

# Environmental

# Performance

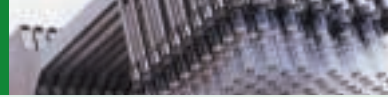


Chapter 4  
第四章



# 重視環保

## Environmental Performance



為鞏固香港作為世界級城市，本署致力提供最佳的污水收集及處理服務和完善的排水系統，並在計劃及執行中兼顧環保及可持續發展原則。本章概述渠務署 2002 至 03 年度的環保工作，亦作為本年度之環保工作報告書。

In contributing to making Hong Kong a sustainable World City, we are committed to providing the best sewerage collection and treatment service as well as urban and rural drainage system while integrating environmental protection and sustainable development principles into our plans and operations. This Chapter represents our Environmental Performance Report for 2002/03.





## 環保政策

我們承諾在每一項工程活動和日常提供的服務中，對環保因素多加考慮，竭誠以我們的專業知識來服務本港普羅大眾、致力保障市民健康、維護自然生態環境，確保本港能夠持續發展。

我們務求不斷提高服務質素，盡量減少署內各項設施對香港環境所造成的影響。為達成此目標，我們致力於：

- 採納最先進的低污染技術及預防污染措施；
- 在設施設計、建造及操作過程中，注入可持續性的考慮原素；
- 盡量減少和舒緩本署各項建造工程及設施在操作過程中對環境所產生的負面影響；及
- 全面遵守和符合環保法例，以及一切有關的其他要求。

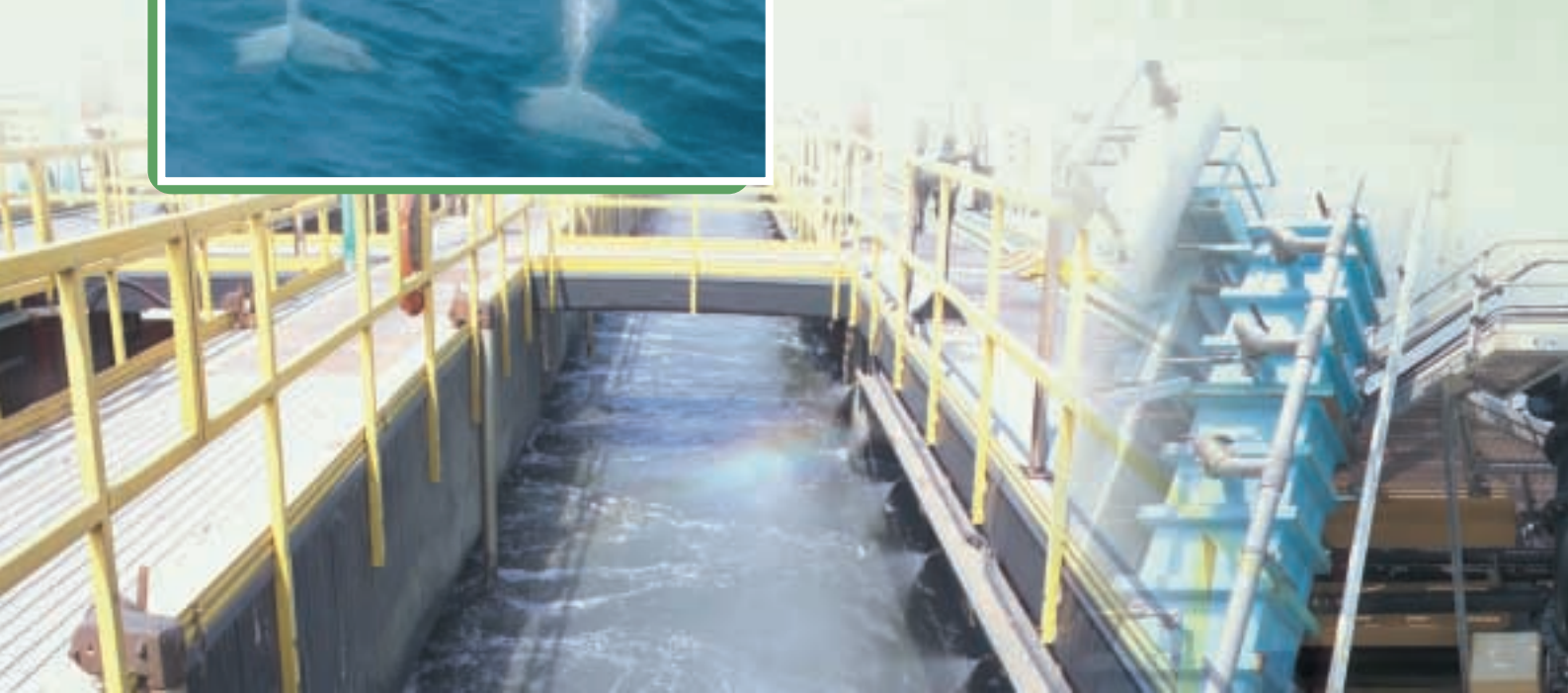


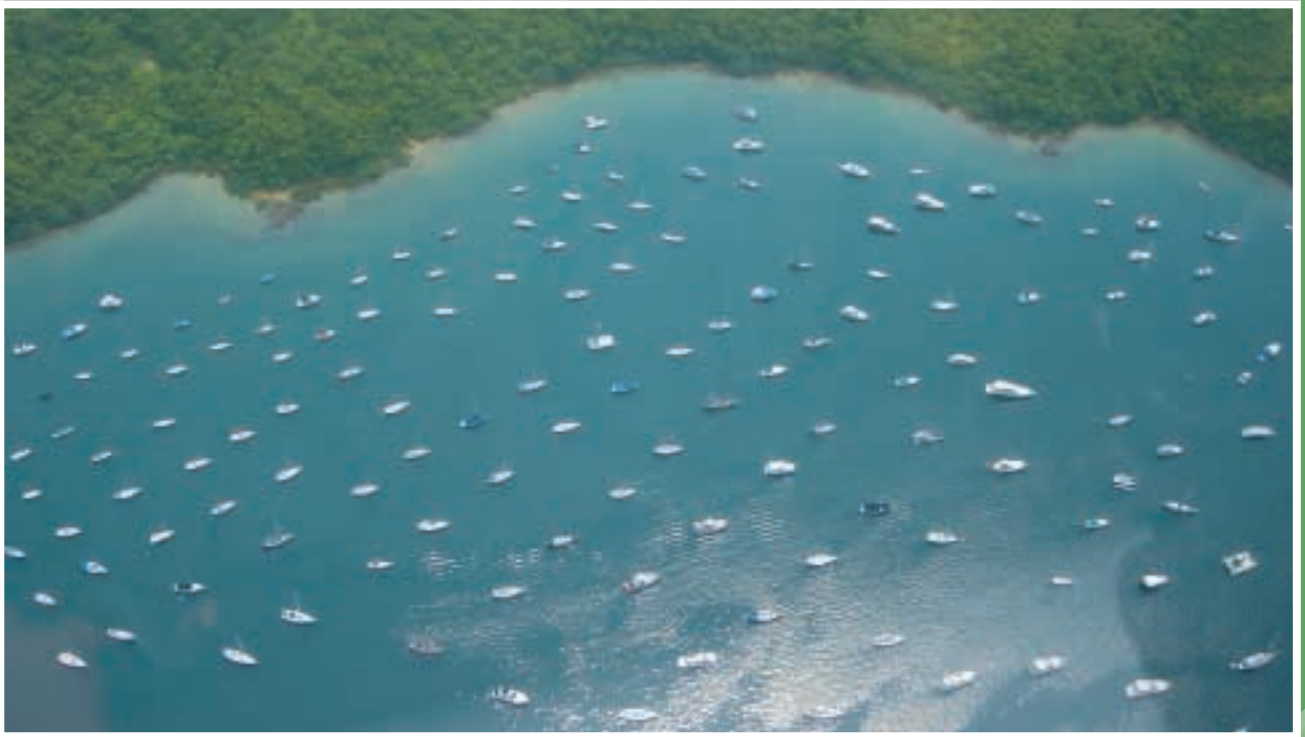
## Environmental Policy

We are committed to being environmentally conscious in all our activities and services and endeavor to serve the Hong Kong community with the best of our expertise in safeguarding human health, protecting and preserving natural ecosystems, thus contributing to the sustainable development of Hong Kong.

We aim to continually improve the quality of our services, and to alleviate as far as practicable the impact that our facilities may impose on the environment of Hong Kong. To meet these objectives, we are committed to:

- Adopting state-of-the-art clean technologies and pollution prevention measures;
- Integrating sustainability considerations, into the design, construction and operation of our facilities;
- Minimizing and mitigating environmental impacts arising from the construction and operation of our facilities; and
- Meeting all statutory and regulatory requirements on environmental performance that are applicable to the activities of the department.





我們致力確保全體員工及受聘的工程顧問和承建商清楚知悉我們的「環保政策」，並將這項政策公開予市民大眾審閱。各級人員皆銳意持定此項政策，並獲取所需訓練及資源，以便能貫徹執行這項政策。

We ensure that our Environmental Policy is communicated to all staff, our consultants and contractors, and is open to public scrutiny. Our staff are committed to upholding this departmental policy and receive the necessary training and resources to enable its implementation.





## 環保職能和工作

過去一年渠務署共處理9億2千多萬立方米的污水，令本港享有高水平的城市衛生。其間，我們操作65所污水處理廠（附錄F）、153個污水泵房連低流量污水截流渠、43條海底排放管、兩條污水排放隧道，以及為1,478公里的污水渠提供保養。此外，我們亦管理市區和鄉郊的排水系統，包括維修2,456公里的排水道及水渠和21個防洪抽水計劃。我們另有80處工地分別進行新工程、改善工程或重要的維修工程。

環保承擔已比一年前提高。在2002至03年度，污水增加了2千萬立方米，本署管轄多20所污水處理廠和泵房，78公里污水渠及40公里排水道和排水渠。

## 環保措施

本署收集城市污水並加以處理，使這些污水不會損害環境和市民的健康，從而保護天然水體及公眾健康。

有關排水系統的工程和管理旨在有效地疏導雨水，以免市民的生命及財物受損。從環境角度，本署工作的成效，所消耗的資源及產生的排放摘錄於表4.1。

## Environmental Functions and Activities

In the past year DSD handled 923 million cubic metres of sewage to sustain a high level of sanitation control in Hong Kong. In delivering the service, we operated 65 sewage treatment works (Appendix F), 153 sewage pumping stations and low flow interceptors, 43 submarine outfalls, 2 effluent disposal tunnels and maintained 1,478 km of sewers. We also managed urban and rural drainage and maintained 2,456 km of drainage channels and drains and 21 flood pumping schemes. We have 80 sites where construction of new works and upgrading works, as well as major maintenance works, are in progress.

The environmental stake was higher compared to a year ago. There was an additional 20 million m<sup>3</sup> sewage, 20 sewage treatment and pumping facilities, 78 km sewers, and 40 km channels and drains in 2002/03.

## Performance Measures

DSD collects and treats municipal sewage to render it harmless to both the environment and the population, thus protecting the quality of natural waters as well as public health.

The work on drainage system assures efficient drainage of rainfall runoff from affecting life and property of our community. Our accomplishment, resource consumption and environmental emissions are summarised in Table 4.1.

污水處理 Sewage Treatment				數量 Quantity
總流量	Total Flow	(百萬立方米 Million m <sup>3</sup> )		923
生化需氧量(公噸)	Biological Oxygen Demand (tonnes)	入	In	131,886
		移除	Removed	101,932
		出	Out	29,954
懸浮固體(公噸)	Suspended Solids (tonnes)	入	In	157,262
		移除	Removed	131,753
		出	Out	25,509
總氮量(公噸)	Total Nitrogen (tonnes)	入	In	6,672
		移除	Removed	4,529
		出	Out	2,143
<b>廢物 Waste</b>				
隔濾物	Screenings	立方米	m <sup>3</sup>	20,007
砂礫	Grit	立方米	m <sup>3</sup>	8,055
脫水污泥	Dewatered sludge	公噸	tonnes	328,910
<b>氣體排放 Gas Emission</b>				
已回收及燃燒的溫室氣體	Greenhouse gas recovered & flared	立方米	m <sup>3</sup>	7,799,316

表 4.1a 2002 至 03 年年度污水處理成效

Table 4.1a Achievements in Sewage Treatment in 2002/03

## 已消耗的資源 Resource Consumption

電力	Power	千瓦小時 KWh	274,328,593
<b>化學品 Chemicals</b>			
a. 污水處理	Sewage Treatment		
- 氯化鐵	Ferric chloride	公噸 tonnes	13,423
- 明礬	Alum	公噸 tonnes	12
- 聚合物	Polymer	公噸 tonnes	57
b. 污泥脱水	Sludge Dewatering		
- 氯化鐵	Ferric chloride	公噸 tonnes	4,580
- 聚合物	Polymer	公噸 tonnes	579
- 硝酸鈣	Calcium nitrate	公噸 tonnes	660

表 4.1b 2002 至 03 年年度污水處理的資源消耗

Table 4.1b Resource Consumption for Sewage Treatment in 2002/03

## 效率 Effectiveness

移除生化需氧量	BOD removed	77%
移除懸浮固體	SS removed	84%
移除總氮量	Total N removed	68%
耗電 (每立方米污水以千瓦小時計) (處理每立方米污水所需千瓦小時)	Power consumed (KWh per m <sup>3</sup> sewage treated)	0.30
耗電 (每公噸生化需氧量以千瓦小時計) (移除每噸生化需氧量所需千瓦小時)	Power consumed (KWh per tonne BOD removed)	2,691

表 4.1c 2002 至 03 年年度污水處理效率

Table 4.1c Effectiveness of Sewage Treatment in 2002/03

## 污水渠和排水道的保養 Sewers and Drains Maintenance

<b>數量 Quantity</b>			
清理水渠、排水道及河道	Drains, channels and water courses cleansed	公里 km	440
清除淤泥 (排水道)	Silt removed (Drains)	立方米 m <sup>3</sup>	56,513
清理污水渠	Sewers cleansed	公里 km	784
清除淤泥 (污水渠)	Silt removed (Sewers)	立方米 m <sup>3</sup>	10,045

表 4.1d 2002 至 03 年年度污水渠和排水道的保養

Table 4.1d Sewers and Drains Maintenance in 2002/03

## 辦公室 Office

耗紙	Paper consumed	令	Reams	13,517
信封用量	Envelopes consumed	個	number	134,027
回收廢紙	Waste paper recycled	公斤	kg	13,066
耗電	Power	千瓦小時	KWh	191,219
<b>消耗率 Unit Rates</b>				
人(員工)均耗紙(令)	Paper consumed (ream per staff)			6.7

表 4.1e 2002 至 03 年年度辦公室的消耗

Table 4.1e Office consumption in 2002/03

隨着我們引入新機器和提升污水處理標準，污水排放和污水處理基建設施正不斷演進，所以圖表並沒有包括與一年前同期比較的數字。明顯的例子載於表 4.2。這些污水處理設施進一步減少污染，但按不同技術而需要使用化學品和增加電力方面的開支。

The table has not included direct year-on-year comparison of these figures because of continuous evolution of the sewerage and sewage treatment infrastructure with introduction of new plants and upgrading of treatment standards. Notable examples are shown in Table 4.2. The works further reduce pollution but necessitate chemical dosing and energy expenditure based on the respective technology.

啟用年份 Year Commissioned	
<b>由隔篩程序改善至一級沉澱程序 Upgrading from screening to primary sedimentation</b>	
柴灣、筲箕灣、觀塘、土瓜灣、葵涌、青衣、西北九龍至昂船洲污水處理廠（淨化海港計劃第 I 階段） Chai Wan, Shauekiwan, Kwun Tong, To Kwa Wan, Kwai Chung, Tsing Yi, Northwest Kowloon to Stonecutters Island STW (HATS Stage I)	2001 年
<b>以紫外光消毒程序取代加氯消毒程序 Replacing chlorination by UV light disinfection</b>	
位於洪聖爺灣和邊界警察宿舍的污水處理廠 Sewage Treatment Plants at Hung Shing Ye Beach, Border Police Quarter	2001 年
位於麗都灣、清水灣、古洞墟、大欖涌和鷓鴣山的污水處理廠 Sewage Treatment Plants at Lido Beach, Clearwater Bay Beach, Kwu Tung Market, Tai Lam Chung and Razor Hill	2002 年

表 4.2 已改善的污水處理設施  
Table 4.2 Upgraded sewage treatment facilities

## 污水處理廠的運作

在 2002 至 03 年度，所有主要污水處理廠的表現均符合，甚至經常超越環境監督牌照要求。雖然我們遇到各種各樣的困難，但透過引入新措施來改善我們的工作質量，這些困難最終都能迎刃而解。現列舉數個例子如下：

- 本署最大的設施，昂船洲污水處理廠在 2002/03 年度平均每天為 140 萬立方米污水作化學輔助一級處理，有效地把污水中 72% 的生化需氧量(BOD)和 81% 的總懸浮固體(TSS)消除。自從 2001 年開始，昂船洲污水處理廠的日常操作逐漸穩定，環保署亦相應於 2002 年 9 月 30 日收緊水污染管制牌照內有關 BOD 和 TSS 的比例。除了在冬季一／二月期間因污水的溫度下降和氯化物含量上升外，該廠也能符合這較嚴謹的標準。

## Sewage Treatment Plant Operation

In 2002/03, all major sewage treatment works performed satisfactorily, meeting and very often achieving better than the licence requirement imposed by the environmental authority. Various difficulties were encountered and subsequently resolved, while new initiatives were introduced to improve the output and outcome of our work. A few examples are highlighted below:

- Our largest facility, the Stonecutters Island STW treated an average of 1.4 million cubic metres of sewage per day in 2002/03 by Chemical Enhanced Primary Sedimentation and achieved an impressive BOD removal efficiency of 72%, and TSS removal of 81%. As the plant operation had become more steady since 2001, the Environmental Authority EPD tightened the BOD:TSS limits of the Water Pollution Control Ordinance (WPCO) licence to 75:55 mg/l from 30th September, 2002. The plant was able to comply with this higher standard except during the months of January and February when the temperature was low and the chloride content was high.





- 沙田污水處理廠在2002至03年度繼續面對過量負荷的問題。不過，我們在年內完成一些工作，增加再循環和加強最後沉澱程序，以提昇本廠的污水處理能力。我們更引入一個除泡裝置和加入硝酸鈣，以控制冒泡情況。經過連番努力，除了有一次懸浮固體超出規定外，污水處理廠在2002至03年度的表現，均符合牌照的標準。與此同時，本廠亦展開工程加大污水處理容量及提高污水處理水平，進度理想。這項第三階段第一期工程已預定在2004年年中完成。

- 年內石湖墟污水處理廠污水中的氮含量曾經偶然超出標準。主要因為暴雨後，排水系統內一種稱為腔輪蟲屬的輪蟲微生物，和有毒物質流入污水處理廠所致。這些輪蟲和有毒物質減低了生物污水處理程序中的硝化速度。操作人員積極追尋源頭，以避免這些情況再次發生，並同時引入措施把生物反應池的溶氧量和混合液懸浮固體量維持在較高水平，以提高硝化作用的效率。

- 大埔污水處理廠今年實施了一項節省能源計劃，在夜間污水流入量較少時，只啟動數個反應池，把污水集中在這些反應池內處理，此舉能節省能源的同時亦能維持同樣的污水處理效率。在實施這項措施的首六個月，耗電量減少10%。此外，在淤泥消化過程中，我們已使用一燃氣鍋爐取代以前的電熱鍋爐，從而有效利用廠內污泥消化過程所產生的沼氣。

- 元朗污水處理廠在污泥脫水過程中，有效減少聚合劑使用量，由每公噸乾燥固體需550公斤氯化鐵減至只需260公斤。

- Shatin STW continued to experience overloading problem in 2002/03. During the year, the operation of the plant was optimised by increasing recirculation and enhancing final sedimentation. Foaming was controlled by introducing a mechanical removal device and dosing with Calcium Nitrate. The effort has resulted in the compliance with licensed limits except for one occasion of exceedance in Total Suspended Solids in 02/03. At the same time, engineering works are progressing steadily at the site to permanently raise the treatment capacity and treatment level, with Stage 3 Phase 1 targetted to complete by mid 2004.



- Shek Wu Hui STW experienced occasional exceedance in Ammonia Nitrogen limit largely due to unexpected toxic substances in the incoming sewage and a micro-organism (Lecane) washed into the works from land drainage after heavy rainfall. These reduced the rate of nitrification in the biological treatment process. The operator actively traced the sources to prevent recurrence and introduced measures to maintain the dissolved oxygen and MLSS levels in the bioreactors at higher levels to enhance nitrification rate.
- Tai Po STW launched an energy saving initiative under which fewer reactor tanks were operated during low inflow hours at night, while maintaining the same treatment efficiency. The measure reduced electricity consumption by 10% during the first 6 months of operation. Furthermore, the electric water boiler for sludge digestion has been replaced by gas boiler which utilises the biogas from anaerobic sludge digestion as fuel.
- Yuen Long STW has optimised the sludge dewatering process resulting in successful reduction of ferric chloride consumption from 550 kg/TDS to 260 kg/TDS.



## 保育生態

渠務署一向在整治下水道及防洪工程中，都貫徹加入保育自然生態的元素。不少翠綠和生物繁多的河岸、蘆葦池、河曲和紅樹林生境，都是我們十多年來的工作成果。

我們採納的生態保育景觀設計概念，均來自新防洪工程的環評工作。此外，我們亦編制生態作業指引予本署工程師參閱。

在2002至03年度進行的兩項主要防洪工程，即新田東主渠及元朗排水繞道，都引入了生態元素，當中包括：

- 在上游河岸以混凝土草格建造草坡和被草河床，提供自然生境及翠綠景觀；
- 下游堤岸，採用裸土表層設計，促進動植物繁衍；
- 在河堤種植灌木或喬木，增加生態的多樣性和美化景觀。

此外，本署在新田工程項目中，將於河道東面建造3.7公頃濕地。又會在元朗水繞道計劃，把250米長的河床改變為淺水生境，讓淡水魚類、兩棲類動物、蜻蜓和水禽等棲息。



於錦田河岸種植的紅樹林與附近生態環境十分融洽  
Mangrove created along the bank of Kam Tin River to provide compatibility and integration with the environment



## Ecological Enhancement

It is our policy to incorporate environmental friendly features into drainage improvement and flood control projects. Our commitment and actions in the past decade have cumulated into large tracts of green banks, rich reed ponds, preserved meanders, and mangrove habitats.

Recommendations in ecological and landscape improvement measures have come from Environmental Impact Assessments (EIAs) of new drainage projects, while we also advocate good ecological practices to our engineers through guidance notes.

Our two major river training projects in 2002/03 - namely, Construction of San Tin Eastern Main Drainage Channel and Construction of Yuen Long Bypass Floodway have featured various ecological measures :

- Grasscreting upper reaches to provide grassed slope and grassed channel bed suitable for wildlife habitat and to yield green landscape.
- Creating unlined embankment at lower reaches to facilitate vegetation development and animal foraging and breeding.
- Planting vegetation along channel embankment to enhance diversity of microhabitats and aesthetic value.

Furthermore, the San Tin project will create 3.7 ha of wetland habitat along the eastern side of the channel. The Yuen Long Bypass Floodway will turn 350 m of channel bed into a shallow pond feature to allow freshwater fish, amphibians and water birds to thrive.



保育原有河曲，孕育種類繁多的淡水動植物  
 Rehabilitated meander providing rich assemblage of freshwater plants and animals



建造濕地生態環境 — 蘆葦叢及池塘給予魚類、兩棲類、蜻蜓、雀鳥和蝙蝠棲息和覓食的環境

Creation of wetland habitat at San Tin — shallow pond with reed bed and open water sustaining freshwater fishes, amphibians, dragonflies, birds and bats



位於新田蘆葦池將增添本地生態價值和為候鳥提供濕地環境  
 Reed pond under construction in San Tin creating valuable wetland habitat that benefits migratory birds and enriches local ecology



新田人工濕地盛放的荷花  
 Lotus (*Nelumbo nucifera*) at San Tin Created Wetland



植草後的一段梧桐河河堤和河床  
 Grassed embankment and channel bed at River Indus



在雙魚河河堤建立植被，讓野生動物得以發展及逐漸重組河岸生態環境  
 Grass-lined side slope at River Beas that supports animal life and promotes the regeneration of riparian habitat



## 依法守例

根據《水污染管制條例》和《環境影響評估條例》和其化有關的污染管制法例，所有污水處理廠和有關的新工程（指定工程項目）均受到規例監管。本署持有 26 個《水污染管制條例》所規定的排污牌照和 19 個《環境影響評估條例》所規定的環境許可證。

雖然污染量增加和受到污水處理廠以外的因素影響，本署仍能在 2002 至 03 年度符合所有法定要求。下述情況除外：

昂船洲污水處理廠  
一懸浮固體量總量超標六次

沙田污水處理廠  
一懸浮固體量總量超標一次

石湖墟污水處理廠  
一氮氣超標六次

小欖精神病院的污水處理廠  
一大腸桿菌超標一次

曹公潭污水處理廠  
一大腸桿菌超標一次

所有超標情況均由本署人員呈報，並已迅速修正。

為衡量工作表現和防範污染，本署實施嚴密的程序，以監察所有污水處理廠所排放的污水水質。我們抽取污水樣本並加以測試，從而馬上知悉異常情況，以便向環境保護署報告並作出修正行動。我們每月均把所收集的資料傳送給環境保護署，以供該署參閱。部分大型的污水處理廠，例如位於沙田、大埔和西貢的污水處理廠，亦設有聯機感應器，以監察最終經處理污水的總懸浮固體量、氮氣和氮氧化物的氮含量。

本署在 2002 至 03 年度完全符合《環境影響評估條例》的規定。我們為《環境影響評估條例》所簽發的環境許可證有關的新工程，進行環境監察及審核工作。

## Compliance with Regulations

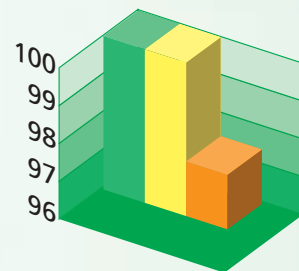
All sewage treatment works and relevant new works (Designated Projects) are subject to regulatory control under the Water Pollution Control Ordinance (WPCO) and Environmental Impact Assessment Ordinance (EIAO) respectively, in addition to other relevant pollution control legislations. DSD directly holds 26 discharge licences under the WPCO and 19 various Environmental Permits under the EIA Ordinance.

Against increased pollution load and factors external to the plants, DSD conforms to all the regulatory requirements in 2002/03. The exceptions are :

Stonecutters Island STW	- six exceedances in TSS
Shatin STW	- one exceedance in TSS
Shek Wu Hui STW	- six occasions exceedance in Ammonia N
STP at Siu Lam Psychiatric Hospital	- one exceedance in E. coli
Tso Kung Tam STP	- one exceedance in E. coli

All were self-reported and corrected promptly.

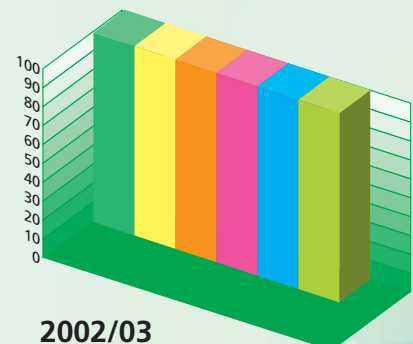
化學輔助一級污水處理廠  
(昂船洲污水處理廠)  
CEPT treatment plant  
(Stonecutters Island STW)



2002/03

允進流量 Allowable Flow  
生化需氧量 BOD  
懸浮固體 SS

二級污水處理廠  
Secondary treatment plants



2002/03

允進流量 Allowable Flow  
生化需氧量 BOD  
懸浮固體 SS  
化學需氧量 COD  
總氮量 TN  
大腸桿菌 E.coli

圖 4.2 化學輔助一級污水處理廠及二級污水處理在 2002 至 03 年度符合法例要求的百分比  
Figure 4.2 Percentage Compliance in 2002/03 for CEPT and Secondary Treatment Plants

To measure performance and to guard against pollution, DSD has an intensive programme to monitor the quality of discharge at all of the Sewage Treatment Works. Effluent is sampled and tested. Anomalies are immediately identified, reported to EPD and corrective action made. Data are compiled and sent to EPD for reference every month. Some major sewage works such as Shatin, Tai Po and Sai Kung also have online sensors to monitor TSS, NH<sub>3</sub>-N, NO<sub>x</sub>-N of the final effluent.

DSD thoroughly complied with the EIA Ordinance in 2002/03. We carried out Environmental Monitoring and Audit work associated with Environmental Permits issued under the EIA Ordinance for new works.

本署聘請的承建商在 2002 至 03 年度，共有五宗與環境有關的達例事項被定罪。其中四宗是因為建築工地缺乏塵埃管制，一宗是由於建築工地排水超出《水污染管制條例》所規定的牌照規限。數目較去年的 13 宗為少。

## 環保辦公室

我們透過通函和布告板詳細向各級員工傳達良好辦公室實務的信息，呼籲他們節約用紙、能源和其他資源。這些信息的內容涵蓋紙張、影印機、電子郵件、電腦顯示屏、電腦打印機、光線、扶手電梯、空調和所有有關的辦公室器材和實務。我們每月監察紙張、電力和選定的文具等主要指標的耗用量，採用最佳採購辦法，並透過通函，向所有員工推廣這項信息。通函強調**四用原則**（物盡其用、廢物利用、循環再用和回收再用），並加以闡釋，令所有員工均能作合乎環保意識的採購。

我們的目標是在 2003 至 04 年度，把紙張耗用量和辦公室的用電量，分別減少 2.5% 和 1.5%。

## 員工發展

為裝備員工在執行本署工作時具備環保意識和認識，我們在 2002 至 03 年度曾參與 26 項有關環保知識和實務的訓練活動，包括一項專為本署設計的環境影響評估訓練。這項訓練是環境保護署一項計劃的其中部分，旨在讓政府人員熟悉環境評估工作和如何符合《環境影響評估條例》的規定。共有 21 位專業人員參加了這個工作坊。這項計劃會延續至 2003 至 04 年度。

我們會繼續培訓員工，使他們在提供服務方面，具備最佳的訓練、裝備和最完善的安排，並同時深諳環保規例和實務。

Contractors employed on DSD works contracts had five convicted environmental offences in 2002/03, four related to lack of dust control at construction sites and one on construction site drainage exceeding WPCO licensed limit. This was a drop from 13 in the previous year.

## Green Office

Good office practices in saving paper, energy and other resources are communicated in detail to all levels of staff through circular memorandum and notice boards. It embraces use of paper, photocopiers, electronic mail, computer monitor, computer printers, lighting, elevators, air conditioning, and all relevant office equipment and practices. Consumption of key indicators such as paper, electricity and selected stationeries are monitored on a monthly basis. Best Practices in procurement, which emphasized the **4R Principles** (Reduce, Reuse, Recycle & Recover), are adopted to achieve Environmental Goods Purchasing.

We target to reduce paper consumption by 2.5% and power consumption in the office by 1.5% in 03/04.

## Staff development

To empower our staff to do our job with environmental awareness and understanding, we supported 67 training events in 2002/03 on environmental knowledge and practices. This has included an EIA training tailor-made for DSD as part of EPD's programme to familiarize government officers in environmental assessment and compliance with the EIA Ordinance. 21 professional staff attended the workshop. The programme will extend into 2003/04.

We will continue to develop our staff to be best trained, best equipped, and best organized in delivering our service while being well conversant with environmental regulations and practices.



山貝河河口的紅樹林 Mangrove at the estuary of Shan Pui River



## 與各界溝通

我們一向努力保持本署工作有高的透明度。已建立並行之有效的溝通渠道包括環境諮詢委員會、立法會、區議會及鄉事委員會等。此外，為加深公眾對我們的了解，我們亦不時主動邀請不同背景的團體，如教育機構、專業團體及其他有興趣組織到我們的設施參觀。

本署工作的環保成效亦上載到渠務署在互聯網上的網頁，供公眾參閱。

## 環境風險的管理

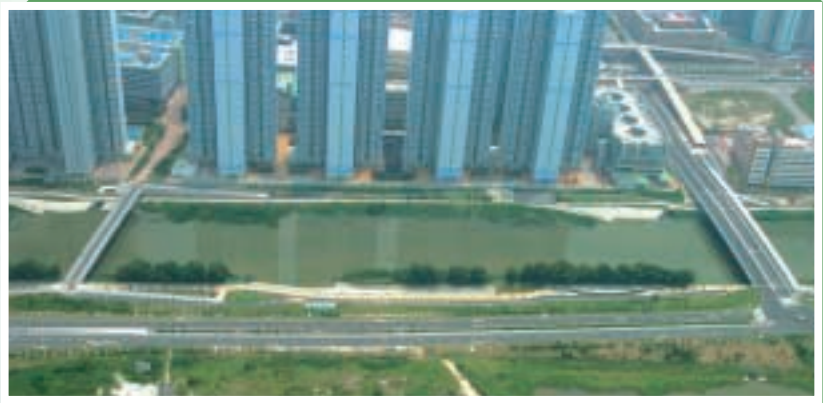
本署深明污水可造成污染，污水溢流可能對泳灘、海水甚至街道構成潛在威脅。所以各類設施均設計至避免發生故障。我們亦極重視部門的應急能力，以應付污水從污水收集系統，或污水處理廠任何一處溢流引致的問題。每一所污水處理廠和主要污水泵房均已制定應變計劃。我們與環境保護署早就污水繞流的分類、回應和呈報的指引達成協議，並已知會各有關辦事處。與環保署的溝通渠道非常清晰，聯絡電話清單亦經常更新。

我們進行視察、清理淤泥，並主動進行維修和改善工程，以確保我們的系統維持最佳狀態。在 2002 至 03 年度，我們檢查了 958 公里的污水渠、清理了 784 公里的污水渠，並從污水渠內清除了 10,045 立方米的淤泥。我們進行了 45 次海底排放管和隧道視察，並維修了 17 處發現有損毀的地方。

## Communication with Stakeholders

We endeavour to make our activities as transparent as possible to all stakeholders. Apart from well established communication channels with the Advisory Council on Environment, the Legislative Council, District Councils and Rural Committees, we also organize visits to our facilities by educational institutions, professional bodies and other interest groups so as to foster a better understanding of our work by the public.

This Environmental Performance Report is also placed on DSD Home Page on the Internet for public access.



## Management of Environmental Risks

Due to the polluting nature of sewage, DSD recognises the potential threat of sewage overflows that may affect bathing beaches and the sea or cause nuisance in the street. Sewerage systems and sewage treatment plants are designed to prevent failures. We also place immense emphasis to possess the readiness and ability to respond to overflow of sewage from anywhere in the sewerage system or the treatment works. Contingency Plans have been prepared for individual sewage treatment works and major pumping stations. Guidelines for classification, response and reporting of sewage bypass are agreed with the environmental authority and communicated to all relevant offices. The line of communication with the environmental authority is also clearly defined and telephone lists frequently updated.

Risk is minimised by inspection, desilting, proactive repairs and upgrading in order to ensure our system is in top performance. In 2002/03, 958 km of sewer were checked, 784 km of sewer were cleansed and 10,045 m<sup>3</sup> of silt were removed from sewers. 45 inspections of sewage outfalls and tunnels were made and 17 detected defects were repaired.

## 在建築工地和污水處理設施預防蚊子滋生

由於香港在去年年底爆發登革熱病，本署已採取一連串的行動，防止登革熱病在本署的建築工地和污水處理設施傳播，以便為工人和本署駐工地人員提供安全健康的工作環境，亦保障公眾的健康。

由於登革熱病主要由蚊子傳播，我們必須防止蚊子在建築工地和污水處理設施滋生。蚊子通常在積水裏滋生。為清除積水，我們採取了下列預防措施：—

- (a) 保持所有排水渠、水溝、暗渠、天台排水渠、簷溝和類似渠道暢通無阻；
- (b) 回填不需要的洞孔和坑槽，以防積水；
- (c) 蓋密所有儲水器皿、貯存缸、水井和沙井等；
- (d) 保持工地清潔，並每日清除建築或污水處理程序所產生的廢物（如油漆的空罐和柴油容器或其他可儲水的物品）和垃圾（如飯盒和塑膠瓶等）；
- (e) 定期清除明渠、沙井、隔沙池、溝渠格柵等的樹葉、垃圾、泥塊和碎石，以防積水；
- (f) 把大型容器倒置，以防雨水積聚，滋生蚊子；
- (g) 在防撞輪胎上鑽排水孔；
- (h) 若不能在短期內清理積水，須在其上注防蚊油；
- (i) 透過安全布告板、海報、工地座談等，讓所有在建築工地和污水處理設施工作的人員保持警覺；以及
- (j) 確保在任何時間，特別是在雨後，上述措施均行之有效。

## Prevention of Mosquito Breeding on Construction Sites and Sewage Treatment Facilities

With the outbreak of Dengue Fever in Hong Kong at the end of last year, our department has taken a course of actions to prevent the spread of this disease on our construction sites and sewage treatment facilities so as to provide a safe and healthy working environment to the workers and our site staff and protect the public health.



Since Dengue Fever is mainly transmitted by mosquitoes, it is essential to prevent mosquitoes from breeding on construction sites and sewage treatment facilities. Stagnant water is usually the breeding ground for mosquitoes. To remove stagnant water, the following preventive measures have been taken :-

- (a) keep all drains, ditches, culverts, roof drains, gutters and the like free from blockage,
- (b) backfill unnecessary holes and trenches to prevent accumulation of water,
- (c) cover tightly all water containers, storage tanks, wells, manholes, etc.,
- (d) keep works areas clean and remove wastes generated from construction or sewage treatment process (e.g. empty cans for paints and diesel containers or anything that may hold water) and rubbish (e.g. lunch boxes and plastic bottles etc.) daily,
- (e) to regularly remove leaves, debris, mud and gravel in surface channels, manholes, sand traps, gully traps, etc. to avoid water accumulation,
- (f) turn upside down large containers to prevent accumulation of rain water and breeding of mosquito,
- (g) make drain holes in rubber tyres used for collision absorption,
- (h) apply mosquito larvicidal oil to stagnant water that cannot be removed in a short time,
- (i) upkeep the alertness of everyone working on construction sites and sewage treatment facilities by safety bulletin board, posters, tool box talks and etc., and
- (j) maintain the above measures effective at all times, especially after rain.



要在建築工地有效對抗登革熱病，承建商和本署駐工地人員必須共同努力。承建商須在建築工地找出潛在積水地方並盡快採取糾正行動，而本署駐工地人員亦須擔當監察的角色，確保在問題未產生前已切實執行所有適當的預防措施。因此，工地安全管理委員會會議和工地安全委員會會議中，均已加入「有效控制蚊蟲滋生及清理積水」的議程項目，以便能有效監察防蚊工作的進展和成效。

至於污水處理設施方面，每名廠房人員進行每日操作和維修工作時，均須盡力確保工作場所沒有積水。防蚊的工作亦同樣由為主要污水處理設施而成立的安全管理委員會所監察。

防蚊工作已進行了超過半年，現已獲證實非常有效。至目前為止，建築工地和污水處理設施的清潔和衛生情況已明顯改善，而我們亦沒有接獲有關積水和／或登革熱病的報告。

To combat Dengue Fever on construction sites, the joint effort of the contractors and DSD's site staff are essential. Whilst the contractors are required to identify the potential water ponding areas on the construction site and to take prompt rectification action, our site staff are also required to play a monitoring role to ensure that all suitable preventive measures are effectively implemented before the problem arises. As such, an agenda item on "effective mosquitoes control and removal of stagnant water" has been included in all Site Safety Management Committee Meetings and Site Safety Committee Meetings to effectively monitor the progress and result of mosquito prevention work.

As regard to sewage treatment facilities, every plant staff has to take part in maintaining the workplace free of ponding water during their daily operational and maintenance activities. Similarly, the mosquito prevention work was monitored by the Safety Management Committees established for major sewage treatment facilities.

The mosquito prevention work had been implemented for more than half a year and was proven effective. Up to the present, the cleanliness and hygiene condition of construction sites and sewage treatment facilities had been noticeably improved and no ponding water and/or Dengue Fever cases were reported.



## 改善建築工地的意外頻率

本署致力推廣工作安全，以防止意外發生。我們在過去數年一直採取有效的措施，包括設立安全管理系統、制定安全指引及程序、提供安全訓練和安全推廣活動等。經本署所有人員共同努力，我們成功把建築工地每100,000個工時的意外頻率由2000年6月高峰期的2宗須呈報意外，減少至2003年6月的0.5宗，遠較環境運輸及工務局所訂的目標頻率1.25宗為低。

## Reduction of Accident Frequency Rate of Construction Sites

The department is committed to promoting safety at work with a view to preventing accident. We have been implementing effective measures including the establishment of safety management systems, formulation of safety instructions and procedures, provision of safety training, safety promotional activities etc. in the past few years. With the concerted effort of everyone in the department, we have successfully reduced accident frequency rate of construction sites from the peak of 2.0 reportable accident per 100,000 man-hours worked in June 2000 to 0.5 in June 2003, which is well below the target rate of 1.25 set by the Environment, Transport and Works Bureau.

