益處
Benefits of systematic cavern development

- 搬遷現有設施，騰出有價值土地
  Relocate existing facilities thereby release valuable land

- 新建設施不致佔用市區珍貴土地
  House new facilities in caverns can reduce land take

- 預留岩洞發展區域
  Reserve cavern development areas

- 可於地下擴建設施
  Allow future expansion underground

- 挖掘物料可用作建築石料
  Excavated materials can be used as construction aggregates

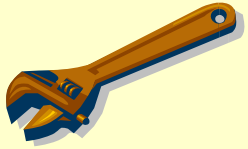
- 無形益處：移除不協調設施等
  Intangible benefits – remove NIMBY facilities etc

岩洞發展長遠策略研究範圍
Scope of the Study on Long-term strategy for cavern development

(1) 制定政策指引以推動公私營界別參與岩洞發展
Formulate policy guidelines for facilitating the public and the private sector involvement in cavern development

(2) 制定長遠策略有系統地搬遷政府設施
Devise long-term strategy for systematic relocation of government facilities

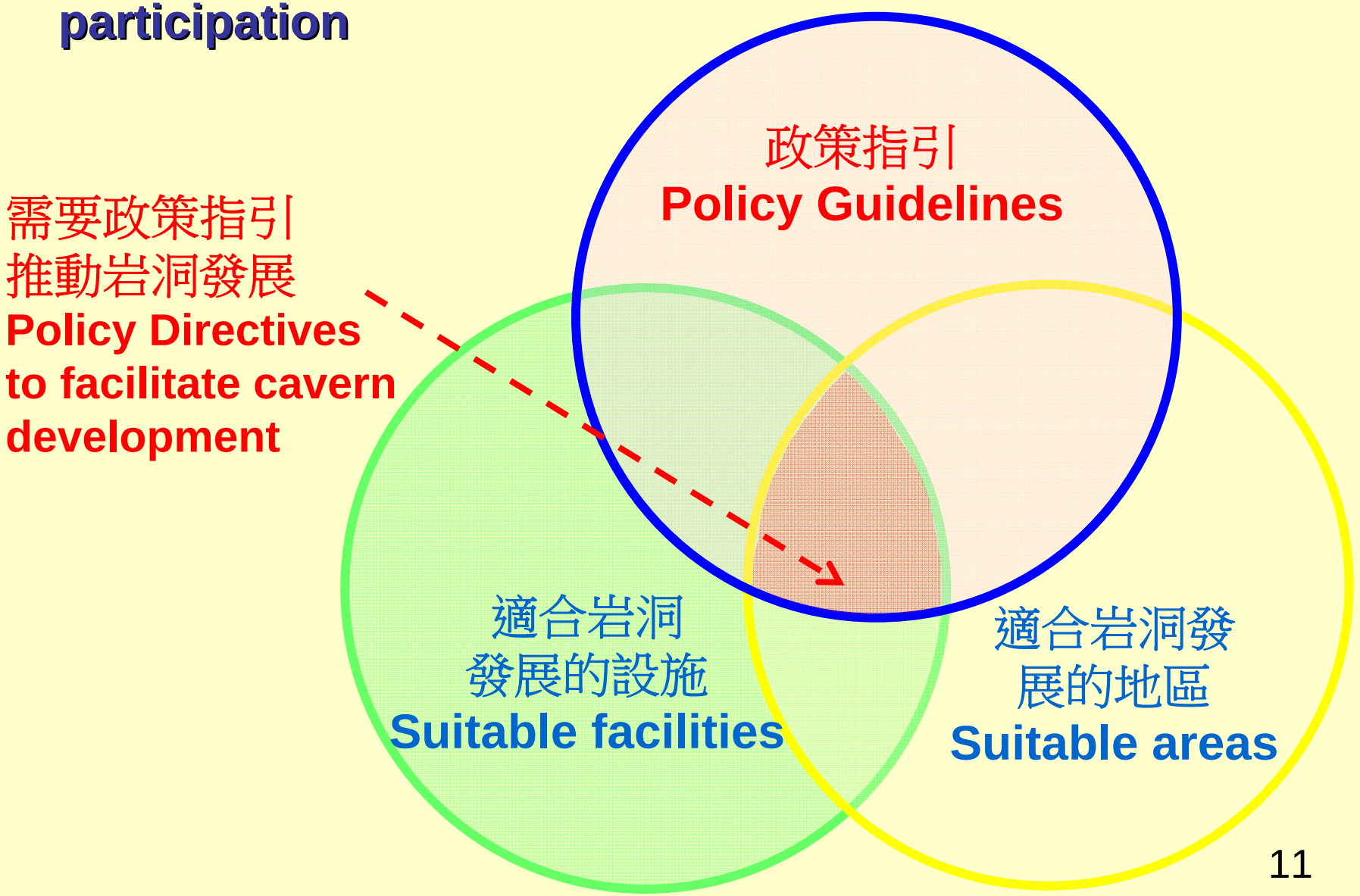
(3) 籌備岩洞總綱圖
Prepare cavern master plans



(4) 檢討岩洞發展相關技術議題
Review technical issues related to cavern development

(5) 諮詢相關持份者
Consult relevant stakeholders

(1) 制定政策指引以推動公私營界別參與
Formulate policy guidelines for public & private participation



私營岩洞發展的例子
Examples of Private Sector Cavern Development

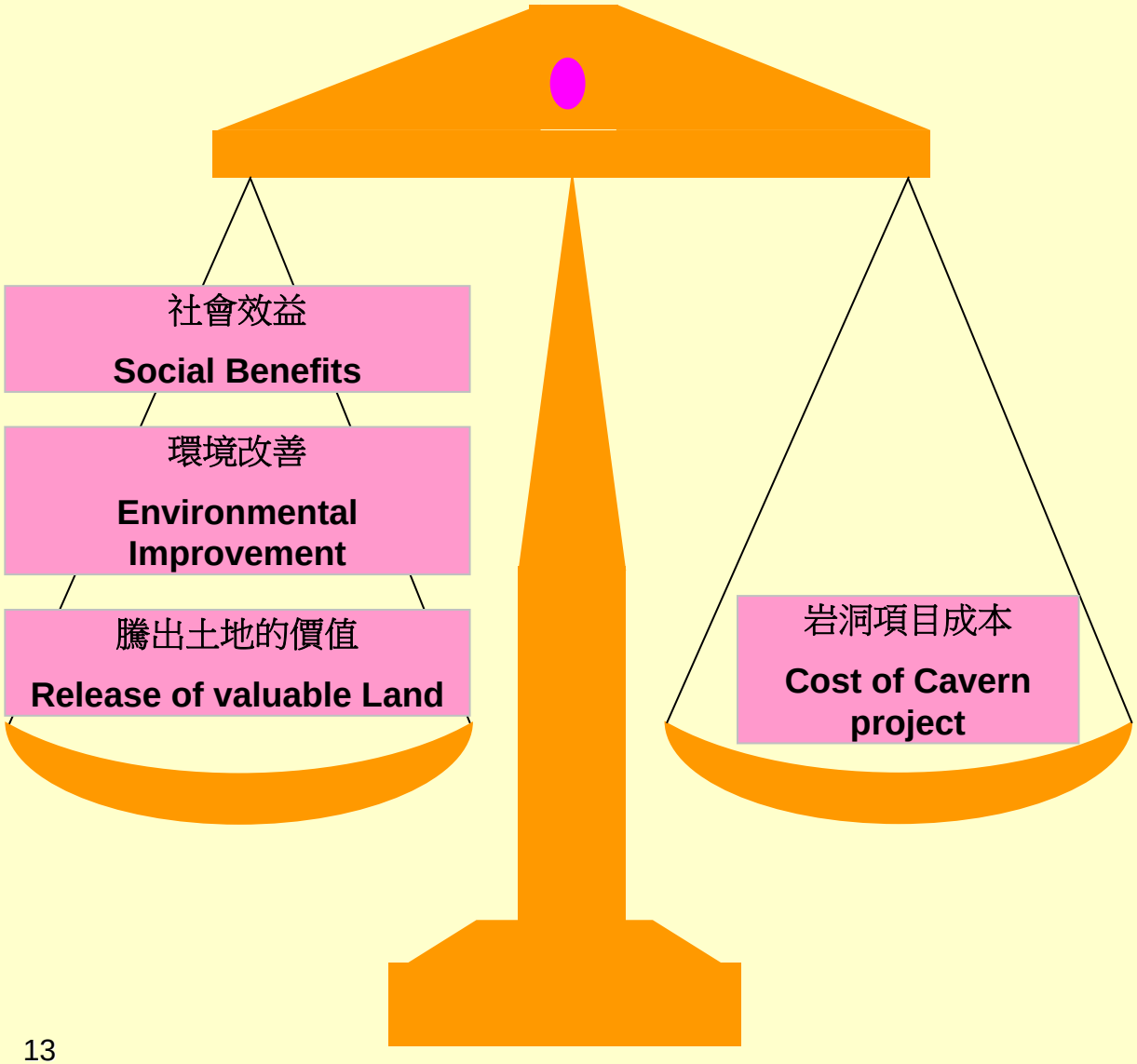
葡萄酒貯存庫
Storage of Wines

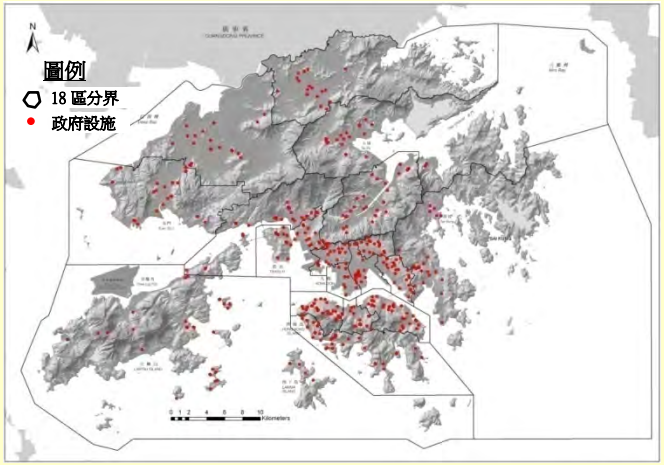
貯存倉庫
Storage

數據中心 Data Centre

停車場
Car park

(2) 制定長遠策略有系統地搬遷政府設施往岩洞
Devise long-term strategy for systematic relocation of government facilities to caverns





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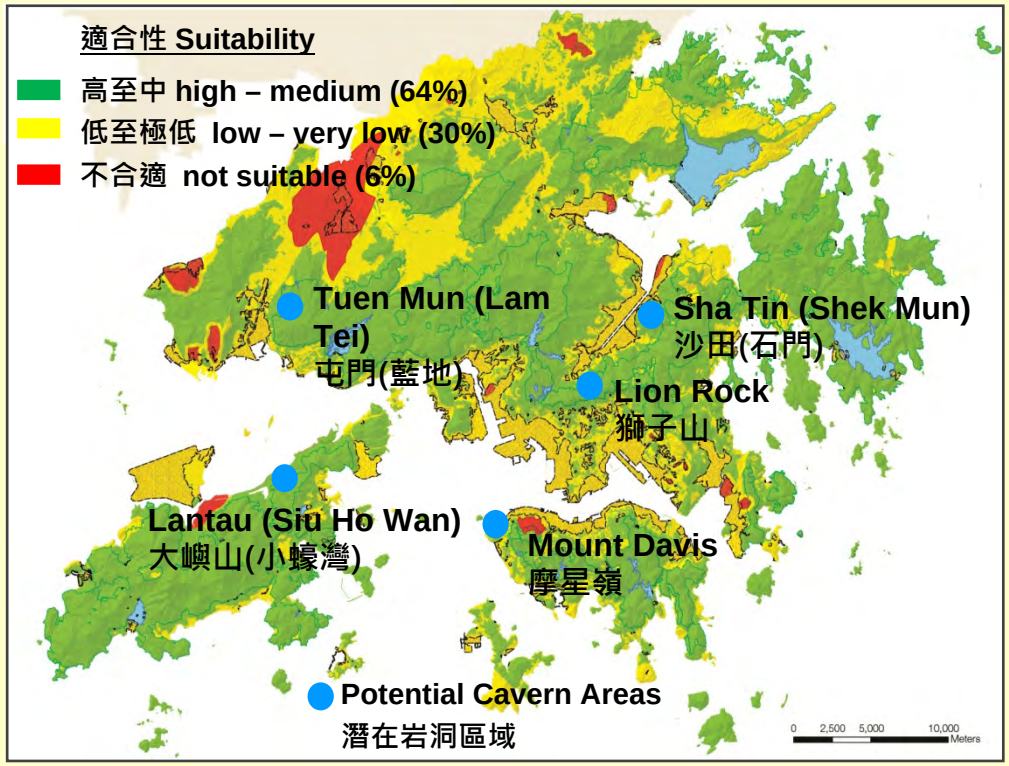
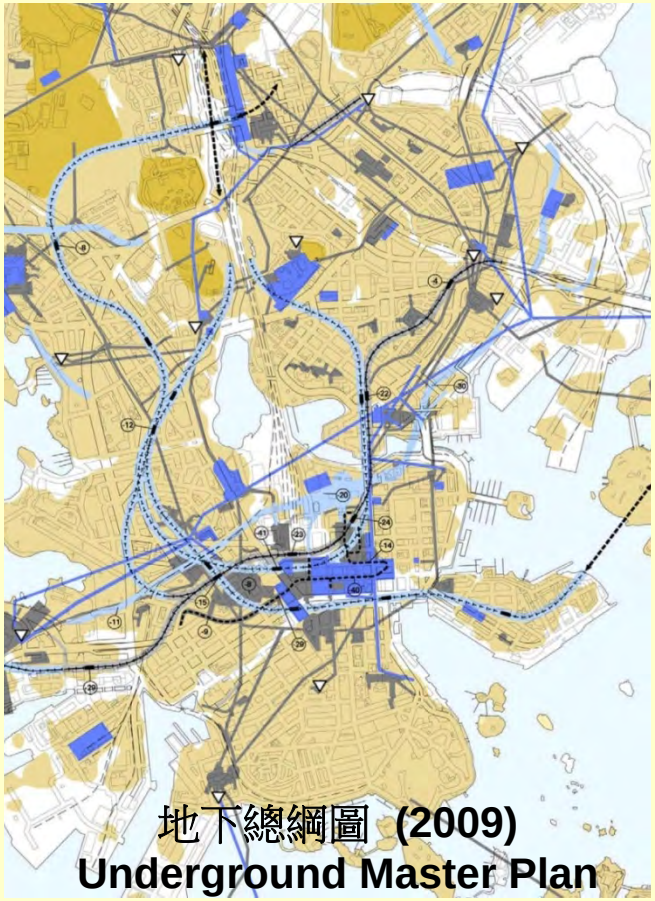
(3) 籌備岩洞總綱圖 Prepare Cavern Master Plans



芬蘭赫爾辛基
Helsinki, Finland



地下總綱圖 (2009)
Underground Master Plan

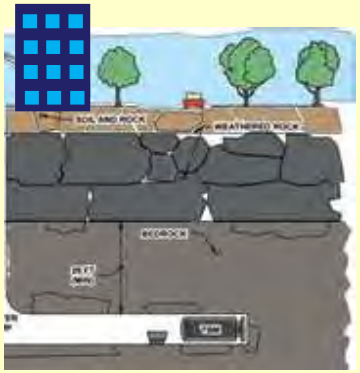
- 預留潛在岩洞區域
  Reserve potential cavern areas
- 免受其它發展計劃影響
  Not to be compromised by other developments
- 協同地面及地下發展
  Synergize above and underground developments

岩洞總綱圖內容 Content of Cavern Master Plans

- 合適現有政府設施的岩洞位置
  Cavern areas for re-housing existing government facilities

- 岩洞設施的三維保護區及未來擴充的空間
  Protection zone and space for future expansion

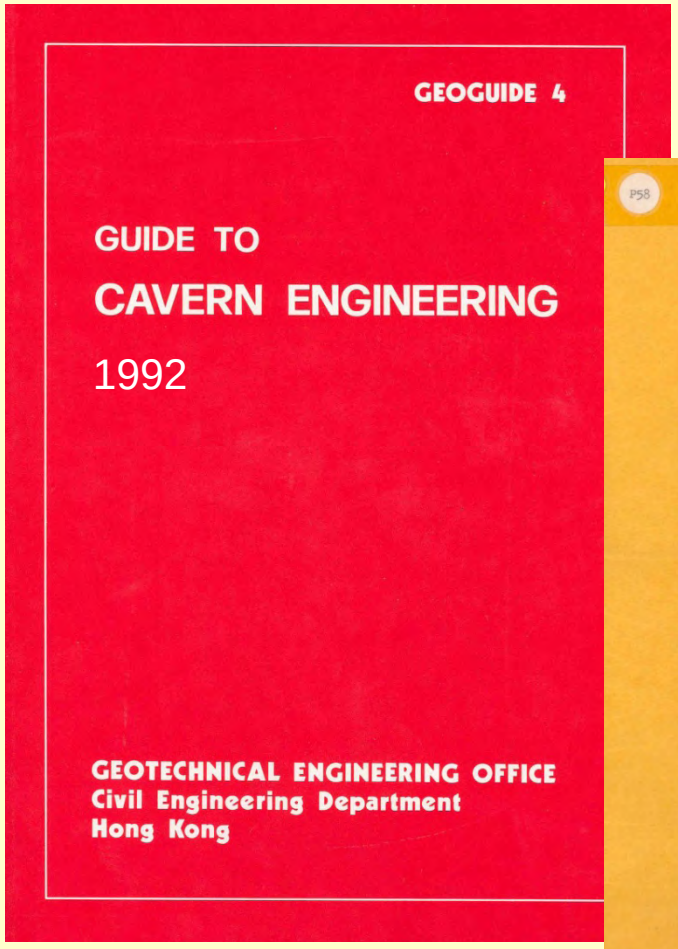
- 預留地下空間給未來相關連和兼容的政府設施
  Reserve space for future, compatible government facilities



- 現有及計劃中的地面及地下設施及發展項目
  Existing or planned surface and underground facilities or development projects

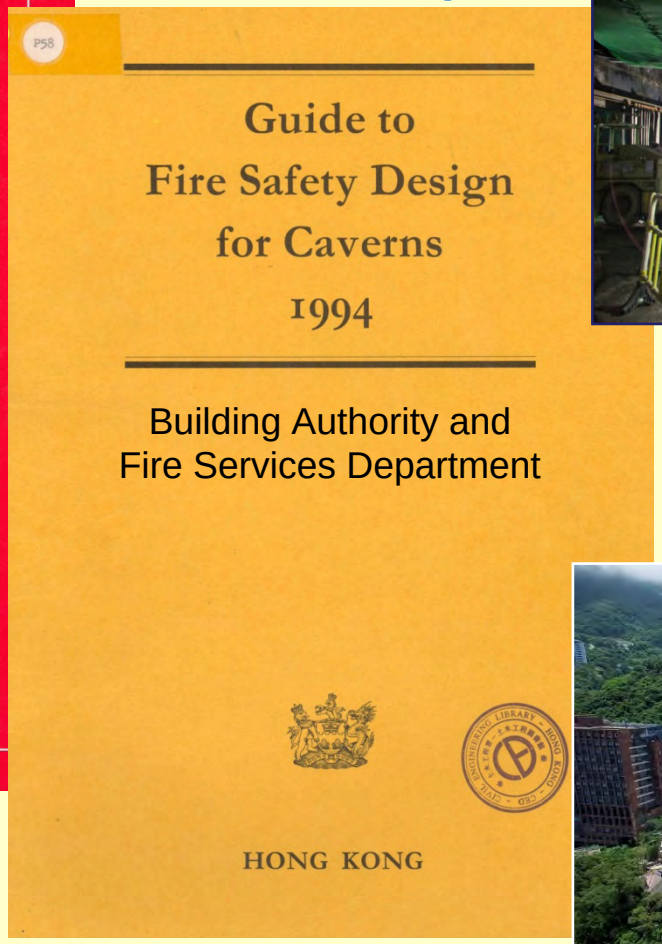
- 私營界別的合適用途
  Suitable private sector uses

(4) 檢討岩洞發展相關的技術議題
Review technical issues related to cavern development



更新岩洞工程指南
Update guide to cavern engineering

防火安全
Fire safety



策略性環境評估
Strategic environmental assessment

(5) 諮詢相關持份者
Consult relevant stakeholders

岩洞發展長遠策略研究時間表及費用
Study on long-term strategy for cavern development – Programme and Cost

- 開展日期: 2012年8月
  Commencement Date : August 2012

- 完成日期 : 2015年10月
  Completion Date: October 2015

- 估計費用(按付款當日價格計算) : 約 4,040萬元
  Estimated cost (Money of the Day): About $40.4 million

搬遷沙田污水處理廠往岩洞的可行性研究

Feasibility study on relocation of Sha Tin sewage treatment works to caverns

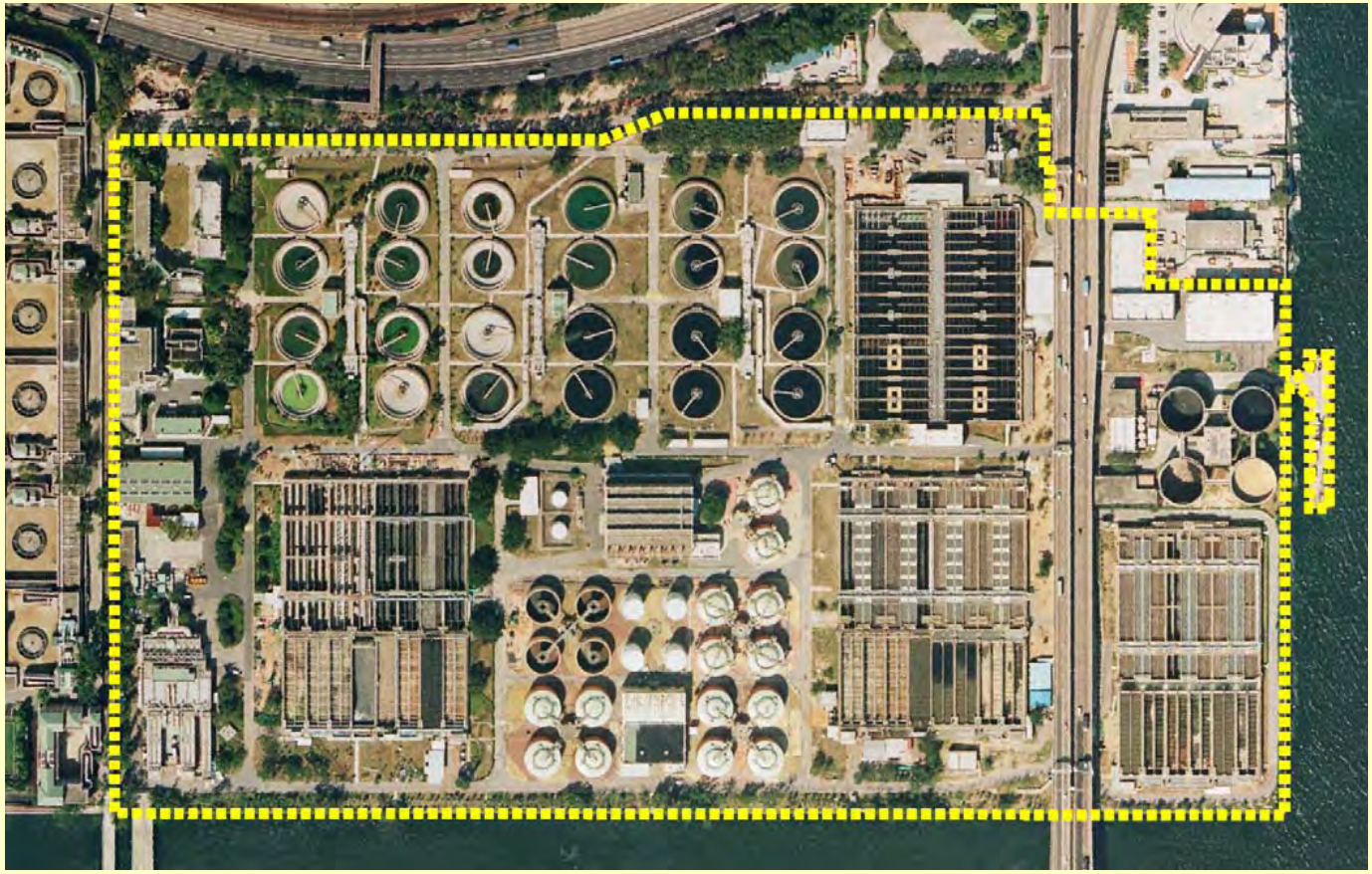
工程計劃目的
Objectives of the project

- 為搬遷沙田污水處理廠往岩洞作可行性研究
  To conduct feasibility study on the relocation of Sha Tin sewage treatment works to caverns

- 以期騰出現有的廠房土地作房屋或其他用途
  To release the existing site of the sewage treatment works for housing or other uses

- 優化土地供應及儲備，配合香港長遠社會和經濟發展的需要
  To enhance land supply and reserve for the long-term social and economic needs of Hong Kong

現有沙田污水處理廠
Existing Sha Tin sewage treatment works



- 佔地 Site area： 約28公頃 About 28ha
- 污水處理級別 Level of treatment： 二級 Secondary
- 設計每日污水處理量 Daily treatment capacity： 340,000m^3

重置初步選址
Preliminary relocation site

重置初步選址的研究範圍
Study area for preliminary relocation site

重置初步選址已考慮因素
Considerations in the selection of preliminary relocation site

- 地質優越，沒有軟弱或破碎帶，非常適合建造岩洞
  Good geology without weak or fracture zone, very suitable for constructing caverns

- 鄰近現有沙田污水處理廠和排放水輸送隧道，減少對沙田區整體的影響和工程費用
  Adjacent to the existing Sha Tin sewage treatment works and effluent export tunnel, minimizing the overall impact on Sha Tin and the project cost

- 大部份地方是政府土地
  Majority of the area being government land

可行性研究範圍(1)
Scope of the Feasibility Study (1)

- 詳細工程可行性研究
  Detailed engineering feasibility study

  - 初步技術和影響評估、制定設計大綱、施工策略和工程時間表
    Preliminary technical and impact assessments, formulate outline design, implementation strategy and programme

- 為沙田污水處理廠原址的未來土地用途作初步規劃檢討，以確定搬遷計劃合乎成本效益
  Preliminary planning review of the future land use of the existing site of Sha Tin sewage treatment works for assessing the costs and benefits of the relocation proposal

可行性研究範圍 (2)
Scope of the Feasibility Study (2)

- 公眾參與及諮詢
  Public engagement and consultation

- 土地勘測
  Ground investigation works

諮詢沙田區議會
Consultation of Sha Tin District Council

- 轄下衞生及環境委員會於2012年3月8日支持進行可行性研究
  Health and Environment Committee supported the feasibility study on 8 March 2012

- 要求考慮搬遷建議對附近居民在環境(特別是氣味)、交通等方面的影響

  Request to consider the impacts of the relocation proposal, including environmental (in particular odour), traffic, etc., to the local residents

重置後沙田污水處理廠的氣味管理將更有效
More effective odour management of Sha Tin sewage treatment works after relocation

- 岩洞如天然的屏障

  Caverns function as natural barrier

- 岩洞內有味空氣經辟味設施過濾後才會排放至大氣中

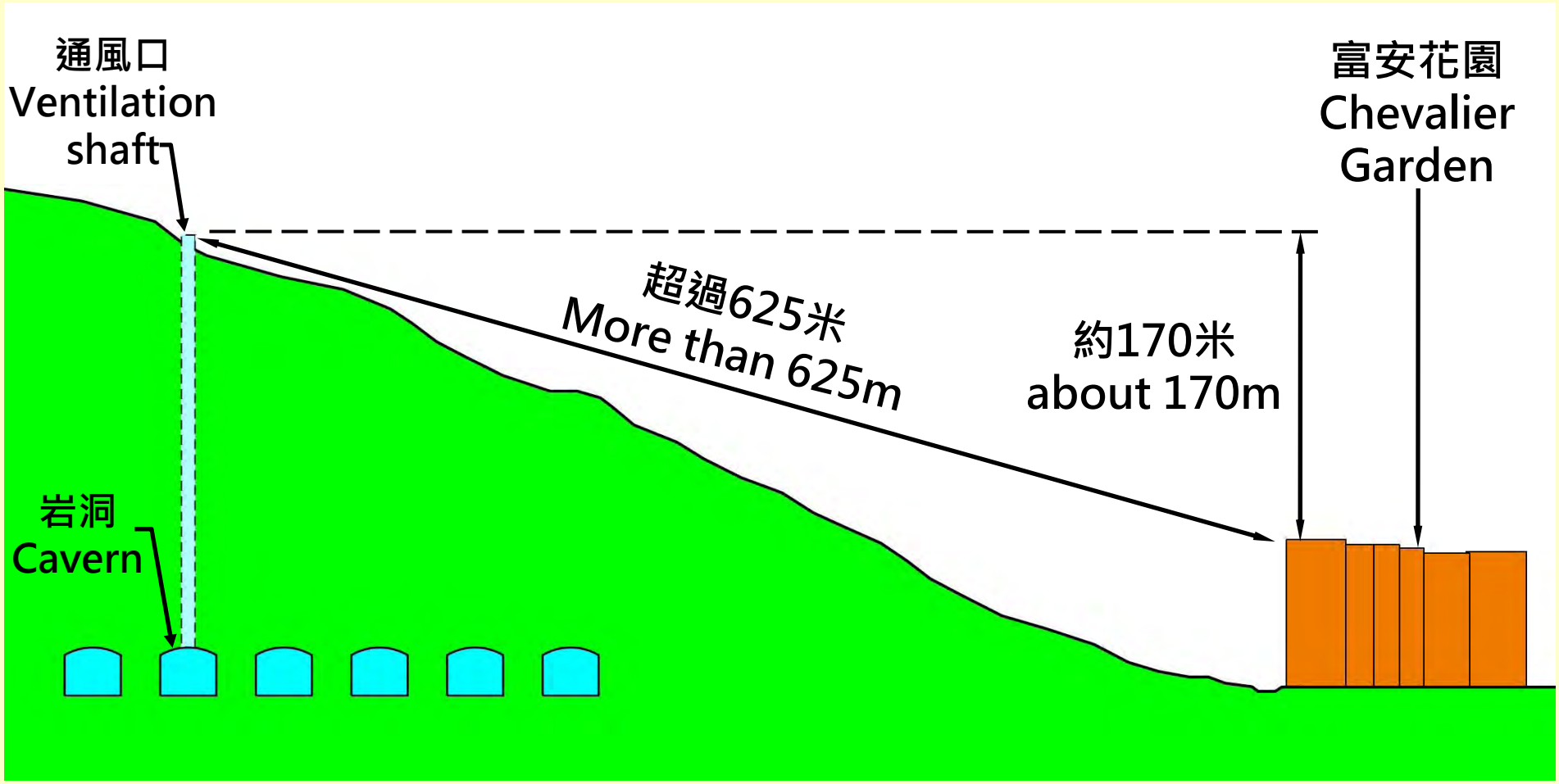
  Odorous air inside caverns to be filtered by deodourizing facilities before discharge to atmosphere

- 經山上遠離民居的通風口排放

  Discharge from ventilation shaft at remote location of hillside

初步氣味影響評估以研究通風口的合適位置
Preliminary odour impact assessment to assess appropriate location of ventilation shaft

初步氣味影響評估以研究通風口的合適位置
Preliminary odour impact assessment to assess appropriate location of ventilation shaft



初步交通影響評估(特別是亞公角街)
Preliminary traffic impact assessment (in particular for A Kung Kok Street)

初步交通影響評估(特別是亞公角街)
Preliminary traffic impact assessment (in particular for A Kung Kok Street)

- 建議改善亞公角街的措施

  Recommend improvement measures for A Kung Kok Street

- 探討工程期間物料運輸的途徑，及重置後沙田污水處理廠與現有交通網絡連接的合適通道，以盡量減少對亞公角街的交通影響

  Review the transportation route during construction and the accesses to and from the relocated Sha Tin sewage treatment works to minimize the traffic impact to A Kung Kok Street as far as possible

沙田污水處理廠原址的未來用途
Future use of existing site of Sha Tin sewage treatment works

- 搬遷後騰出的土地會作均衡發展
  Balanced development of the existing site after relocation

- 顧及社區需要(包括社區設施、休憩用地如海濱長廊等)
  Consider community need (including community facilities, recreation areas such as waterfront promenade, etc.)

- 政府稍後會作詳細規劃及諮詢公眾
  The Government will carry out detailed planning and consult the public

可行性研究時間表及費用
Feasibility Study – Programme and Cost

- 開展日期: 2012年6月
  Commencement Date : June 2012

- 完成日期 : 2014年6月
  Completion Date: June 2014

- 估計費用(按付款當日價格計算) : 約 5千8百萬元
  Estimated cost (Money-of-the-day): About $58 million

初步搬遷工程時間表
Preliminary programme of the relocation project

- 可行性研究 Feasibility study: 2012 – 2014
- 設計、公眾諮詢及其他法定程序: 2014 – 2017
  (例如環境影響評估條例)
  Design, public consultation and other statutory procedures (e.g. EIAO)
- 建造期 Construction Period
  - 開挖岩洞 Cavern works: 2017 – 2021
  - 建造污水處理設施、測試及分期搬遷 2021 – 2027
    Construct sewage treatment facilities, testing and phased switching
- 探討縮短施工期的方法
  Explore methods to fast track the construction programme

可行性研究效益
Benefits of Feasibility Study

- 確定搬遷計劃的可行性
  Confirm the feasibility of the relocation proposal
- 確保搬遷計劃對附近社區和環境造成的影響減至最低
  Minimize impact of the relocation proposal on the local community and environment
- 確立搬遷計劃合乎成本效益
  Establish the financial viability of the relocation proposal
- 吸納公眾意見和凝聚共識
  Collect public views and cultivate consensus
- 創造就業機會 (約39個職位 - 包括7位工人及32位專業/技術人員)
  Create job opportunities (About 39 posts including 7 workers and 32 professional / technical staff)

Thank You

謝謝

Backup slides

可考慮的政策指引框架 Possible Framework for Policy Guidelines (1)

公營界別 Public Sector

- 指令政府部門為合適的政府設施，在工程項目的初期規劃階段考慮岩洞方案
  Mandate government departments to consider the cavern option in the initial project planning stage for appropriate government facilities

- 提供指引，在公平的基礎上比較地面及岩洞方案，包括同時考慮到：
  Provide guidelines for comparing cavern and surface options on an equitable basis, taking account of :
  - 土地的價值 value of the surface land
  - 土地平整成本 cost of land formation
  - 開挖所得石料之再利用 value of excavated materials for re-use
  - 附近凍結土地之價 value of sterilised land nearby
  - 鄰近土地之增值 enhancement of land value in the vicinity
  - 其它無形益處 other intangible benefits

可考慮的政策指引框架 Possible Framework for Policy Guidelines (2)

私營界別 Private Sector

- 根據外國經驗，激勵岩洞發展措施，包括優惠的土地溢價、增值的發展潛力及稅務獎勵措施
  Based on overseas experience, appropriate incentive measures for cavern development include preferential land premiums, enhanced development potential and tax incentives

- 鼓勵措施可誘使私營界別，建造岩洞安置設施或將空間租給其他用家
  Such measures may encourage private sector to form caverns for their own use and/or then lease to others

- 由政府建造岩洞，然後將空間租給私營企業
  Mechanisms for government to form the caverns for private sector leasing

研究計劃 Study Programme

主要項目 Major Activity	2012	2013	2014	2015
制定政策指引以推動公私營界別參與岩洞發展 Formulate policy guidelines to facilitate cavern development for both public and private sectors				
籌備岩洞總綱圖 Prepare cavern master plans				
制定長遠策略有系統地搬遷政府設施 Device long-term strategy for systematic relocation of government facilities				
檢討岩洞發展相關技術議題 Review technical issues related to cavern development				
諮詢相關持份者 Consult relevant stakeholders				
最後報告及行政摘要 Final report & executive summary				

4379DS號工程計劃－
搬遷沙田污水處理廠往岩洞的可行性研究
Item No. 4379DS –
Feasibility study on relocation of
Sha Tin sewage treatment works to caverns

相關上游污水泵房
Associated upstream sewage pumping stations (SPSs)

外國岩洞污水處理廠實例
Overseas examples of cavern sewage treatment works


挪威奧斯陸 **Bekkelaget**


挪威奧斯陸 **VEAS**


芬蘭赫爾辛基 **Viikinmaki**


芬蘭赫爾辛基 **Kakolanmaki**

外國岩洞污水處理廠實例
Overseas examples of cavern sewage treatment works