kaitak 啟德新里程 ON THE MOVE
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# 「綠茵家居」在啟德
# Public Housing goes "green" at Kai Tak

■ 預計於2013年竣工的啟德公共屋邨發展項目，全面體現了「可持續發展的綠化網絡」的規劃理念。此項目坐落於前啟德機場北停機坪兩個總面積為9.17公頃的地盤上，將會興建15幢住宅大廈，提供逾13 300個單位，為約34 000人提供居所。屋邨的設計以人為本，將優美的園林景致與環保設施融為一體，為居民締造一個與別不同的綠茵家居。

屋邨的興建工程正密鑼緊鼓地進行。大部分的地基工程已經完工，上蓋的建造工程亦已展開。不久將來，在這個充滿活力的香港新地區，15幢住宅大廈將相繼落成，為居民提供舒適怡人的綠化生活空間。□

■ The public rental housing development at Kai Tak, expected to complete in 2013, is fully embracing the planning vision of a "Green Web for Sustainable Development". Over 13 300 flats in 15 blocks at the former north apron will provide homes for nearly 34 000 people. Covering a total area of 9.17 hectares, the two public housing sites combine a people-oriented design with beautifully landscaped surroundings and environmental-friendly features to create a unique green home for the residents.

Works on the public housing is well underway with large parts of the foundations completed and above-ground construction moving ahead. Soon the 15 blocks will start to emerge, providing a green living at the heart of this vibrant new district of Hong Kong. □


## 四通八達

啟德的居民日後將與毗鄰社區妥善連接。屋邨鄰近采頤花園、彩虹邨、麗晶花園及未來的沙中線啟德站。而行人天橋連接屋邨至采頤花園、行人通道至麗晶花園及公共交通設施，都會配合屋邨的落成，令居民及其他市民往來啟德方便快捷，出入輕鬆自如。

## Well connected

Residents at Kai Tak are going to be well connected too. The estate is located close to Rhythm Garden, Choi Hung Estate, Richland Gardens and the future Kai Tak Station on the Shatin-to-Central Link. Facilities such as public transportation, footbridge to Rhythm Garden and footpath to Richland Gardens have been planned to tie in with completion of the estate which will make getting around easy for everyone living at and visiting Kai Tak.

## 綠茵生活 樂在其中

屋邨發展計劃以「綠茵家居」為主題，兩個地盤均以住宅大廈環繞中央公園，優美景致令人心曠神怡。每幢大廈的大堂均可直達公園，與四周綠化環境渾然相融。大廈周邊的小型休憩空間設有座椅、花槽及花棚，加上有蓋的大堂入口為居民提供公共休憩地方，讓他們談天說地，樂也融融。

整個項目的綠化面積佔約30％，設計更是一絲不苟。綠化的行人通道、簷蓬及林蔭小徑互相連接，令人豁然開朗。細意挑選和精心配搭的植物品種，更打造出不同特色的主題地帶，如清雅小丘、恬逸園林等。屋邨以洋紫荊為主題樹，與其他品種的喬木、灌木和花卉互相映襯，綠蔭處處。隨着季節更替，繁花交替綻放，展現繽紛色彩。

## Park life

Developed as "Homes in the Park", each site creates an attractive residential district set around a central park. The park can be accessed directly from the lobby of each block, and is fully integrated with the surrounding green spaces. Smaller pockets of open area with seating, planters and trellises at the edge of the blocks together with covered foyers, provide communal places for tenants to meet up and chat with each other.

Meticulous attention has been paid to all the green spaces that make up 30 % of the site. A network of leafy pedestrian corridors, roof canopies and footpaths will interconnect each area. Special combinations of plant species have been picked to create interesting themed zones with hillocks, a garden feel, and other motifs. While the iconic Bauhinia, chosen as the estate's theme tree, will be layered with other varieties of trees, shrubs and flowers to offer shade and an ever-changing seasonal palette of colours.

## 綠化設施 貫徹環保理念

整個發展項目加入了多項環保設施，務求減少對環境構成影響，包括設置太陽能光伏板用作發電、安裝具能源效益的發光二極管及光管照明裝置、收集雨水及利用空調系統的冷凝水灌溉植物，並在可行的情況下採用環保及再造物料等。另一創新設施是於商業設施採用具節能效益的區域供冷系統。

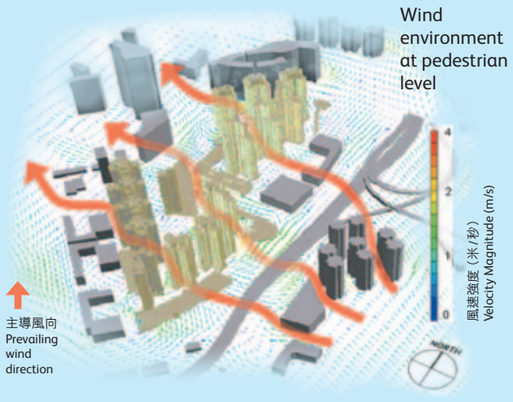
## Green features built-in

Throughout the development, green features are being put in place to reduce the environmental impact. Solar power will be captured by photovoltaic panels, energy efficient LED and fluorescent light fittings will be installed, rainwater harvesting and condensed water from air-conditioning will help irrigate the vegetation, and wherever possible, green and recycled materials will be used.

Another innovation is the use of district cooling system to supply energy saving air-conditioning to the commercial facilities.

## 運用「微氣候」研究

為了讓居民享受優質而舒適的生活，在規劃設計時，參考了詳細的微氣候研究。住宅樓宇的規劃及設計充分利用了常年主導的東南風，以提高透風度及加強空氣流通。




## Managing the "Micro-climate"

Detailed micro-climate studies were taken into consideration on the planning of development layout for residents' optimal comfort. The residential blocks are positioned and designed to optimise natural ventilation and improve building permeability to take advantage of the main south-easterly wind that blows almost year-round.

## 完善設施 人人共享

社區設施同樣以舒適為重。籃球場和足球場會設置於較通風的位置，讓居民感到涼快；而乒乓球枱、羽毛球場和休憩空間則設於風速較低的位置。其他配套設施應有盡有，包括：商鋪、食肆、超級市場、濕貨街市、幼稚園、兒童遊樂場、老人中心，以及青少年社區中心等。此外，在室外休憩用地設置展覽廊，展示啟德的歷史和獨特的面貌，務求增加居民的歸屬感。

為了彰顯前啟德機場的航空歷史，在園林美化、圖像和指示牌設計上將會採用特別的飛機標誌。同時，在屋邨入口和電梯大堂，將會鋪砌以「互」字作特別設計的圖標，藉此帶出守望互助與和睦互敬的精神。


## Facilities for everyone

Comfort is important at the residents' community facilities as well. Basketball courts and the football pitch are situated for residents to get plenty of breeze to keep them cool. In contrast, table tennis tables, badminton courts and seating areas are in areas with low wind speed. There is also a comprehensive range of other facilities including shops, restaurants, a supermarket, a wet market, kindergartens, children's playgrounds, a Neighbourhood Elderly Centre, and an Integrated Children and Youth Services Centre. An exhibition gallery is also planned at the outdoor open space to showcase the history and unique character of Kai Tak to enhance a sense of belonging amongst the residents.

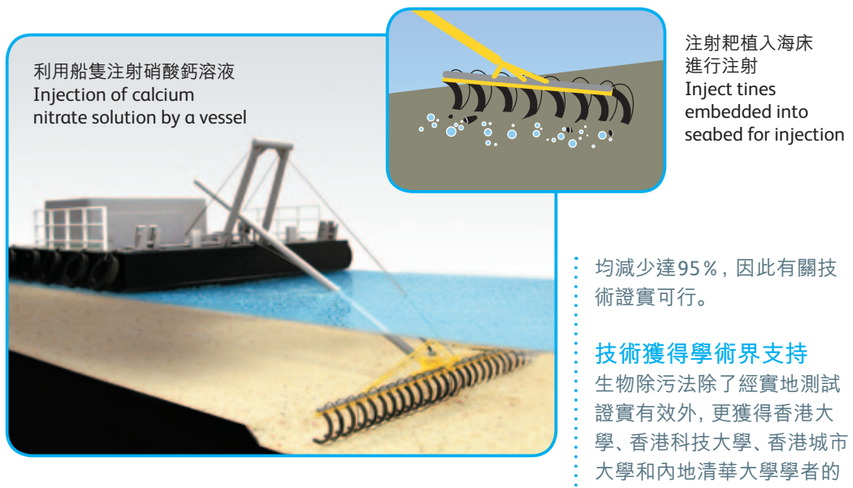
The aviation heritage of Kai Tak will be clearly visible throughout the estate with a specially designed aircraft icon which will be used in landscaping, graphic design and signages. Another icon, developed from the Chinese character "互" meaning mutual support and sharing, will appear in special paving features at estate entrances and lift lobbies.

# 活化啟德水道

■ 過去，啟德機場雖舉世聞名，但每當飛機降落後，遊客不時會嗅到陣陣令人討厭的氣味。這是由於過往數十年啟德明渠進口道周邊排水口的污水不斷排放，加上進口道既長且窄，水流緩慢導致污染物積聚，引致惡臭。隨着啟德發展計劃工程展開，啟德明渠和明渠進口道將進行重要的改善工程，以貫徹啟德發展計劃的綠化理念，締造充滿生氣而優美的綠色水道景致。

## 堵截污水 杜絕污染源頭

啟德明渠進口道的集水區主要包括鑽石山、黃大仙、新蒲崗、九龍城、九龍灣和牛頭角等人煙稠密的地區，因此首階段的改善工程，主要涉及堵截並處理流入明渠進口道的污染源頭。事實上，政府一直致力改善污染排放的問題，更由2009年年初起，進一步落實現有排水及排污系統，在腹地堵截污水流入明渠進口道，並引導污水至適當的排污處理設施。要徹底解決明渠進口道的環境問題，就必須堵截污染源頭。




## 生物除污法 有助消減氣味問題

污染物經年累月沉積在啟德明渠進口道及官塘避風塘一帶的海床，並不斷分解，釋出臭味。明渠進口道是海港的一部分，而且牽涉大量沉積物，在明渠進口道及避風塘進行填平或把所有污泥挖走均非可行之計；因此採納了原地生物除污法為最合適的方案。生物除污法預計於2011年展開，首先會把明渠進口道近岸淺水區域的部分沉積物挖走，然後把一種名為硝酸鈣溶液的氧化劑注入海床，讓產生臭味的污染物加快分解為無味無害的氣體，從而消減難聞的氣味。

## 實地測試 成效顯著

生物除污法是經過詳細的研究和測試驗證，成效顯著。當局分別在2006及2008年，在明渠進口道1公頃及3.5公頃的範圍進行實地測試。結果顯示，生物除污法將主要作為臭味指標的酸揮發性硫化物平均減少達95%，因此有關技術證實可行。

## 技術獲得學術界支持

生物除污法除了經實地測試證實有效外，更獲得香港大學、香港科技大學、香港城市大學和內地清華大學學者的認同。他們不但提供寶貴意見，並肯定生物除污法是一個有效處理及改善明渠進口道和避風塘一帶由海床沉積物所引發的臭味問題的方法。

## 打開缺口 改善水流

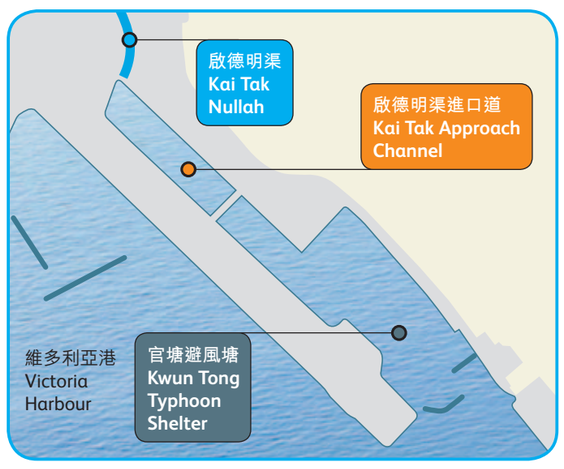
根據啟德發展環境評估報告的其中一項建議，在舊機場跑道上打開一個缺口，長遠可有效加強進口道內和附近水域的水流循環，並改善水質，但此方案需有待進一步研究及諮詢。□


# Revitalising Kai Tak's Waterways

■ In the past, passengers flying into the old Kai Tak Airport were often greeted with an unpleasant smell as the plane landed. The culprit was the continuous inflow of polluted water for decades into the long and narrow water body, known as Kai Tak Approach Channel from its surrounding discharge outlets. Poor water circulation allowed pollutants to gather, hence generating bad smell. With the redevelopment of Kai Tak, both the nullah and approach channel are going to undergo dramatic transformations into pleasant waterways that perfectly complement the open spaces and green character of Kai Tak Development.

## Flow interception to stop pollution sources

The first phase of the turnaround involved intercepting and treating the sources of pollution entering the nullah as it wound its way through densely urbanized areas of Diamond Hill, Wong Tai Sin, San Po Kong, Kowloon City, Kowloon Bay and Ngau Tau Kok. The Government has been working hard on this pollution problem. Since early 2009, further improvement works have been carried out to the existing drainage and sewerage systems to intercept and channel polluted discharges from the Kai Tak hinterland into proper treatment facilities. To solve the pollution problem of the approach channel, it is necessary to intercept the pollution sources.




## Bioremediation reduces odours

There is still more to be done, especially in the Kai Tak Approach Channel and Kwun Tong Typhoon Shelter, where the pollutants have settled into a large volume of sediment, which continues to break down and release foul-smelling gases. As the approach channel is part of our harbour and huge amount of sediment is involved, filling in the approach channel and typhoon shelter or dredging them are simply not options. Instead, in-situ bioremediation is chosen as the most appropriate option and scheduled to commence in 2011. The bioremediation treatment involves firstly dredging part of the sediment settled in the shallow water areas of the approach channel, following by the injection of calcium nitrate solution, an oxidant, into the seabed to accelerate degrading the odorous substances into mainly odourless and harmless gases and thus reduce the offensive smells.

## Proven field trials

The bioremediation treatment has been thoroughly researched and tested. Two field trials were conducted at a 1-hectare and a 3.5-hectare site in 2006 and 2008 respectively. The results showed that bioremediation was a feasible solution as on average 95% of acid volatile sulphides, an indicator of odour generation were removed.

## Support from academics

In addition to the trial tests, academics from the University of Hong Kong, Hong Kong University of Science and Technology, City University of Hong Kong, as well as Tsinghua University also reviewed and supported bioremediation as an effective treatment method of the polluted seabed sediments to alleviate the odour problem at both the Kai Tak Approach Channel and Kwun Tong Typhoon Shelter.

## Improve circulation – Creation of an opening

To improve the water circulation and water quality in and near the Kai Tak Approach Channel in the long run, there is another option of creating an opening at the old runway, as suggested in the Kai Tak Development Environment Impact Assessment Report. However, it is still subject to further investigation and consultation. □

# 有問必答 Frequently Asked Questions

### 如何利用「微氣候」研究優化啟德公共屋邨的設計？

所謂微氣候，是指一個地區的氣候，受周圍環境影響而產生的變化。透過採用計算流體動力模擬測試、風洞測試和日照模擬測試等工具，微氣候以科學為根據，比較不同的設計方案，藉以微調和優化規劃和建築佈局。啟德公共屋邨亦透過詳細的微氣候研究，以締造舒適的戶內及戶外環境：

(a) 風環境：提高建築物的透風度、加速污染物消散；

(b) 自然通風：優化地面行人區、休憩用地、升降機大堂、走廊和住宅單位的空氣流通；以及

(c) 日照和遮陽：揀選合適的植物品種，促進健康繁茂生長；適切地規劃戶外地方及康樂用地，提供遮陽設施。

### How would "Micro-climate" studies be used to enhance the planning of Kai Tak's public rental housing estate?

Micro-climate refers to changes in the climate of an area induced by the local surroundings. By using computational fluid dynamics simulations, wind tunnel tests and daylight simulation tools, micro-climate studies provide a scientific basis to compare various design options to optimise planning and architectural layouts. At Kai Tak's public housing, these studies have been used to enhance the comfort of indoor and outdoor environments by taking account of:

(a) Wind environment to improve building permeability as well as pollutant dispersion;

(b) Natural ventilation to optimise ventilation of pedestrian zones, open spaces, lift lobbies, corridors and domestic flats; and

(c) Daylight and sun shading to facilitate selection and healthy growth of plants, and better planning to provide appropriate shading for both active and passive recreation areas.

### 香港其他地方採用過生物除污法嗎?

城門河和三家村避風塘亦曾採用生物除污法，消除異味。

### Has bioremediation been used anywhere else in Hong Kong?

Yes, similar bioremediation treatments were used at both the Shing Mun River Channel and Sam Ka Tsuen Typhoon Shelter to address the odour problems.

## 下期精彩內容

我們將為你展示啟德的可持續基建設施、其環保特色及獨特的發展項目。與土木工程拓展署署長蔡新榮先生的一席話亦不容錯過。

## Look out for the next issue

**The sustainable infrastructure facilities at Kai Tak, its green features and unique developments will be unveiled. We'll also be talking to Mr. John Chai, Director of Civil Engineering and Development. You shouldn't miss it.**

## 下一步...

有關龍津石橋遺蹟的保育方案，第一階段公眾參與活動已於2010年6月舉行，各界反應熱烈，提供了不少寶貴意見及建議。第二階段公眾參與活動將於2011年年初展開，屆時將闡述各保育方案，並為最佳方案建立共識，我們期盼你發表寶貴意見。

## What's next...

In Stage One of public engagement activities for the preservation of Lung Tsun Stone Bridge, held in June 2010, many valuable comments and suggestions were received. Stage Two, planned for early 2011, will present various preservation options and seek to build a consensus on the preferred one. We look forward to hearing all your views.

## 『啟德之友』

假如你希望以電子郵遞方式收到我們的《啟德新里程》通訊或其他有關啟德發展計劃資料，請把你的電郵地址發送到 **friends.ktd@cedd.gov.hk**，登記成為『啟德之友』。

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我們歡迎你提供寶貴的意見，讓《啟德新里程》的內容更豐富、更吸引。請將意見電郵至 ktd@cedd.gov.hk 。

We appreciate hearing your valuable comments to enhance the contents of this publication. Please email them to ktd@cedd.gov.hk.

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