



土木工程拓展署
CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

2007 Annual Report



同心展關懷

caringorganisation 2006-08

Awarded by The Hong Kong Council of Social Service
香港社會服務聯會頒發

環保報告

Environmental Report



政策

我們在施行工程的各個階段，均注重環保。我們通過履行綜合管理系統政策所訂定的下述承諾，致力達到這個目標：

- 遵守適用的法例及其他規定。
- 創建安全、綠化及可持續發展的環境。
- 監督承建商的表現，確保他們遵守本署的規定。
- 避免環境污染，並致力緩解因工程項目及部門運作而可能對環境構成的影響。
- 在可行的情況下，奉行以下原則：資源減省、資源再用和資源循環再造。
- 為持續改進表現，定期檢討綜合管理系統的成效及訂立的目標和指標。

POLICY

We place due emphasis on environmental considerations in all stages of our projects. We endeavour to achieve this through the following commitments in our Integrated Management System Policy:

- Complying with applicable legal and other requirements.
- Creating a safe, green and sustainable environment.
- Monitoring the performance of our contractors to ensure their compliance with our requirements.
- Preventing pollution and mitigating potential environmental impacts arising from our projects and operations.
- Observing the principles of reduction, reuse and recycling in the consumption of resources wherever practicable.
- Achieving continual improvement through regular review of the effectiveness of our Integrated Management System as well as the Objectives and Targets.

我們的工作與環境息息相關

我們明白，在致力提供基本服務以配合香港的發展時，我們的工程會對環境帶來影響。因此，我們審慎執行工作，評估工程對環境的影響，務求避免或盡量減少對環境造成不良影響，同時藉機改善環境。

CEDD AND THE ENVIRONMENT

We are aware that in providing essential services to support the development of Hong Kong, our activities affect the environment. We take this challenge seriously and pay due attention to assessing, avoiding and mitigating the adverse impacts arising from our work. We also endeavour to take every opportunity to enhance the environment.

環境管理

我們透過環境管理系統，有系統地監察承建商在環保方面的表現，確保他們遵守有關環保的法例和合約規定。我們在這方面取得顯著成效。

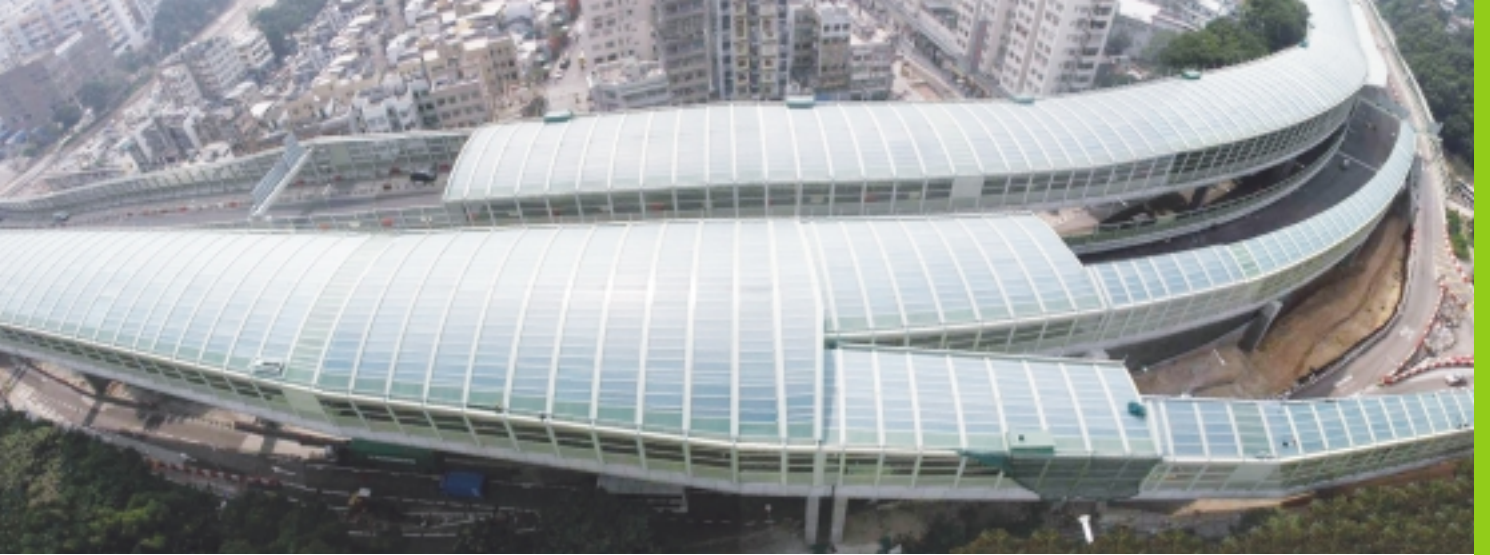
我們自2006年9月起，將環境管理系統擴展至整個部門，並在2007年8月為整個部門取得ISO 14001:2004認證，使部門向公眾提供的服務在環保方面的表現得以提升。

ENVIRONMENTAL MANAGEMENT

We have made use of the Environmental Management System (EMS) as a tool to systematically monitor the environmental performance of our contractors to ensure compliance with the legal and contractual environmental requirements. Remarkable improvements have been seen.

To enhance the environmental performance in delivering our services to the public, we extended the scope of the EMS to cover the whole Department in September 2006 and obtained ISO 14001:2004 Certification for the whole Department in August 2007.

我們的工作 CEDD Activities	目標 Aim	措施 Measures
規劃及設計 Planning and Design	<p>盡量避免對環境造成不良影響 Avoid adverse environmental impacts as far as possible</p> <p>如無可避免對環境造成不良影響，採取適當的緩解措施 Adopt suitable mitigation measures when adverse impacts are unavoidable</p> <p>遵守減少廢物、廢物再用及廢物循環再造的原則 Observe the principles of Waste Reduction, Re-use, and Recycling</p>	<p>探討不同方法 Explore options</p> <p>為指定工程項目進行環境影響評估 Carry out Environmental Impact Assessment for designated projects</p> <p>加入緩解環境影響的措施 Incorporate environmental mitigation measures</p> <p>編訂拆建物料管理計劃 Compile Construction & Demolition Material Management Plan</p>
建造工程 Construction Works	<p>確保承建商遵守環保規定 Ensure that contractors comply with environmental requirements</p>	<p>遵守環境許可證的審批條件 Comply with Environmental Permit Conditions</p> <p>實施環境管理計劃 Implement Environmental Management Plan</p> <p>實施環境監察及審核計劃 Implement Environmental Monitoring and Audit Programme</p>
環境改善工程 Environmental Improvement Works	<p>藉機改善環境 Take every opportunity to improve the environment</p> <p>推廣綠化和採用創新的環境美化設計 Promote greening and adopt innovative landscape design</p>	<p>在基建工程中廣泛種植 Adopt extensive planting in infrastructure projects.</p> <p>推行綠化總綱圖的工作 Implement Greening Master Plans</p> <p>施行人造斜坡鞏固工程時美化斜坡 Landscape man-made slopes in upgrading works</p> <p>修復石礦場 Rehabilitate quarries</p> <p>監察在天然斜坡崩塌殘痕處已完成的土壤生物修復工程 Monitor installed bioengineering measures at natural terrain landslide scars</p> <p>清理河床 Clearing up river bed</p> <p>推行保土造林工程 Implement soil erosion control planting works.</p>



T3號道路 — 緩解噪音設施
Road T3 - Noise Mitigation Measures

◆ 2007年的環保工作 Environmental Activities 2007 ◆

緩解環境影響的措施

透過全面規劃和設計，我們致力減少擬議工程對環境可能造成的不良影響。倘若這些影響實在無可避免，我們在施工及設施運作期間，採取適當的緩解措施。

● T3號道路 — 緩解噪音設施

為減輕交通噪音對大圍居民的滋擾，T3號道路工程建造了多類型的緩解噪音設施，包括隔音罩、垂直和懸臂式的隔音屏障。隔音罩和隔音屏障的總長度約6.4公里。

● 啟德明渠進口道 — 生物除污工程實地試驗

生物除污法是一種於水域中以生化技術來減少或清除水中臭味的方法。基本過程是將氧化劑如硝酸鈣等注入海泥中，細菌便會利用其中的氧份來分解有機物，使泥土中的酸揮發性硫化物含量去除，並釋放出無臭無害氣體。

Environmental Mitigation Measures

Through comprehensive planning and design, we endeavour to minimize all possible adverse environmental impacts resulting from proposed projects. When projects inevitably bring about adverse environmental impacts, we adopt suitable mitigation measures in both construction and operation stages.

● Road T3 - Noise Mitigation Measures

To mitigate the traffic noise impact to the residents in Tai Wai, various types of noise mitigation measures, such as noise enclosures, vertical and cantilever noise barriers have been constructed under Road T3 project. The total length of noise barriers and enclosures constructed is about 6.4 km.

● Kai Tak Approach Channel - Bioremediation Field Test

Bioremediation is an in-situ application of biotechnology for the purpose of mitigating odour in maritime environment. The process basically involves injection of oxidation agent, e.g. nitrate (NO_3), into the topsoil of seabed sediment, of which bacteria will make use to break down odour-inducing organics into harmless and odourless gases (through removal of Acid Volatile Sulphides (AVS)).



啟德明渠進口道
Kai Tak Approach Channel



生物除污工程船
Bioremediation Barge

啟德明渠進口道(下稱進口道)是一個半封閉式的海域，由舊跑道與維港岸邊包圍而形成。多年來，進口道承接了大量來自東九龍多個地區包括黃大仙、新蒲崗、鑽石山和佐敦谷的雨水和夾雜的污水，加上水流緩慢，促使有機物大量沉積渠底，形成嚴重的臭味問題。

為解決這個環境問題，我們參考早前在城門河和三家村避風塘的成功經驗，於2006年在進口道進行了一項生物除污試驗工程。承建商利用絞盤拖行特製的生物除污船，以免螺旋槳破壞除污成果。船上置有化學劑儲缸、耙型注射器和一系列包含管道和閘門等設備的噴注系統，將約400公噸硝酸鈣注入選定的一公頃底泥中；之後一年內我們不停地監測著土質變化，以觀成效。我們發現約有95%酸揮發性硫化物被清除。研究結果標誌著生物除污法確能有效抑制啟德明渠受污染底泥的臭味，並將納入正在進行的啟德發展計劃環境影響評估研究內。

The Kai Tak Approach Channel (KTAC) is a semi-enclosed seawater body created from the harbour upon construction of the former runway. It receives stormwater from a large portion of East Kowloon (Wong Tai Sin, San Po Kong, Diamond Hill and Jordan Valley areas). Owing to poor tidal flush and polluted discharges over the years, the stagnant water and contaminated sediments at the channel bed have led to a serious odour problem.

With a view to finding a suitable way to mitigate such odour problems at KTAC, we commenced a pilot-scale field trial of bioremediation treatment there in 2006, based on the experience at Shing Mun River Channel and Sam Ka Tsuen Typhoon Shelter. The injection was carried out by a purpose-designed bioremediation barge (basically powered by winch without any propeller to avoid inducing "propeller wash" at bioremediated seabed), which contained chemical storage tanks, an injection boom with injection tines and a series of piping and valves to serve as the dosing system. We injected a total of about 400 tonne of calcium nitrate at a selected area of 1 ha at the channel and conducted a one-year quality monitoring of sediment. With about 95% of AVS removed from the sediment, the results indicated that bioremediation treatment was effective in minimizing odour emission from contaminated sediment at KTAC. The results will be taken into account in the on-going EIA study of Kai Tak development.



噴注器埋入土中
Injection tines imbedded

施工期間其他緩解環境影響的措施

Other Environmental Mitigation Measures during Construction



利用沉澱池處理地盤產生的廢水
Sedimentation tank to treat the wastewater generated on site



疏浚工程在淤泥屏障內進行
Dredging within the silt curtain



定期清洗工地旁的公用道路
Regular cleaning at public road adjacent to the work site



地盤運料路的灑水系統
Water spraying system at site haul road



在土坡架設防塵網
Protective netting for suppressing dust emission at soil slope



化學廢物臨時貯存設施
Chemical Waste Temporary Storage Facilities

拆建物料的管理

公眾填料委員會由本署署長擔任主席，負責公眾填料的策略性管理。有關的管理工作按下列三項原則執行：

- 減少
- 再用
- 循環再造

政府的政策是在公共工程的規劃、設計和施工階段，盡量減少產生拆建物料。我們為建造業提供服務，讓公眾填料可以卸置於策略性地點的公眾填料接收設施。剩餘的公眾填料我們會暫時堆存，以供日後再用。

在2007年，公眾填料接收設施共接收約650萬公噸公眾填料。

Management of Construction and Demolition Materials

The Public Fill Committee, under the chairmanship of our Director, is responsible for the strategic management of public fill. The strategic management builds on the 3R principle:

- **Reduce**
- **Reuse**
- **Recycle**

It is government policy to reduce generation of construction and demolition (C&D) material in planning, design and construction of public works projects. We provide service to the construction industry for the disposal of public fill at public fill reception facilities at strategic locations and we temporarily stockpile the surplus public fill for future reuse.

In 2007, the total quantity of public fill received at public fill reception facilities was about 6.5 million tonnes.

環境管理計劃

由於本港缺乏公眾填料區和堆填區空間，我們一向以來都非常謹慎地管理由建造工程產生的拆建物料。自2000年起，我們實施廢物管理計劃，要求承建商減少在建造工地產生拆建物料。

自2005年開始，廢物管理計劃的範圍已作擴展，稱為環境管理計劃。根據環境管理計劃的部分規定，承建商須委派一名指定的環境主任，確保環境管理計劃在建造工地切實執行。環境管理計劃的範圍除了涵蓋廢物管理措施外，亦包括紓減空氣、水質及噪音滋擾的工作。直至2007年年底，部門有15份建造工程合約已訂明須實施環境管理計劃。

為進一步減少建造工程產生的塵埃，在2007年11月1日以後招標的工程將會訂明標準合約條款，規定所有在合約下使用的卸泥車須配備機動蓋掩，安全地減少塵土飛揚。

Environmental Management Plan

We have all along been very cautious about the management of C&D materials from construction projects due to lack of public fill and landfill space in Hong Kong. Since 2000, our contractors have been required to reduce the generation of C&D materials at construction sites through the requirement of a waste management plan.

In 2005, the scope of waste management plan was expanded and renamed as environmental management plan (EMP). As part of the EMP requirements, contractors are required to appoint a designated environmental officer to oversee the implementation of the EMP in construction sites. In addition to waste management measures, the scope of the EMP covers the abatement of air, water and noise nuisances. As at the end of 2007, there are 15 number of construction contracts managed by the Department that incorporated the EMP requirements.

As a further step to reduce the generation of dust from our construction activities, contracts tendered after 1 November 2007 will contain standard contract provisions requiring all dump trucks used in the contracts to be fitted with mechanical truck covers to safely reduce emission of fugitive dust.



鯽魚涌公眾填料壆船轉運設施
Quarry Bay Public fill Bargaining Point

環境監察及審核計劃

凡《環境影響評估條例》涵蓋的指定工程項目，我們均實施環境監察及審核計劃，以密切監察承建商的環保表現，並確保承建商遵守環境影響評估報告的規定。

Environmental Monitoring and Audit Programme

We have implemented the Environmental Monitoring and Audit Programme for all the designated projects covered by the Environmental Impact Assessment Ordinance to closely monitor the environmental performance of contractors and to ensure compliance with the requirements specified in the Environmental Impact Assessment Report.

環保教育及培訓

我們為員工提供環保知識及相關技能的培訓，讓員工持續進修，以應所需。在2007年，我們舉辦了下列課程：

Environmental Education and Training

To equip our staff with the necessary knowledge and skills, continuous education in environmentally related subjects is provided. In 2007, the following training courses were organized :

課程 Course Title	課程數目 No. of Courses	參加人數 No. of Participants
環保法例及環保事項(廢物與空氣)培訓課程 Training Course on Environmental Legislation and Environmental Issues (Waste and Air)	6	248
建築地盤環境管理經驗分享研討會： 處理建築廢物目前常用的方法 Experience Sharing Seminar on Environmental Management in Construction Sites — Current Practice in Handling Construction Waste	1	29
由其他機構舉辦的環保課程 Environmentally related training courses arranged by other organizations	13	273



環保法例及環保事項(廢物與空氣)培訓課程
Training Course on Environmental Legislation and Environmental Issues (Waste and Air)

環保辦公室

經過多年的努力，我們已成功地在員工之間建立了環保辦公室文化，其中包括廣泛利用電郵代替紙張進行文字通訊、循環再用信封及檔案夾、雙面影印、把夏天的辦公室溫度保持在攝氏25.5度、設置廢紙回收箱以回收廢紙等。在員工的積極支持下，本署持續在用紙和用電等方面達到既定的節約目標。

除了廢紙回收外，我們今年更在總部大樓各層設置鋁罐及塑膠廢物分類回收箱以回收這兩類物料，作循環再用。

總部大樓的翻新工程已部分完成，為求工程能配合環保辦公室的理念，我們在合適的情況下引入新的節能設施，包括在樓底高的樓層如地庫停車場等以較光但較慳電的T5燈管取代T8燈管，利用發光異極體代替燈泡燃亮大樓內的出路指示牌等。另外，我們在翻新升降機時更加裝了變頻變壓系統來推動升降機的運作，預料這項設施可每年可節省升降機的耗電量達三至四成。

自2003年起，總部大樓連續獲頒發「室內空氣質素管理計劃」良好級檢定證書。為了確保所有員工的工作環境均享有良好的空氣質素，我們亦鼓勵位於總部以外的辦事處參與「室內空氣質素管理計劃」。至2007年年底，已有六個辦事處取得良好級證書。



Green Office

After years of efforts, we have successfully built up a green office with diverse measures including wide usage of e-mail to replace most of the paper communication, reuse of envelopes and file folders, double-side photocopying, maintaining indoor temperature at 25.5.C in summer, introducing waste paper recycling bins, etc. With the support of our staff, we continue to achieve the planned targets on saving paper and electricity.

Apart from recycling waste paper, we provide each floor of the Civil Engineering and Development (CED) Building with separate collection bins for aluminum cans and plastic waste to facilitate their recycling process.

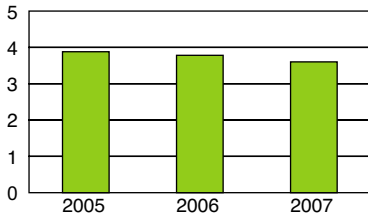
The refurbishment of the CED Building has been partly completed. To line up with the concept of a green office, we have introduced new energy saving facilities as appropriate. They include the brighter and more energy saving T5 fluorescent light tubes in place of T8 tubes on floors with higher ceiling such as basement car park and Light Emitted Diodes instead of light bulbs for the indoor exit signs. In renovating the lifts, we equipped them with a Variable Voltage Variable Frequency System to boost their operation. The system is expected to save the energy consumption by 30% to 40% each year.

The CED Building has been awarded the 'Good Class' Indoor Air Quality Certificate since 2003. To ensure good indoor air quality for all our staff, we also encourage outstation offices to join the Indoor Air Quality Certificate Scheme. Up to the end of 2007, six outstation offices were awarded the 'Good Class' Indoor Air Quality Certificates.



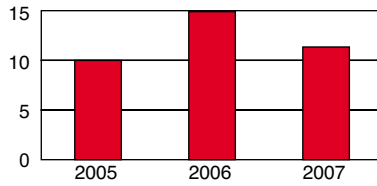
總部大樓獲頒發「香港建築物能源效益註冊計劃」- 照明裝置的註冊證書
The CED Building has been registered in the Hong Kong Energy Efficiency Registration Scheme for Buildings for the lighting installations

用電量
Electricity Consumption
(x1,000 kwh)



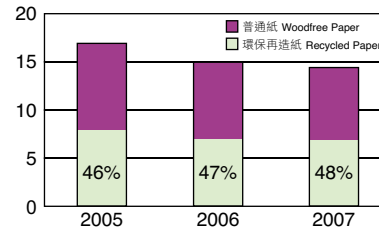
總部大樓的用電量
Total Electricity Consumption in CEDD HQ

回收量
Waste Paper Collection
(x10,000 kg/公斤)



總部大樓的廢紙回收量
Total Waste Paper Collection

用紙量(令)
Paper Consumption
(x1,000 reams/令)



總用紙量
Total Paper Consumption

清新空氣約章

為了支持「藍天行動」和「清新空氣約章」，我們繼續就部門的日常運作推行相關的廢氣排放管制措施。在辦公室，我們實施節約能源措施，達到節約用電的指標。此外，我們更把室內空氣質素管理計劃擴展至位於總部以外的辦事處。我們的承建商在其施工地點採用多種環保措施，務求減少廢氣的排放及其他因施工而對環境造成的影響。承建商的表現會受到嚴密監察，以確保他們遵守訂下的環保規定。

Clean Air Charter

In support of the Action Blue Sky and Clean Air Charter, we continue to implement the air emission control measures that are relevant to our daily operations. In office, we have implemented energy saving measures and achieved the target on the reduction of electricity consumption. We have also extended the application for Indoor Air Quality Certificates to the outstation offices. On construction sites, our contractors have applied various environmental protection measures to minimize emissions of air pollutants and other environmental impacts within and outside the sites, arising from the execution of the works. Close monitoring has been conducted to ensure compliance with environmental requirements.



2007年的環保表現

我們每年訂定環保目標和指標，務求在環保表現方面持續改善。2007年的工作成效如下：

ENVIRONMENTAL PERFORMANCE 2007

To achieve continual improvement in our environmental performance, we set annual environmental objectives and targets. Below is a summary of our achievement in 2007.

目標 Aim	指標 Targets	成績 Achievement
減少用紙及用電量 Reduction of paper and electricity consumption	<p>減少部門的總用紙量，較2003年少12.5%</p> <p>To reduce total paper consumption of the Department by 12.5% of that in 2003</p> <p>以環保紙取代40%的總用紙量</p> <p>To substitute 40% of normal plain paper consumption of the Department with recycled paper</p> <p>減少本署大樓的用電量，較2006年少1.5%</p> <p>To reduce electricity consumption of the Civil Engineering and Development Building by 1.5% of that in 2006</p>	<p>部門的總用紙量較2003年減少20%</p> <p>Total paper consumption of the Department reduced by 20% when compared with that in 2003</p> <p>環保紙佔總用紙量的48%</p> <p>Recycled paper took up 48% of the total paper consumption</p> <p>本署大樓的用電量較2006年減少5.1%</p> <p>Electricity consumption of the Civil Engineering and Development Building reduced by 5.1% when compared with that in 2006</p>
改善居住環境 Enhancement of living environment	<p>種植至少110萬棵樹/灌木</p> <p>Plant at least 1.1 million trees/shrubs</p> <p>美化290幅在防止山泥傾瀉計劃下已鞏固的斜坡</p> <p>Landscape 290 upgraded slopes under the Landslip Preventive Measures Programme</p>	<p>已種植120萬棵樹/灌木</p> <p>1.2 million trees/shrubs were planted</p> <p>已美化290幅在防止山泥傾瀉計劃下已鞏固的斜坡</p> <p>290 upgraded slopes under the Landslip Preventive Measures Programme were landscaped</p>

出版 Published :

土木工程拓展署
Civil Engineering and Development Department

計設 Design By :

禾麥 (亞洲) 有限公司
Roy Mark (Aisa) Ltd.

地址 Address :

香港九龍何文田公主道101號土木工程拓展署大樓
Civil Engineering and Development Building,
101 Princess Margaret Road, Ho Man Tin, Kowloon, Hong Kong

電子郵件 E-mail :

enquiry@cedd.gov.hk

網址 Web Site :

<http://www.cedd.gov.hk>

政府物流服務署印製
Printed by the Government Logistics Department

2008年3月
March 2008