

# 4 重視環保

Environmental  
Performance



一如政府其他部門，本署有責任每年都向公眾匯報過去一年關於渠務署的環保工作表現。由於上年的匯報方式証實十分成功，二〇〇一/〇二年度環保報告亦包含在渠務署年報之內，成為第二度出版年報的其中一章。

*Similar to other Government departments, we are obliged to report annually to the general public regarding our environmental performance. In line with what we did last year which proved to be very successful, this year we again choose to discharge our duty in this regard through incorporating our environmental performance in year 2001/02 as a chapter in the department's second annual report.*

## 環保目標及政策

一直以來，本署致力為市民大眾，提供最切合環保原則的服務。現謹重申此項承諾，並羅列渠務署的環保目標及政策如下：

1. 提供和操作世界級的污水 / 排水系統與及污水處理 / 排放設施，務求滿足本港市民在這方面與日俱增的需要，為香港的持續發展出一分力。
2. 與環境保護署等各個政府部門攜手合作，採取專業方式以實施污水收集、處理及排放計劃，使能達致本港水域的水質指標。
3. 以專業方式實施排水和防洪計劃，力求減少洪患，令本港環境及居民的生命財產獲得保障。

我們承諾在每一項工程活動和日常提供的服務中，對環保因素多加兼顧考慮，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，盡量減低署內各項設施系統對香港環境所造成的影響。為達成此等目標，我們致力於：

## Environmental Goals and Policy

To reaffirm our commitment of providing the community with the best environmental service, we set the departmental environmental goals and policy as follows:

1. To provide and operate world-class sewerage/drainage systems and sewage treatment/disposal facilities to fulfil the growing needs of the local community and to contribute to the sustainable development of HK.
2. To implement sewerage and sewage treatment/disposal programmes in a professional manner, in partnership with other Government establishments including the EPD, and to meet the Water Quality Objectives for HK waters.
3. To implement drainage and flood protection programmes in a professional manner, to minimize flooding, and to provide protection to local inhabitants, property and the environment.

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

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



- 採納最先進的低污染技術及預防污染措施；
- 在工程設計、建造及操作過程中，儘可能顧及環保因素，冀能減少污染、節約資源；
- 盡量減少、紓緩本署各建造工程及設施操作過程中對環境所產生的負面影響；及
- 全面遵守符合環保法例以及一切有關的其他要求。

我們致力確保全體職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，使能貫徹執行這政策。

### 環保職能及工程活動

從宏觀角度來說，本署的種種工作和工程活動，差不多都與香港市民的起居作業息息相關。我們致力於保障大眾免受嚴重水患之苦，並且務求令各類污水都得到妥善的收集、處理和排放，好讓普羅市民獲得足以安居樂業的生活環境。與此同時，由於本署的工作保育環境，減低污染負荷，以致社會整體可從而享受不少直接及間接的環保效益。不過，任何渠務設施都建造需時，市民在施工期間，可能會遇到噪音、氣味和景觀等各種滋擾。此外，當設施順利建成後，無論是污水收集 / 排水系統、或是污水處理廠的日常操作及維修，皆難以避免地可能對環境產生各樣負面影響，有待我們設法加以紓緩。

- Adopting state-of-the-art clean technologies and pollution prevention measures;
- Incorporating environmental considerations, whenever practicable, into our design, construction and operation in order to prevent pollution and maximize resource conservation;
- Minimizing and mitigating environmental impacts arising from the construction and operation of our facilities; and
- Complying with legal and any other requirements to which DSD subscribes.

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.

### Environmental Functions and Activities

From a macro perspective, virtually all our work and activities are crucial to the well being of the HK community as they contribute towards an inhabitable environment in which people are protected from major flooding and all wastewater is properly conveyed, treated and disposed of. Significant direct and indirect environmental benefits can be derived from a better-preserved environment with less pollution. Nonetheless, during the construction phase, the public may encounter temporary adversities such as construction noise, odour and visual impacts etc. Furthermore, after construction, the day-to-day operation/maintenance of our sewerage/drainage system and treatment works would inevitably continue to exert a multitude of adverse impacts that must be alleviated.





## 環保表現和改善目標

渠務署的工作和運作，多半會對環境構成有形、無形的種種影響，倘要加以論述，部分環保表現，委實不易量化表達，有些則未必需要刻意闡釋。以本署的污水收集 / 排水系統及各個處理設施為例，它們的存在和無時無刻所發揮的功用，對保護環境貢獻良多，但卻難以具體量度描述。另一方面，部分本署在污水處理 / 排放工作上所取得的種種成效，已在環境保護署的環保報告內闡述明白，自然無需在此重覆論及。無論如何，本署的環保表現，亦可藉著我們所操作的 58 間污水處理廠（包括：初級處理廠 24 間、一級處理廠兩間、化學輔助一級處理廠一間、及二級處理廠 31 間）的水質化驗數據而略見端倪。從圖 4.1 可見，在二〇〇一年年度，化學輔助一級處理、及主要二級處理設施排放水的平均水質，接近百分百符合排放要求。儘管成績斐然，但個別廠房仍有強差人意之處。正如過往環保報告已指出，倚賴生物處理方式的沙田污水處理廠，現時正承受著污染負荷過重的困擾，間或無法全面達致處理要求。為此，我們已開展有關的改善工程，預計第一期工程可於二〇〇四年內完成。

## Environmental Performance and Improvement Targets

Although many aspects of our work have environment implications, not all of them can be quantified easily or will necessarily be reported here. For instance, those intangible benefits that the presence and functioning of our sewerage/ drainage systems and treatment facilities brings to the environment cannot practically be measured. On the other hand, some tangible benefits consequential to our treatment and disposal efforts were reported separately in the environmental report of EPD and will not be duplicated here. In any case, to reveal our environmental performance, a usable indicator would be the measured effluent quality of our 58 treatment plants (including 24 preliminary, 2 primary, 1 CEPT and 31 secondary plants) operated by us. As shown in Figure 4.1, the average effluent qualities of our CEPT and major secondary treatment works in 2001 were very close to 100% meeting the discharge requirements. Despite this notable achievement, as disclosed in our last report, the biological treatment-based Shatin STW has continued to suffer from overloading problems and occasionally encountered difficulty in achieving the treatment target. In view of this, corresponding upgrading works have been initiated and phase I works are due for completion in 2004.

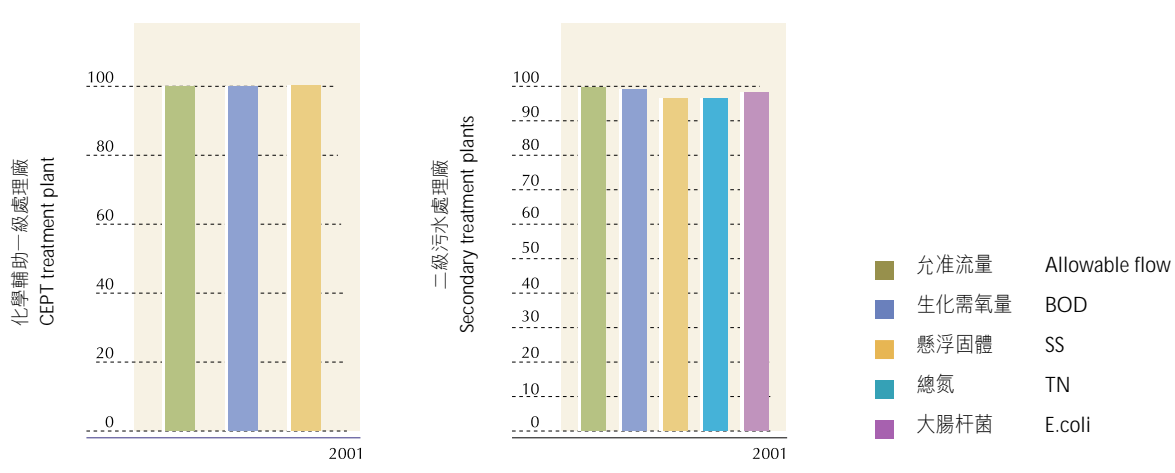


圖 4.1 化學輔助一級污水處理廠及二級污水處理廠平均水質達標的百分率 (二〇〇一年)  
Figure 4.1 Percentage Compliance in 2001 for CEPT and Secondary Treatment Plants

為求確保本署各污水處理廠的運作能夠持續全面符合標準規定，我們採取了以下多項措施：

- 在符合經濟效益的前提下，不斷擴展污水收集服務範圍及加強污水處理能力；
- 逐步更新陳舊與過時的設施；
- 巡查及更正非法接駁的渠管，減少過量超標污水湧入設施；
- 定期維修廠房設施，減低發生故障機會；
- 為所有設施個別制定及執行應變計劃；
- 與環保署及其他政府部門合作無間，共同迅捷有效地處理污染事故。跨部門執行的「海灘污染應變計劃」即其中一例；及
- 推廣公眾教育活動。

我們重視公眾的知情權，社會人士知悉本署為提高環保表現而推行的各項計劃及現今進度。因此，下文將論述有關我們各項主要環保目標和工作指標，範圍涵括：日常管理工作和污水及排水系統的建造和操作、以及環保管理。



To ensure full compliance of our STWs both now and in future, we continue to implement the following tasks:

- expanding our sewerage coverage and upgrading our treatment capacity as far as economically viable;
- progressively upgrading obsolete and defunct facilities;
- conducting inspections to uncover/remove illegal cross-connections which cause inflow of wastewater of unacceptable quantity and strength into our facilities;
- regularly maintaining our plant and equipment to minimize occurrence of breakdowns;
- devising and implementing Contingency Plans at all of our facilities;
- working closely with other Government departments, especially the EPD, and implementing joint initiatives, e.g., the Beach Pollution Response Plan for responding promptly/effectively to pollution incidents; and
- undertaking public education initiatives.

We consider it important to keep the public informed of the progress on our various programmes initiated for enhancing environmental performance. Major environmental objectives and targets, which encompass general management, construction and operation of the sewerage and drainage systems, as well as green management, are presented below.



在精簡日常管理工作方面，我們致力於設立優質管理制度和環保管理制度（QMS 和 EMS），並且在整個部門內逐步實施推廣。從管理角度而言，成功推行 QMS，實在是推行 EMS 的基礎。在一九九九年夏季，本署各化驗室已率先取得 HOKLAS 認證。另外，有關我們轄下七個部門的 ISO 9000 認證計畫，其中兩項已於二〇〇一年成功取得。至於其餘五項與及整體機構證書，我們預期將於二〇〇二年年底完成。至於 ISO 14001 方面的認證，大埔污水處理廠已率先於二〇〇一年二月，為本署取得 EMS 的首項認證。在累積足夠實踐經驗和掌握所需資源後，我們盼望能陸續把此項認證推展至部門內其他廠房設施。表 4.1 所示，乃本署現時為著增進環保表現而推行的管理措施摘要。

In streamlining general management, we are committed to establishing and implementing Quality and Environmental Management Systems (QMS and EMS) progressively throughout the department. The acquisition of a QMS serves as the building block for an EMS. As an initial step, our laboratories have acquired HOKLAS accreditation in the summer of 1999. For the seven divisional ISO 9001 certifications that we plan to acquire, two have been completed successfully and on schedule in 2001. For the remaining five as well as the Corporate Certification, they are expected to be completed by the end of 2002. Regarding ISO 14001 certification, our Tai Po STW received the first EMS certification for DSD in February 2001. When more experience is accrued and resources become available, we hope to extend such certification progressively to other works of the department. A summary of the current management initiatives is shown in Table 4.1.

目標 Objective	工作指標 Target	進度 Progress
在渠務署內逐步全面推行優質管理制度和環保管理制度 Progressively implementing QMS and EMS throughout DSD	於 2002 年，渠務署整體取得 ISO 9001 認證 To acquire ISO 9001 certification for the whole department by 2002	如期進行。兩項認證如期於 2001 年完成，另外五項將於 2002 年完成。計劃於 2002 年取集團證書 On schedule. 2 certifications completed in 2001 and 5 to be completed by 2002 respectively. Acquisition of Corporate Certificate expected by 2002
	於 2001 年年中，大埔污水處理廠取得 ISO 14001 認證 To acquire ISO 14001 certification for the Tai Po STW by mid-2001	提早完成。大埔污水處理廠於 2001 年 2 月獲取 ISO 14001 認證 Successful completing of ISO 14001 certification for Tai Po STW in Feb 2001 and ahead of schedule

表 4.1 為增進環保表現而推行的管理措施  
Table 4.1 Management initiatives for improving environmental performance

有關污水系統方面，我們不斷制定及推行各項改善計劃。表4.2所示，乃近期推行的各項計劃摘要。

Regarding enhancement of the sewerage system, programmes have progressively been initiated and implemented. The current ones are summarized in Table 4.2 below.

目標 Objective	工作指標 Target	進展 Progress
不斷改善本港的污水收集系統 Continue to improve the sewerage system in HK	於 2001 年完成東九龍污水收集整體計劃 Completing the East Kowloon SMP by 2001	滿意地如期完成 Works completed satisfactorily and on schedule
	於 2003 年完成西北九龍污水收集整體計劃 Completing the North-West Kowloon SMP by 2003	如期進行 On schedule
	於 2005 年完成荃灣、青衣及葵涌污水收集整體計劃 Completing the Tsuen Wan, Tsing Yi & Kwai Chung SMP by 2005	如期進行 On schedule
	於 2006 年完成中區、西區及灣仔西污水收集整體計劃 Completing the Central, Western & Wan Chai West SMP by 2006	如期進行 On schedule
	於 2006 年完成香港仔、鴨脷洲及薄扶林污水收集整體計劃 Completing the Aberdeen, Ap Lei Chau & Pok Fu Lam SMP by 2006	如期進行 On schedule
	於 2007 年完成屯門污水收集整體計劃 Completing the Tuen Mun SMP by 2007	因村民反對而延誤。環境保護署現正檢討修訂有關計劃 Delay caused by continued villagers' objection. Programme under review by EPD
減少經常性渠道淤塞次數 Minimize the number of recurrent blockage incidence	將每公里渠道(雨水渠和污水渠)接獲投訴次數，減至相等或低於目前的每公里 11.8 宗 Working towards minimizing complaints received per km of pipe (drain + sewer) to be equivalent to or below the current rate of 11.8 per km	達標。2001 年的統計數字是每公里 10.2 宗 Meeting target, the rate achieved for year 2001 is 10.2 per km
減低由於渠道淤塞而造成的環境影響 Minimize environmental impacts arising from blocked sewers	有關回應和解決塞渠問題 / 投訴，達致更佳的服務承諾 (目前的成功率為 99%) Further improving on our Performance Pledge (currently 99% success rate) for responding to, and resolving blockage/complaints	達標。2001 年的成功率為 99% 以上 Meeting target, the success rate achieved for year 2001 is over 99%





目標 Objective	工作指標 Target	進展 Progress
<p>改進污水處理廠的操作表現和污水處理水平 Improve STW operational performance &amp; levels of treatment</p>	<p>於 2001 年年底，完成石湖墟污水處理廠改善工程（加建曝氣/最後沉澱池、消化池及紫外光消毒系統） Completing upgrading works at Shek Wu Hui STW (adding aeration/final setting tanks, digester and UV system) by late 2001</p> <p>2009 年完成沙田污水處理廠改善工程（加建處理設施、紫外光消毒系統及污泥脫水設施） Completing upgrading works at Shatin STW (adding treatment units, UV system and sludge dewatering plant) by 2009</p> <p>2004 年為主要污水處理廠完成包括綠化的景觀改善工程 Aesthetic improvement including landscaping at major STWs by 2004</p> <p>持續檢討污水處理廠的運作狀況，減少可能出現的負荷過重問題及避免導致超標排放 On-going review of STW operations to identify ways to resolve potential overloading problems and to minimize the occurrence of discharge non-compliance</p>	<p>於 2001 年 8 月如期完成 On schedule and completed in August 2001</p> <p>第一期工程合約於 2001 年年初開始，預計可提早於 2007 年完成一切改善工程 First works contract commenced in early 2001. We anticipate completion of all upgrading works by 2007</p> <p>如期進行，數個丁級工程已獲批准，並於今年開始動工 On schedule. Several Cat. D items approved and works commenced this year</p> <p>持續進行。沙田處理廠已於 2001 年安裝新式空氣擴散器和污泥刮板，冀能減輕負荷過重問題。此外，作為臨時措施以改善排放水水質的泡沫清除/抑制設備，已於 2002 年年初投入運作 On-going. At Shatin STW, new air diffuser and sludge scraper installed in 2001 to alleviate overloading problem. Foam removal/suppression facilities added in early 2002 also as interim measure to improve effluent quality</p>
<p>減低能源消耗 Reduce energy consumption</p>	<p>確保本署所有設施的用電收費，自 2000 年起調整至適當繳付模式 Ensuring our facilities all operate on appropriate tariff rate by 2000</p> <p>大埔污水處理廠以生物氣體鍋爐代替電力鍋爐 Replacing electric water boiler by gas boiler using biogas as fuel at Tai Po STW</p> <p>2004 年為元朗污水處理廠更換曝氣設備，冀能提高氧氣轉移效率及節省能源 Replacement of aeration domes at Yuen Long STW by 2004 to enhance oxygen transfer efficiency and saving energy in turn</p> <p>為西貢污水處理廠進行改善工程，冀能減低淤泥漲浮問題及節省曝氣所需空氣和能源 Modification works at Sai Kung STW to resolve sludge bulking problem and to reduce aeration/energy demand for chemicals</p>	<p>本署所有設施的用電收費已調整至適當繳付模式 All our facilities are now operating on appropriate tariff rate</p> <p>如期進行，工程於 2001 年 11 月完成，每年節省電費三十萬元 On schedule. Works was completed in Nov 2001, resulting in annual electricity bill saving of \$0.3 M</p> <p>如期進行 On schedule</p> <p>如期進行，已於 2002 年年初完成 On schedule and completed in early 2002</p>



目標 Objective	工作指標 Target	進展 Progress
減低化學品消耗 Reduce chemical consumption	於 2000 年為污水處理廠所採用的各種消毒系統開展可行性研究，尋找耗用較少化學品的消毒方案 Initiating feasibility studies in 2000 to examine alternative disinfection systems at STWs to reduce the use of chemicals	如期進行。赤柱處理廠已為多點加氯方案推行全面測試 On schedule. At Stanley STW, full-scale trial on multi-points chlorine dosing method was conducted
	進行開發研究，尋找能源效率高、低污染而又具成本效益的消毒技術 Conducting a research and development programme on disinfection techniques to identify energy efficient, clean and cost-effective technologies	如期進行。我們探討了以臭氧、電力化學及紫外光消毒技術。研究於 2002 年繼續進行 On schedule. Alternative techniques including ozone, electrochemical and UV disinfection have been examined. Studies extended into year 2002

表 4.2 為增進環保表現而推行的污水系統改善擴建措施  
Table 4.2 Sewage system enhancement initiatives for improving environmental performance



在水底操作中的紫外光燈  
Submerged UV lamps in operation

有關排水系統方面，我們亦不斷制定及推行各項改善計劃。表4.3所示，乃近期推行的各項主要計劃摘要。

Regarding enhancement of the drainage systems, various programmes have been progressively initiated and implemented. The current major ones were summarized in Table 4.3 below.

目標 Objective	工作指標 Target	進展 Progress
<p>減低治河、防洪及排水工程的景觀影響 Visual enhancement of river training works, flood protection schemes and drainage channels</p>	<p>於 2001 年年中前制訂指引，確保未來排水和防洪工程計劃會顧及環保因素 Formalizing inventory and procedures to ensure the incorporation of environmental features into drainage and flood protection works by mid-2001</p>	<p>如期進行。已於 2001 年 5 月完成制訂指引 On schedule and completed in May 2001</p>
<p>減少水浸黑點 Minimize the number of flooding black spots</p>	<p>藉著下列各項排水改善工程以減少水浸黑點： Reducing the number of flooding black spots through the implementation of major drainage improvement projects, including:</p> <ul style="list-style-type: none"> <li>• 2001 年年底前，完成梧桐河修復工程 rehabilitation works at River Indus (Ng Tung R.) by end 2001;</li> <li>• 2001 年年底前，完成雙魚河修復工程 rehabilitation works at River Beas (Sheung Yue R.) by end 2001;</li> <li>• 2002 年年中前，建成牛潭尾第一期的主要排水渠 main drainage channels for Ngau Tam Mei phase 1 by mid 2002;</li> </ul>	<p>如期完成 Substantially completed and on schedule</p> <p>如期完成 Substantially completed and on schedule</p> <p>由於天氣惡劣和承建商表現欠佳，完工日期延至 2003 年年中 Completion date delayed to mid 2003 due to inclement weather plus unsatisfactory contractor performance</p>

目標 Objective	工作指標 Target	進展 Progress
減少水浸黑點 Minimize the number of flooding black spots	<ul style="list-style-type: none"> <li>2002年年中前，完成壘圍及橫洲的第一期鄉村防洪計劃</li> <li>phase 1 village flood protection for Pok Wai &amp; Wang Chau by mid 2002;</li> </ul>	<p>工程提前於2002年4月完成</p> <p>Works completed in Apr 2002 and ahead of schedule</p>
	<ul style="list-style-type: none"> <li>2002年年底前，建成元朗及錦田第二期的主要排水渠</li> <li>main drainage channels for Yuen Long &amp; Kam Tin stage 2 by end 2002;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2003年年中前，完成竹園村及下新圍的鄉村防洪計劃</li> <li>village flood protection for Chuk Yuen Tsuen &amp; Ha San Wai by mid 2003;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2004年年底前，完成西九龍雨水排放系統第一及第二階段(第一期)改善工程</li> <li>West Kowloon drainage improvement works stage 1 &amp; stage 2 (phase 1) by end 2004;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2004年年底前，完成元朗，錦田和牛潭尾鄉村防洪計劃第一期工程</li> <li>village flood protection for Yuen Long, Kam Tin &amp; Ngau Tam Mei stage 1 by end 2004;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2002年年中，完成米埔老圍/米埔新村，馬田村及水邊圍的鄉村防洪計劃</li> <li>Village flood protection for Mai Po Lo Wai/Mai Po San Tsuen, Ma Tin Tsuen &amp; Shui Pin Wai by end 2002;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2005年年中前，完成平原河鄉郊排水系統修復計劃</li> <li>rural drainage rehabilitation scheme for River Ganges (Ping Yuen R.) by mid 2005;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2005年年中前，完成新界西北鄉郊排水系統修復計劃</li> <li>rural drainage rehabilitation for NWNT by mid 2005;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2005年年中前，完成元朗，錦田，牛潭尾和天水圍第一階段第一期的雨水排放系統改善工程計劃</li> <li>Yuen Long, Kam Tin, Ngau Tam Mei &amp; Tin Shui Wai drainage improvement stage 1, phase 1 by mid 2005;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2005年年中前，完成治理深圳河第三階段工程</li> <li>regulation of Shenzhen River stage 3 by mid 2005;</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2005年年底前，完成新田的東面主要排水渠</li> <li>eastern main drainage channel for San Tin by end 2005; and</li> </ul>	<p>如期進行</p> <p>On schedule</p>
	<ul style="list-style-type: none"> <li>2005年年底前，完成元朗排水繞道工程</li> <li>the Yuen Long bypass floodway by end 2005;</li> </ul>	<p>如期進行</p> <p>On schedule</p>

表 4.3 為增進環保表現而推行的排水系統改善擴建措施

Table 4.3 Drainage system enhancement initiatives for improving environmental performance



有關環保管理方面，我們所取得的成果，已記錄在環保經理年報內，這方面的努力主要包括：節省能源/紙張、廢物盡量循環再用，以及減少產生廢物等。除了上述一般措施外，我們另有特定目標，現列於表 4.4 如下。

In green management, we recorded our efforts in the reduction of energy/paper consumption, reusing/recycling where possible and the avoidance of wastage etc. in the annual Green Manager's Report. Further to the general initiatives, noteworthy targets are highlighted in Table 4.4 below.

目標 Objective	工作指標 Target	進展 Progress
<p>提高本署職工的環保意識 Enhance the environmental awareness of the staff</p>	<p>每年檢討及推行提高環保意識的培訓活動 Reviewing &amp; implementing environmental awareness and training programmes annually</p> <p>不斷提醒及鼓勵員工節約能源及減少浪費 Ongoing enhancement of staff awareness to conserve energy and to avoid wastage</p>	<p>每年為職工提供種種常設及專題訓練課程，例如：工程畢業生持續專業進修課程。署內工程師亦可參加包括：ISO 14001、噪音管制、生態環境和自然資源保護等各類研討會/課程 Recurrent and ad hoc training have been provided annually to our staffs, e.g. Continuing Professional Development Course for engineering graduates. Engineers were also sent to attend courses such as ISO 14001, noise control, ecology &amp; conservation etc.</p> <p>藉著各種佈告及行政通告，提醒職工注重環保 Through notices and Administrative Circulars, our staffs were constantly reminded to be environmentally conscious</p>
<p>盡可能選購環保產品 Maximize our purchase of Green Products</p>	<p>2000年內檢討採購政策，研究可否增購環保產品 Reviewing purchasing policies in 2000 to identify opportunities for increasing the purchase of Green Products</p>	<p>自 2000 年起，全面採用內有 50% 再造紙漿的不含氯環保紙張 Chlorine free paper that contain 50% recycled pulp has been in use since year 2000</p>
<p>確保本署建築物能符合香港室內空氣質素指標 Strive to meet HK's objectives on Indoor Air Quality (IAQ) at our premises</p>	<p>定期進行室內空氣質素審核，確保本署建築物的空氣質素維持在可接受水平 Conducting regular IAQ audits, to ensure satisfactory air quality continues to be maintained at our premises</p>	<p>兩年一度進行室內空氣質素審核 IAQ audits conducted once every two years</p>





赤柱污水處理廠開放日  
Stanley sewage treatment works open day

目標 Objective	工作指標 Target	進展 Progress
<p>監控本署聘用承建商的環保表現 Monitor the environmental performance of our contractors</p>	<p>透過合約條款和定期評核，嚴密監管承建商工作表現 Close monitoring of contractors through enforcement of contract terms plus regular appraisal of their performance</p>	<p>持續進行。對承建商的各項環保要求，除了在合約內清楚列明外，更有嚴密監管，並且按季評核工作表現。表現欠佳者即被警告和處分 On-going. Requirements for contractors were stipulated in contracts and performances were monitored closely and appraised quarterly. Poor performance will receive warning and penalty</p>
<p>提高市民大眾的環保意識 Enhance the environmental awareness of the general public</p>	<p>舉辦富教育性的展覽和開放日 Exhibition and open day for educational purpose</p>	<p>於2002年1月舉辦展覽和開放日，超過700人參觀赤柱污水處理廠，本署專業人員介紹污水處理廠的日常運作。而在開放日填妥的問卷中，亦得到良好的回應。 Exhibition and open day held in January 2002. Over 700 people visited the Stanley STW. Our professional staff briefed the visitors the operation of the STW. Positive feedbacks were received in the questionnaire survey conducted at the open day.</p>

表 4.4 為增進環保表現而推行的環保管理措施  
Table 4.4 Green initiatives for improving environmental performance

## 減少及紓緩環境影響

本署的一切工作，目的在於服務社會，改善環境。然而，我們的各項設施，無論在建造、運作及維修保養方面，卻又無可避免地會引致諸如破壞景觀、產生噪音或氣味等不良影響，亦有可能損害動植物賴以棲息生存的自然環境。為了紓減本署各項活動所衍生對環境的負面影響，我們制定了一系列紓緩措施，現具列於表 4.5 如下

## Environmental Impacts Minimization and Mitigation

Whilst all our activities are geared for serving the community and would produce beneficial impacts, the construction/operation/maintenance of our facilities inevitably brings about adverse environmental effects. They can be visual intrusion, noise or odour as well as loss of natural habitats etc. To alleviate these potential impacts of our activities, we have developed mitigating measures as shown below in Table 4.5.

環境因素 Environment Implication	工程活動 Activity	紓緩措施 Mitigation Measure
景觀影響 Visual impact	建造泵房、污水處理廠及排水道 Building pumping stations, treatment works & drainage channels	<ul style="list-style-type: none"> <li>透過設計，令設施／渠道的外觀與環境協調</li> <li>Designing facilities and channels to blend in with the environment</li> <li>綠化處理設施及防洪系統周圍的環境</li> <li>Planting greenery around treatment facilities and flood protection systems</li> <li>疏浚及清除淤塞沙石廢物</li> <li>Removal of blockages and debris</li> </ul>
噪音影響 Noise impact	建造工程 Construction works	<ul style="list-style-type: none"> <li>採用無坑挖掘技術敷設管道</li> <li>Adopting trenchless technology for pipe-laying works</li> <li>按需要為施工器械裝置隔音屏</li> <li>Shielding construction equipment with acoustic screens as appropriate</li> </ul>
	設施運作 Facility operation	<ul style="list-style-type: none"> <li>按需要為吵耳工序裝置圍板或隔音屏</li> <li>Shielding noisy operations with enclosures or acoustic screens as appropriate</li> <li>採用低噪音的設施和器械</li> <li>Using silenced plant &amp; equipment</li> <li>推行良好作業管理及維修保養措施</li> <li>Adopting good housekeeping &amp; maintenance measures</li> </ul>
氣味影響 Odour impact	設施運作 Facility operation	<ul style="list-style-type: none"> <li>按需要密閉作業場地</li> <li>Enclosing operations as appropriate</li> <li>以活性炭、濕法洗氣及生物過濾等方法辟除氣味</li> <li>Using deodorizing techniques such as activated carbon, wet scrubbing and bio-filtering</li> <li>推行良好作業管理及維修保養措施</li> <li>Adopting good housekeeping &amp; maintenance measures</li> <li>疏浚及清除淤塞沙石廢物</li> <li>Removal of blockages and debris</li> </ul>
土地使用 Land-use	建造污水泵房和處理廠 Building pumping station & treatment works	<ul style="list-style-type: none"> <li>盡可能建造多層建築物以減少佔地</li> <li>Constructing multi-storeyed buildings as appropriate to minimize land-use</li> </ul>



環境因素 Environment Implication	工程活動 Activity	紓緩措施 Mitigation Measure
資源使用 Resource use	敷設管道工程 Pipe-laying works	<ul style="list-style-type: none"> <li>• 謹慎選用物料以延長管道使用壽命。例如：翻用作為管座的石材，適當採用環氧樹脂套管及抗蝕劑</li> <li>• Careful selection of lining &amp; material to prolong pipe longevity including reuse of rock aggregates as piping support, choosing epoxy resin lining and/or corrosion suppressant as appropriate</li> <li>• 優先選用本地出產物料以減免長途運輸時所衍生的污染</li> <li>• Preferential use of locally obtainable material to avoid pollution arising from distant transportation</li> </ul>
	設施運作 Facility operation	<ul style="list-style-type: none"> <li>• 採用具能源效益的設施器械以節約能源，例如：裝置有變速驅動器的設備</li> <li>• Using energy efficient plant &amp; equipment, such as those with variable speed drive, to conserve energy</li> <li>• 儘量利用污水處理廠所產生的沼氣作為輔助能源</li> <li>• Exploiting biogas generated by STW where practicable and using this as a supplementary power source</li> <li>• 儘量把經過處理的污水循環再用以減少耗水量</li> <li>• Reusing treated effluent where possible to minimize water consumption</li> <li>• 以線上監控系統令設施維持於最佳運作狀態</li> <li>• Using on-line monitoring systems to gauge performance and ensuring optimal operation</li> <li>• 採用壓縮技術以減少棄置於堆田區的污泥量</li> <li>• Adopting volume-reducing techniques to minimize quantity of sludge to be disposed of at landfills</li> </ul>
水質變壞 Water quality deterioration	排水道及防洪設施的建造和操作 Construction & operation of channels and protection schemes	<ul style="list-style-type: none"> <li>• 避免讓廢物和營養物在水中污染擴散</li> <li>• Minimizing the dispersion of waste and nutrients to the aquatic environment</li> <li>• 疏浚及清除淤塞沙石廢物</li> <li>• Removal of blockages and debris</li> </ul>



環境因素 Environment Implication	工程活動 Activity	紓緩措施 Mitigation Measure
危害及破壞生態環境 Loss and/or impairment of habitat	工程規劃至完工階段 Planning through to implementation	<ul style="list-style-type: none"> <li>• 廣植樹木，鞏固河堤 • Planting of vegetation to stabilize embankments</li> <li>• 防洪渠的斜面植草固坡 • Grasscreting the slopes of drainage channels</li> <li>• 種植紅樹林 • Culturing mangroves</li> <li>• 重置受影響的魚塘 • Reinstating fishponds</li> <li>• 保存廢置的曲流河段 • Conserving disused meanders</li> <li>• 闢設濕地以補償受損的生態環境 • Wetland planting to make up for lost habitat</li> </ul>

表 4.5 為減低環境影響及提高環保表現而採取的措施  
Table 4.5 Measures to minimize impacts and to enhance environmental performance

此外，在進行特定的《指定工程》項目時，本署為確保符合《環境影響評估條例》的規定，必定進行環境影響評估，藉以鑑定評估工程施工及設施運作時可能衍生的負面影響，從而在設計、建造及運作等各個工程階段，制訂相應的紓緩措施。

In addition, in compliance with the Environmental Impact Assessment Ordinance (EIAO), we conduct EIA studies for Designated Projects to identify and assess any potential impacts that may arise from our construction and operation activities. Mitigating measures can therefore be incorporated at an advanced stage into all phases of design, construction and operation works.



在銅鑼灣軒尼詩道進行噪音測試  
Base line noise monitoring at Hennessy Road, Causeway Bay



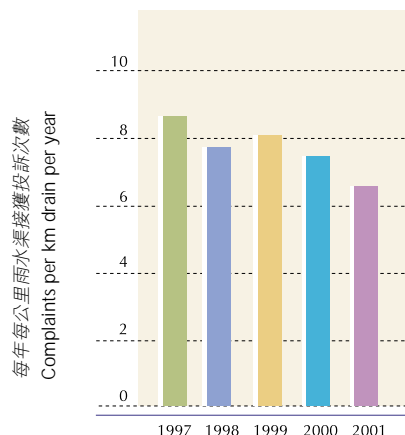
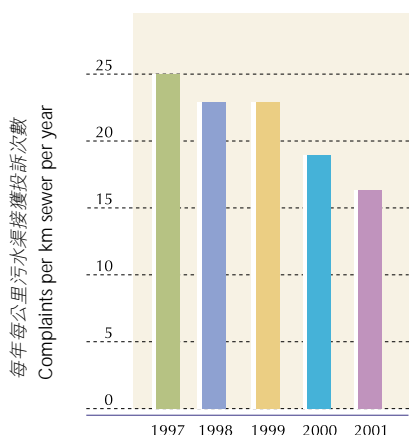


圖 4.2 近年污水渠 / 雨水渠按每公里計接獲投訴次數  
Figure 4.2 Number of complaints received per km of sewer/drain

### 預防性維修與緊急應變措施

為了減免渠道淤塞，本署職工經常巡查污水收集系統，進行清理維修工程。同樣地，為了減少發生水浸，我們亦推行了各項預防性維修措施如下：

- 定期巡查河道及雨水渠，並透過閉路電視以監察現況；
- 定期清理淤積於河道和雨水渠的淤泥、廢物及沙石；及
- 未雨綢繆，進行疏浚，擴建河道和雨水渠工程。

為求有效率地處理污水渠 / 雨水渠淤塞投訴，本署於一九九七年設置了有關的電腦數據庫，以便我們能夠迅速掌握淤塞情況，從而安排快捷維修應變行動。按圖4.2所示，縱然近年來市民大眾的舉報意識有所提高，但每公里渠道所接獲的淤塞投訴次數，大體上仍有減少的趨勢。

### Preventive Maintenance and Emergency Response

To minimize sewer blockage, we carried out frequent inspections, clearance and maintenance of the sewerage system. To minimize flooding, we have implemented a preventive maintenance programme which consists of:

- regular inspections of all river channels and drains by visual observation as well as closed-circuit television;
- regular desilting works and removal of wastes and debris in river channels and drains; and
- proactive repairing and upgrading of river channels and drains.

To ensure prompt response to any reported blockages in sewers/drains, a computerized database system has been established since 1997 that enables us to identify trends of blockages quickly and to prioritize effective maintenance activities. Figure 4.2 demonstrates that, notwithstanding increased public awareness in recent years, the numbers of complaints received per kilometre of sewer and drain both show a declining trend.



## 安全與健康

渠務署對轄下各項污水 / 排水設施及建築地盤的工業安全問題，均極為重視，特於一九九四年成立安全顧問小組，負責監察並規管一切工業安全事宜，包括：制訂安全工作須知及程序、巡查工地安全情況、統籌意外調查報告及意外統計數字、以及舉辦安全訓練課程（對象為本署職工及顧問公司 / 承建商的地盤員工）等。在不同的情況下，我們的工作採用了各種不同的工業技術和器材，所涉及的危險亦有相當多不同的種類。為求能令我們的員工得到充足合適的支援，適當地整理和記錄有關安全的法例、指引、程序以及良好的工業守則，是非常重要的。因此，我們極需製訂合時適用的安全手冊。

### 渠務署安全手冊

隨著安全法例和其他安全要求的不斷更新，於一九九四年第一次發行的渠務署安全手冊已經變得有點過時。故此，我們在二〇〇二年三月完成出版最新的安全手冊(2002版)。這本安全手冊包含了渠務署的安全政策、安全目標和計劃、安全法例、指引、程序和工業守則等有關的重要資料。更新後的手冊，成為一本全面及合用的工業安全和健康指引，可供本署員工，以及合約工程下，所有參與設計、管理及監督的顧問公司/承建商的僱員使用。

## Safety and Health

Our department puts strong emphasis on safety at work in our sewerage and drainage facilities as well as our construction sites. The Safety Advisory Unit (SAU) was set up in 1994 to oversee and regulate all safety matters. This includes: preparing safety instructions and procedures, conducting safety inspections, compiling accident investigation reports and accident statistics, and organizing safety training courses for our staff and the site staff of our consultants and contractors. As our work adopts numerous types of construction techniques and equipment applied in widely different conditions, the risks encountered therefore are equally diverse. It is important that the information on safety legislation, instructions, procedures and good work practices that are relevant to our work are properly consolidated and documented for easy use by our staff. As such, the preparation of a contemporary departmental Safety Manual is deemed necessary.

### Departmental Safety Manual

Following the changes in safety legislation and other safety requirements, the first departmental Safety Manual, which was prepared in 1994, has become obsolete. A new Safety Manual (Version 2002) was published in March 2002. The Safety Manual incorporates essential information regarding DSD's safety policy, safety objectives and strategy, safety legislation, instructions, procedures and work practices that are relevant to our undertakings. It serves as a comprehensive and handy guide to safety and health at work for the use of staff employed by the consultants/contractors engaged in DSD's works contracts who are responsible for the design, management and supervision of work, as well as DSD's own workforce.



### 安全政策

安全政策是安全手冊裡最重要的一部分。這部分重申了我們管理層持續改善工作中的安全和健康的承諾，以及強調本署職員和顧問公司/承建商的安全責任。安全政策也為本署員工所直接負責的操作和維修工作，詳細制訂了防止意外發生的安全目標。現階段的目標，是避免發生任何嚴重工業意外，以及儘可能減低意外頻率至每年每1 000個員工低於十宗申報個案。至於在建築及維修工程承建商所管轄的工地裡，則把意外頻率減至每年每100 000工時低於1.4宗申報個案。

### 安全法例、指引和程序

安全手冊列出了所有關於安全和健康工作的規則、法例、標準和守則等。它的部分內容，亦包括了在工地、污水處理廠、實驗室和辦公室的安全指引須知/安全程序和良好的工作守則。此外，手冊詳盡敘述於戶外、惡劣天氣下、密閉工作間、危險氣體範圍、高空、斜坡、接觸電源和燒焊等工作的安全預防措施。另外，關於防火、化學品和危險物品的安全處理、緊急應變程序、意外報告方法等的指引，亦已包含於手冊內，供工地各級人員使用。

### Safety Policy

The Safety Policy is the most important constituent of the Safety Manual. It sets out the commitment of our top management and our strategy to continuously improve safety and health at work, as well as the safety responsibilities of DSD's staff and our consultants/ contractors. The Safety Policy also spells out our safety targets for accident prevention, viz. for operation and maintenance activities carried out directly by DSD's staff. Our departmental aim is to eliminate serious accidents and to ensure that the accident frequency rate is below 10 reportable accidents per 1,000 staff per year. For construction and maintenance works undertaken by our contractors, we aim to eliminate fatal accidents and dangerous occurrences, as well as ensuring that the accident frequency rate is below 1.4 reportable accidents per 100,000 man-hours worked.

### Safety Legislation, Instructions and Procedures

The Safety Manual lists all the regulations, ordinances, standards and codes of practice etc. that are relevant to safety and health at work. It also consists of safety instructions, safety procedures and good work practices for work on construction sites, sewage treatment plants, laboratories, offices etc. In addition, the Manual describes in detail the safety precautionary measures to be taken for outdoor work, work in adverse weather, work near or over water, work in confined spaces, work in gas risk areas, work at height, work on slope, work with electricity, welding work etc. Guidelines on fire prevention, safe handling of chemicals and hazardous substances, emergency preparedness, accident reporting etc. are also available for use of officers who are responsible for DSD's workplaces.



### 參考

手冊裡的附錄，列出各政府部門和職業安全健康局所發行的安全刊物、各訓練學院所舉辦的安全訓練課程、意外報告表和有關安全的單張，方便讀者查閱。

### 手冊的使用

本署轄下全體員工，應該熟習自己工作範圍內所需的一切安全預防措施，這是非常重要的。因此，無論是污水處理廠、污水泵房、倉庫、實驗室或一般辦公室，每一個場所的負責主管，必須確保該處至少備有一份安全手冊，存放於廣為人知的合適位置以供查閱。同樣，負責渠務署地盤的工程師代表（ERs），亦應確保工地辦公室備有一本手冊，供工地人員使用，而工程合約承建商的員工亦同樣有一本手冊可供使用。

這本安全手冊現正進行中文翻譯工作，預計將於2003年初完成。我們亦計劃將安全手冊上載到渠務署網頁裡。透過我們對安全的全力承擔和全體員工的共同努力，相信這本手冊必能成為有助確保工作環境安全和健康的一本全面和實用的手冊，並能夠在本署、顧問公司和承建商中起帶頭作用，協助宣揚安全文化。

### References

The appendices of the Manual contain lists of safety publications of various Government Departments and Occupational Safety and Health Council, safety training courses organized by various training institutes, accident reporting forms and safety-related circulars in force for the easy use of the readers.

### Use of Manual

It is important that all personnel who are involved in DSD's undertakings should acquaint themselves with the provisions relevant to the work that they are responsible for. To this end, officers-in-charge of DSD's workplaces, namely sewage treatment facilities, pumping stations, depots, laboratories and offices, should ensure that at least one copy of this Manual is kept in the workplace and made known to all staff concerned. Similarly, Engineer's Representatives (ERs) who are responsible for DSD's works site should ensure that the copy of the Manual is kept in the site office for use by his/her site staff and another copy is available for use by staff of the contractor of the works contract.

The translation of the Safety Manual into Chinese is currently in progress and the Chinese version is expected to be available by early 2003. In addition, it is planned to upload the Safety Manual to DSD's internet web site. With our dedicated commitment to safety and the concerted effort of every staff, it is intended that the publication of this Manual will serve as a comprehensive and useful guide for the up-keeping of the safety and health at work on all of our undertakings, as well as the promotion of a safety culture amongst our department, our consultants and contractors.