

將軍澳海水化淡廠
工程策劃及勘查研究

Planning and investigation study of
desalination plant at Tseung Kwan O

發展事務委員會
Panel on Development

2012年4月17日
17 April 2012



全面水資源管理

Total Water Management

- 在2008年推出的全面水資源管理策略，制訂多項用水需求及供水管理措施
Under the Total Water Management (TWM) Strategy promulgated in 2008, have embarked on various water demand and supply management measures
- 首先節約用水，然後開發新水源
Conserve water first, then develop new water resources



用水需求管理

Water Demand Management

- 加強宣傳和教育
Enhance publicity and education
- 推廣使用節水器具
Promote wider use of water saving devices
- 增加使用海水沖廁
Increase the use of sea water for flushing
- 加強控制水管滲漏和爆裂的措施等
Enhance measures to control water main leaks and bursts



供水管理

Water Supply Management

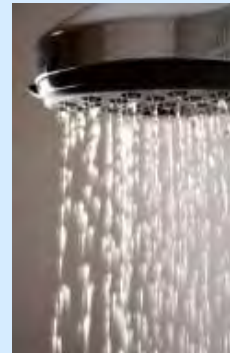
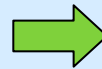
- 使用再造水
use of reclaimed water
- 開發新水源，例如
海水化淡
new water resources such as
desalination



海水化淡

Desalination

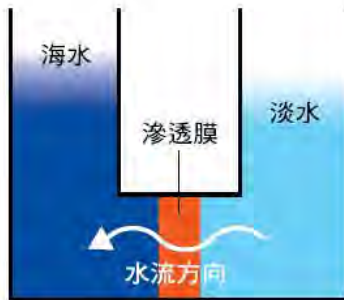
- 香港有充足的海水資源，海水化淡是另一個可靠的食水來源。
Sea water is abundantly available in Hong Kong as a promising alternative supply.
- 2007 年完成的海水化淡先導研究，確認了逆滲透海水化淡技術，在香港應用的可行性。
A pilot study in 2007 confirms the technical feasibility of desalination using reverse osmosis technology in Hong Kong.



逆滲透原理

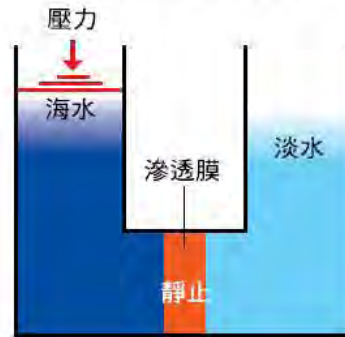
逆滲透技術

一般滲透



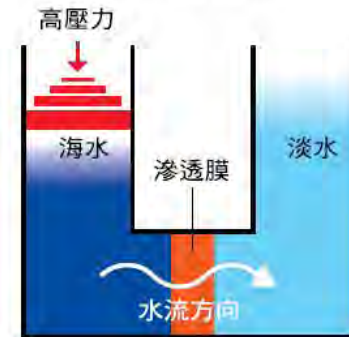
一般滲透是指水由濃度較低的液體通過滲透膜流向濃度較高的液體，而達致滲透平衡狀態。

滲透平衡狀態



海水受壓至淡水不能穿過滲透膜。

逆滲透技術

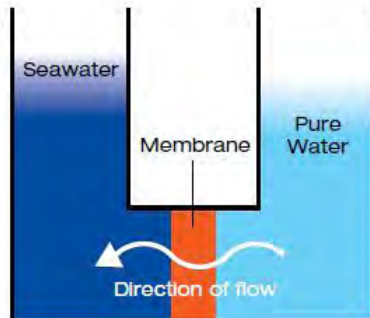


逆滲透技術利用高壓力把濃度較高的海水逼向濃度較低一方，滲透膜只容許淡水通過，把鹽份和其他雜質分隔出來。

Mechanism of Reverse Osmosis

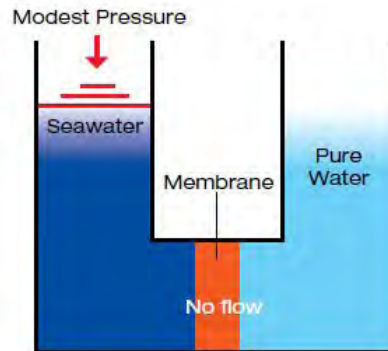
Mechanism of Reverse Osmosis

Normal Osmosis



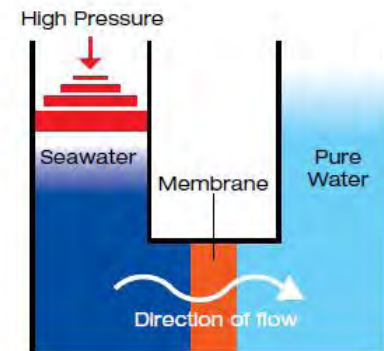
Under normal osmosis, water diffuses from less concentrated solution to more concentrated solution through a semi-permeable membrane to achieve osmotic equilibrium.

At Osmotic Equilibrium



Modest pressure is applied to the seawater side so that fresh water cannot flow pass through the membrane.

Reverse Osmosis



Reverse osmosis is the process of forcing water from concentrated solution to less concentrated solution through a semi-permeable membrane under high pressure. The membrane allows fresh water to pass through while it retains salts and other impurities.

外地使用逆滲透技術海水化淡廠的例子

Examples of Overseas Seawater Reverse Osmosis Desalination Plants

	地點 Location	年產量 (百萬立方米) Capacity (mcm/year)	完成日期 Year of Completion
1	新泉，新加坡 Tuas, Singapore	49.6	2005
2	天津大港，中國 Tianjin Dagang, China	36.5	2009
3	青島百發，中國 Qingdao, China	36.5	2012
4	柏斯，澳洲 Perth, Australia	51.1	2006
5	黃金海岸，澳洲 Gold Coast, Australia	48.5	2009
6	巴塞羅那，西班牙 Barcelona, Spain	73.0	2009
7	哈代拉，以色列 Hadera, Israel	127.0	2010



擬議研究項目

Proposed Study

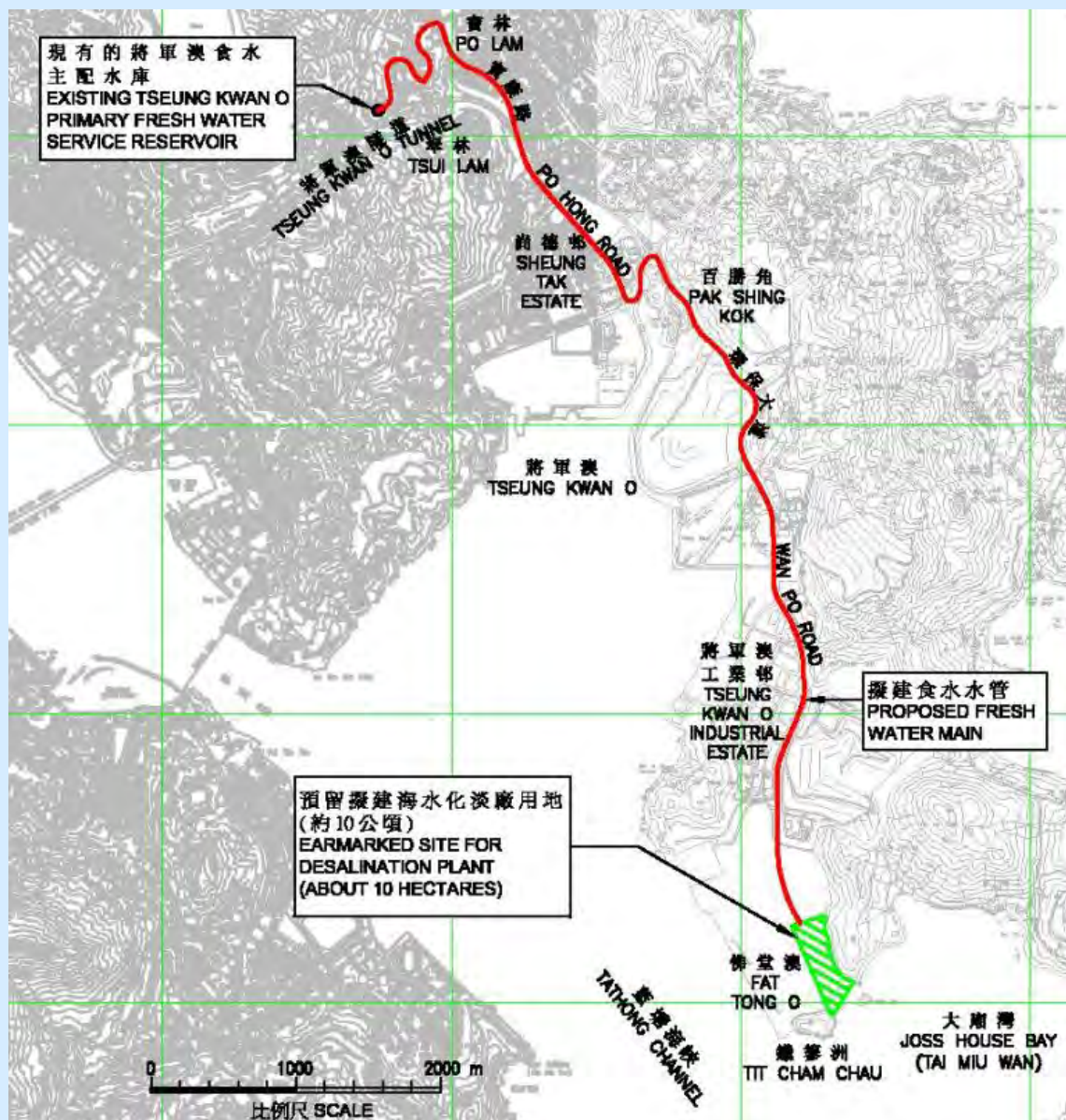
為在將軍澳 137 區興建海水化淡廠及其相關食水輸送設施進行策劃及勘查顧問研究
A consultancy for conducting a planning and investigation study for a desalination plant at Tseung Kwan O Area 137 and the associated fresh water transfer facilities

- 海水化淡廠位於將軍澳 137 區
Desalination plant located at Tseung Kwan O Area 137
- 年產量為 5 千萬立方米，日後可提升至 9 千萬立方米
Output capacity of 50 million cu. m. per annum with provisions for future expansion to 90 million cu. m.
- 由海水化淡廠至將軍澳食水主配水庫(位於翠林)食水水管
Fresh water main from desalination plant to Tseung Kwan O primary fresh water service reservoir (at Tsui Lam)



擬議的海水化淡廠及其食水輸送設施的位置平面圖

Plan showing the location of the proposed desalination plant and fresh water transfer facilities



顧問研究的範圍

Scope of the Consultancy Study

- 詳細勘查擬議工程的可行性、成本效益、及進行初步設計
Detailed investigation on the feasibility and cost effectiveness of the proposed works, and preliminary design of the works
- 策劃和制定實施策略及時間表
Planning and formulation of implementation strategy and programme
- 環境、交通、排水及其他相關的影響評估；及
Impact assessments on environment, traffic, drainage and other relevant aspects; and
- 相關的工地勘測及工地監管
Associated site investigation works and site supervision

研究費用及時間表

Cost and Programme of the Study

- 按付款當日價格計算，估計所需費用為 3,430 萬元。
The estimated cost is \$34.3 million in money-of-the-day (MOD) prices.
- 我們擬於 2012 年 5 月提請工務小組委員會支持我們把 **345WF** 號計劃提升為甲級，以便在 2012 年 6 月向財務委員會申請撥款。
We plan to seek the support of the Public Works Subcommittee in May 2012 for the proposed upgrading of **345WF** to Category A with a view to seeking funding approval from the FC in June 2012.
- 如建議撥款獲得財務委員會批准，我們計劃在 2012 年 12 月委聘顧問展開研究，預計在 2014 年 12 月完成。
Subject to the funding approval of the Finance Committee, we plan to engage consultants to carry out the study in December 2012 for completion in December 2014.

多謝
Thank You

