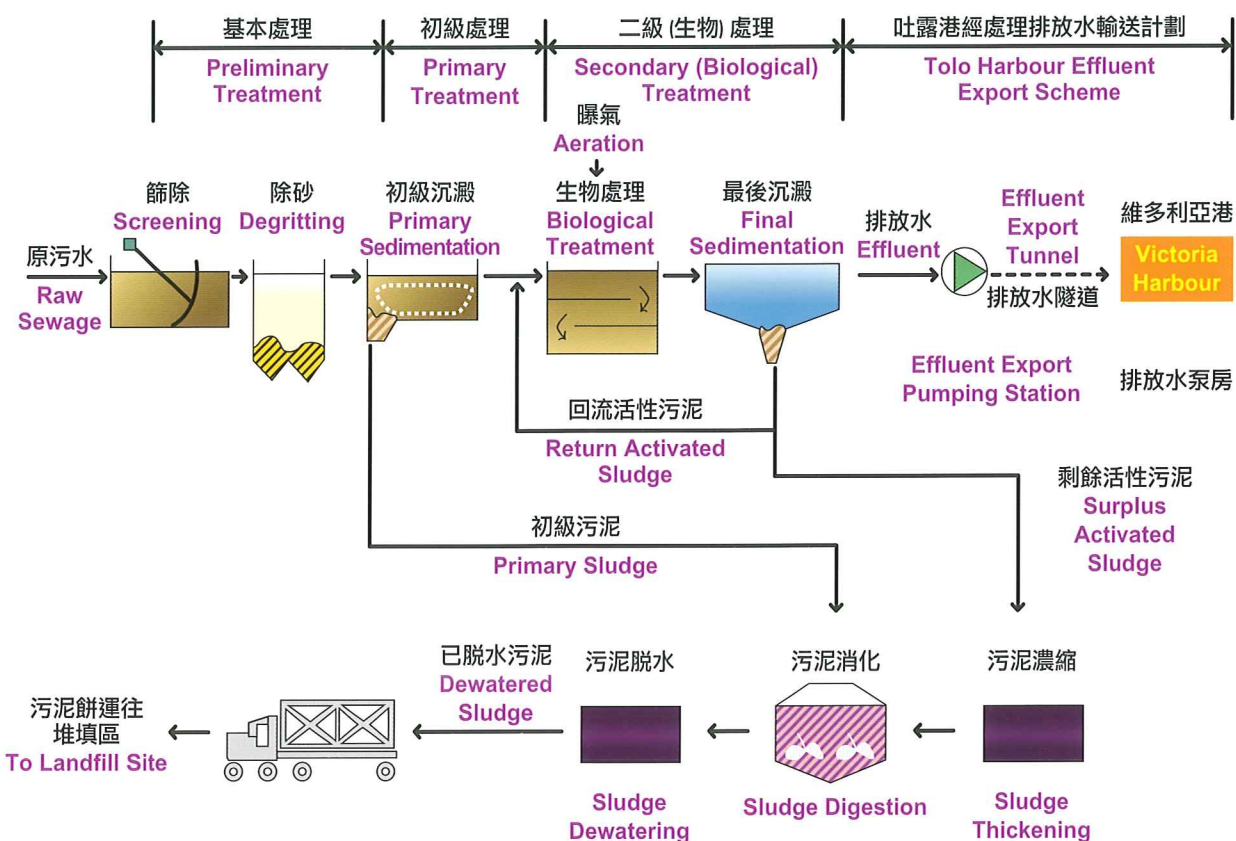


污水處理流程圖 Sewage Treatment Process Flowchart



經處理的排放水重要參數 Key Parameters of Treated Effluent

重要參數 (Key Parameters)	排放標準 (Discharge Standards)
設計流量 (Design Flow)	每日88,000立方米 (m ³ /day)
總懸浮固體 (Total Suspended Solids)	≤30毫克/升 (mg/L)
五天生化需氧量 (5-day Biochemical Oxygen Demand)	≤20毫克/升 (mg/L)
總氮 (Total-Nitrogen)	≤25毫克/升 (mg/L)

大埔污水處理廠 Tai Po Sewage Treatment Works



大埔污水處理廠佔地13公頃，是一所二級污水處理廠，為大埔區二十五萬市民提供污水處理服務，現時每日的處理量達95 000立方米。

大埔污水處理廠座落於大埔工業邨，主要由兩個獨立運作的污水處理系統所組成，分別是於一九七九/一九八三年落成啟用的第一/二期和於一九九六年落成啟用的第四期。總污水處理量為每天88 000立方米。為應付區內的發展增長及提升排放水的水質，第五期的第一階段擴建工程於二零零五年展開。工程包括建造及改善共八座初級沉澱池、十座曝氣池、二十座最後沉澱池和污泥濃縮及脫水設施。第一階段工程將於二零一零年落成啟用，而緊隨的紫外光消毒系統安裝和第五期的第二階段擴建工程將分別於二零一零及二零一三年落成啟用。當第五期的工程完成後，大埔污水處理廠每天可處理共120 000立方米的污水。

Tai Po Sewage Treatment Works (Tai Po STW) is a secondary sewage treatment works. It occupies 13 hectares of land and serves a population of 250,000 in Tai Po District, which produces 95,000 m³ of sewage per day.

Tai Po STW is located in Tai Po Industrial Estate. The Works comprises two independent plants, which are Stage I/II commissioned in 1979/1983 and Stage IV commissioned in 1996. The total sewage treatment capacity is 88,000 m³ per day. To cope with the rapid development in the District and more stringent effluent discharge standards, the Stage V Phase 1 upgrading project commenced in 2005. The Phase I project includes construction and modification of 8 primary sedimentation tanks, 10 aeration tanks, 20 final sedimentation tanks and sludge thickening and dewatering facilities. This phase will be put into operation by 2010. The installation of an ultraviolet disinfection system and Stage V Phase 2 upgrading project will then follow for completion by 2010 and 2013 respectively. Upon completion of the whole Stage V project, the STW will be able to treat a maximum sewage flow of 120,000 m³ per day.

污水處理過程 Sewage Treatment Process

篩除及除砂

污水經污水渠輸送到進水口，開始其基本污水處理程序。超過12毫米的固體廢物會首先用機械式的隔篩清除，而砂礫則在刮臂式沉砂池沉澱。

Screening and Degritting

Sewage arriving at the Inlet Works is preliminarily treated by mechanical bar screens to remove solids exceeding 12mm. After screening, the sewage is directed to detritors for grit removal.



初級沉澱

經基本處理後的污水進入初級沉澱池，大約百分之五十的懸浮固體會沉澱成為初級污泥，並由池底的刮耙收集及帶走。

Primary Sedimentation

In primary sedimentation tanks, about 50% of the suspended solids in the preliminarily treated sewage are settled out and removed as primary sludge by sludge scraping mechanisms.



二級(生物)處理

壓縮空氣不斷地輸送到曝氣池，為微生物(活性污泥)提供所需的氧氣，這些微生物會分解污水中的污染物。污水在曝氣池逗留約九小時。

Secondary (Biological) Treatment

In aeration tanks, compressed air is fed continuously to provide oxygen essential to sustain the growth of micro-organisms (activated sludge), which will assimilate pollutants in the sewage. The retention time is about 9 hours.



最後沉澱

經處理後的污水和活性污泥會在最後沉澱池內分隔出來。部份的活性污泥會回流到曝氣池以維持所需的微生物數量，剩餘的活性污泥則經濃縮後進入污泥消化缸作進一步的處理。

Final Sedimentation

Treated sewage and activated sludge are separated in the final sedimentation tanks. A controlled portion of the activated sludge is fed back to the aeration tank to maintain adequate micro-organism population for biological treatment. The remaining portion (Surplus Activated Sludge, SAS) is thickened to reduce volume before treatment in the sludge digesters.



污泥消化

初級污泥連同濃縮後的過剩活性污泥會被泵至污泥消化缸進行厭氧消化程序。在厭氧消化的過程中會產生含有甲烷的生物氣體，此氣體是一種可再生能源。

Sludge Digestion

The primary sludge and thickened SAS are pumped into sludge digesters for anaerobic digestion. Biogas containing methane, which is a renewable energy, is produced during the digestion.



污泥脫水

消化後的污泥先以壓濾機來減低水分及體積才運往堆填區棄置，脫水後污泥的含固體量最少達百分之三十。

Sludge Dewatering

Digested sludge is dewatered to a minimum dryness of 30% by filter presses to reduce water content and volume before landfill disposal.

環境保護 Environmental Protection

吐露港經處理排放水輸送計劃是將大埔及沙田污水處理廠經二級處理的排放水經直徑3.2米，長7.4公里的輸水隧道及啟德明渠輸送到維多利亞港排放，以協助解決八十年代吐露港的紅潮問題。自一九九八年計劃全面實施後，吐露港的水質有明顯的改善。

在厭氧消化的過程中所產生的沼氣，會用作燃料來產生熱能以維持污泥消化過程所需要的溫度。它更會被用來發動雙燃機去驅動鼓風機，提供曝氣池所需的壓縮空氣，達至節省能源的目的。本廠裝有兩台雙燃機驅動的鼓風機和三台熱水鍋爐。

為改善附近居民的生活環境及提供更優質的服務，本廠安裝了一系列辟味設施，以配合已實施的氣味管理系統。

Tolo Harbour Effluent Export Scheme (THEES) helps to solve the red-tide problem in Tolo Harbour in the 80's by conveying the treated effluent from Tai Po and Shatin Sewage Treatment Works to Victoria Harbour via a 3.2 m diameter, 7.4 km long tunnel and Kai Tak Nullah. The water quality in Tolo Harbour has shown encouraging signs of improvement since the full implementation of the scheme in 1998.

Biogas, containing methane, is produced during the anaerobic digestion process. To achieve energy saving, it is used as fuel to produce heat for maintaining the required temperature of the anaerobic digestion process. The biogas is further used by dual fuel engine driven air blowers to provide the required compressed air to aeration tanks. There are two dual fuel engine driven air blowers and three hot water boilers at Tai Po STW. To act proactively in an environmental manner and to provide a better service to nearby residents, an odour management system with deodourizing facilities has been put into operation.