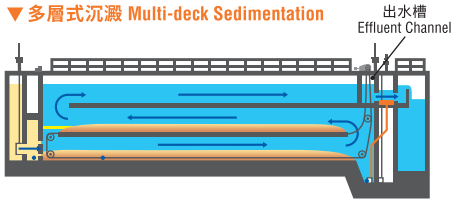
1 澄清 Clarification

本港濾水廠採用不同的澄清技術去絮凝和清除水中的雜質，當中包括：

Water treatment works in Hong Kong use different technologies of clarification to flocculate and remove impurities in the water, which include:

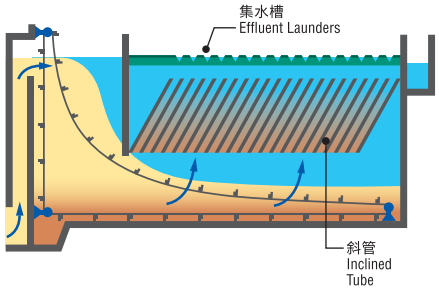
▼多層式沉澱 Multi-deck Sedimentation



澄清池分成三層，節省空間。

Constructed as a three-tray tank to save space.

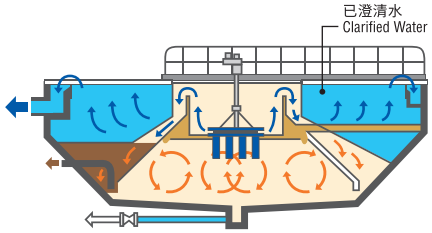
▼高速澄清 High Rate Lamella Sedimentation



在裝有斜管的池內，雜質能藉斜管表面更快沉澱至池底。

Impurities settle more quickly to the bottom via the inclined tube installed in the tank.

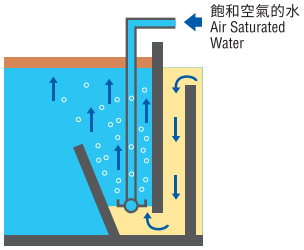
▼固體接觸澄清 Solids Contact Clarification



透過攪拌使雜質聚合，並沉澱至池底。

Remove impurities through mixing to facilitate aggregation and settle to the bottom.

▼氣泡浮選澄清 Dissolved Air Flotation (DAF)



在水中加壓溶解的空氣經釋放製造小氣泡，雜質黏附其上並浮至水面，以便清除。

Impurities adhere to tiny bubbles formed by dissolving and releasing air in the water and then float to the surface where they are removed.

2 過濾 Filtration

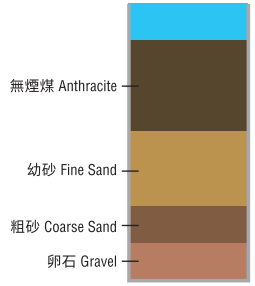
本港採用的過濾技術包括：

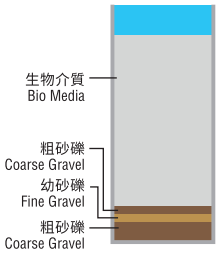
The technologies of filtration used in Hong Kong include:

▼快速重力過濾 Rapid Gravity Filtration

以無煙煤、砂等去除水中較小的懸浮物。

Use anthracite, sand and other granular media to remove more finely divided suspensions.





▲生物過濾 Biological Filtration

以生物介質、砂等去除水中較小的懸浮物、氨和有機物質。

Use bio media, sand and other media to remove more finely divided suspensions, ammonia and organic matters.

3 消毒 Disinfection

除加入氯氣外，過濾後的水或會在接觸池內進行臭氧化消毒。

Apart from adding chlorine, the filtered water may be disinfected by ozonation in the contact tanks.

加氯處理 Chlorination

優點：

- 具成本效益
- 為分配系統提供餘氯
- 為鐵、錳、顏色、味道和氣味的有效氧化劑

Advantages:

- Cost effective
- Provide residual in the distribution system
- Effective oxidant for iron, manganese, colour and taste & odour

臭氧化處理 Ozonation

優點：

- 消毒只需短暫接觸時間
- 為鐵、錳、顏色、味道和氣味的非常有效氧化劑
- 減少氯氣用量

Advantages:

- Need short contact time for disinfection
- Very effective oxidant for iron, manganese, colour and taste & odour
- Reduce chlorine consumption

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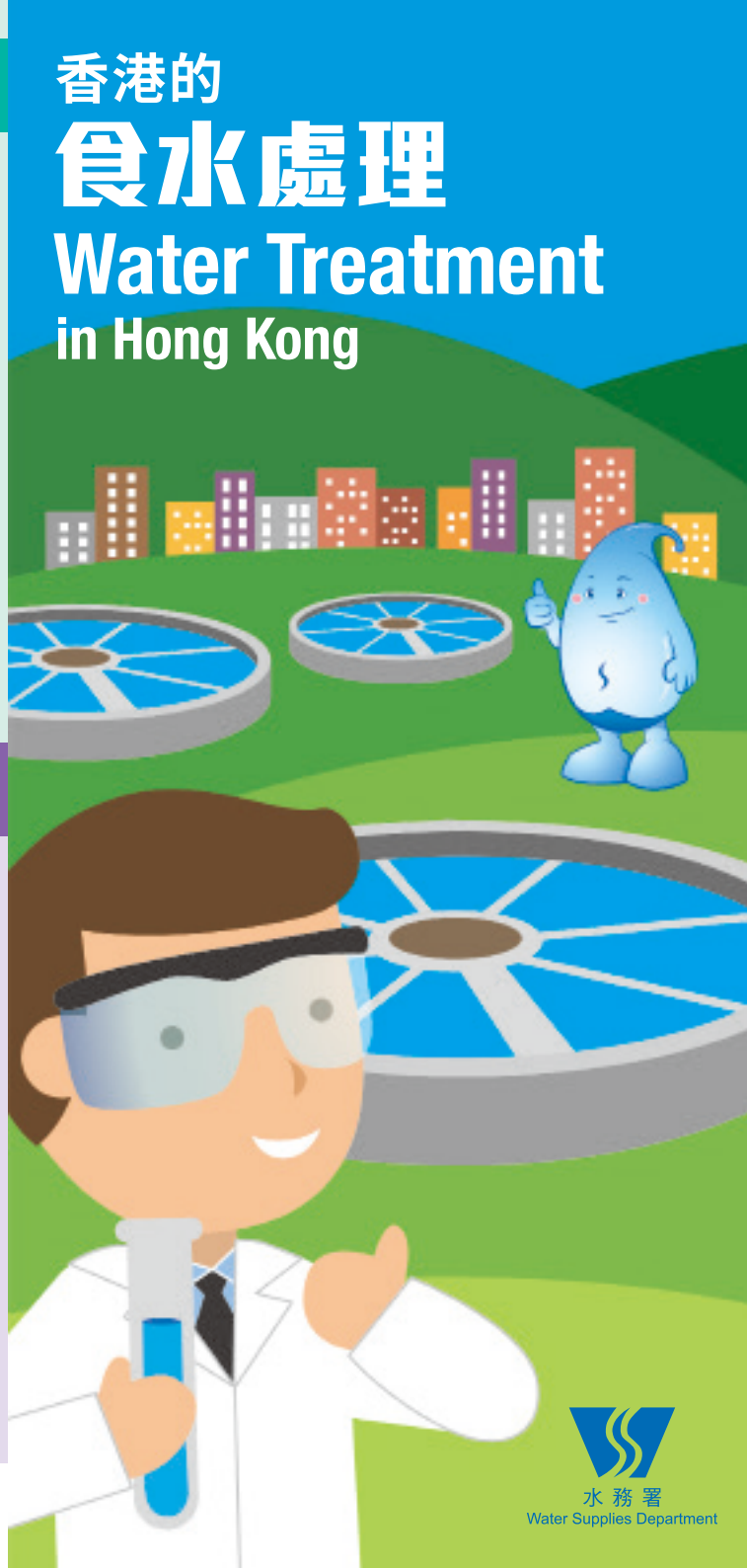
香港的 食水處理 Water Treatment in Hong Kong



水務署
Water Supplies Department

香港食水處理
Water Treatment in Hong Kong

原水與食水
Raw Water and Drinking Water

香港的食水來自兩大來源：從本港集水區收集的雨水和來自中國廣東省的東江水。由原水成為食水必須經過一連串的處理過程，確保經處理的水完全符合食水標準，方可飲用。

Hong Kong's water comes from two sources: from rainfall collected in local catchments and from the Dongjiang in Guangdong. For the raw water to become drinking water, it has to undergo a series of treatment processess to ensure that the treated water is in full compliance with drinking water standards.

本地雨水
Local Yield
20% 至 to 30%

東江水
Dongjiang Water
70% 至 to 80%

水塘
Impounding Reservoirs
17 個 nos.
總容量
Total Storage Capacity
586.05 百萬立方米
586.05 Mm^3

原水 Raw water

濾水廠
Water Treatment Works (WTW)
20 座 nos.
總日產量
Total Daily Treatment Capacity
5.31 百萬立方米 / 日
5.31 Mm^3/day

處理 Treatment

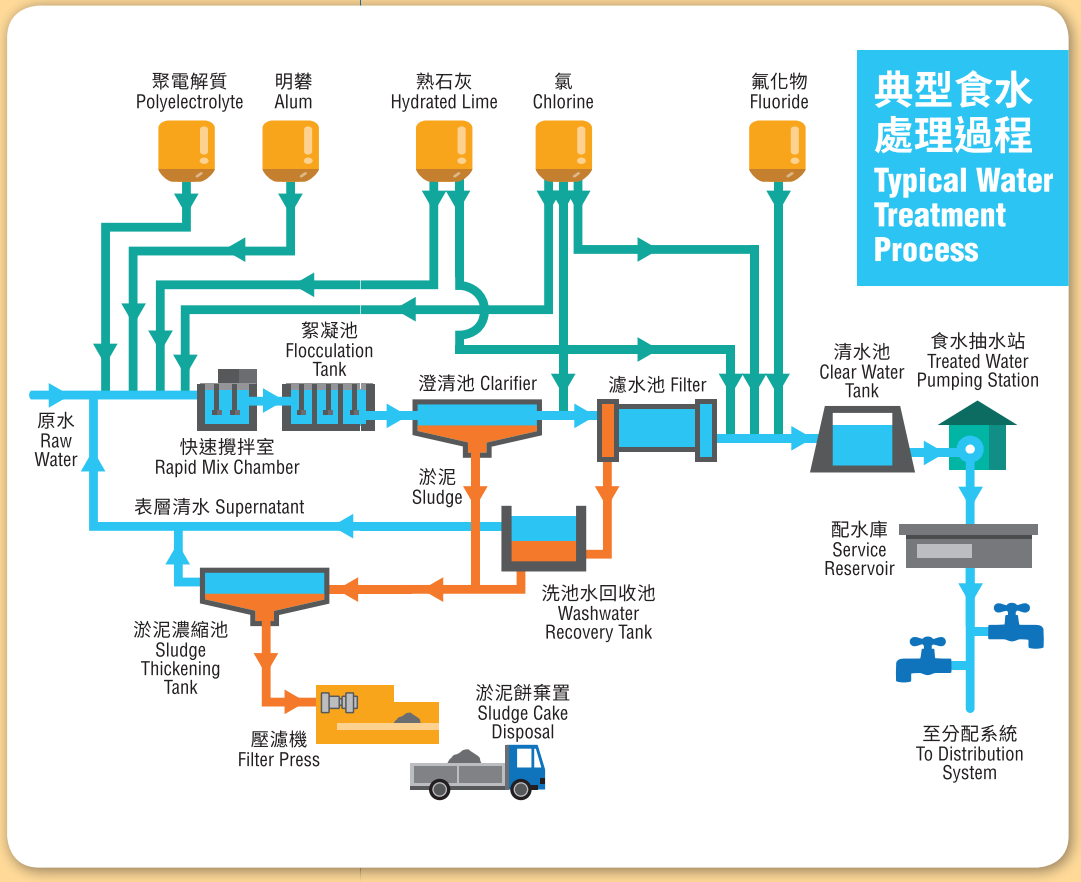
食水
Drinking water

原水處理過程
Raw Water Treatment Process

在食水處理過程中，原水（即未經處理的水）會先混入化學品進行預先處理，然後流入澄清池以清除較大的顆粒及雜質，再流進濾水池除去更幼細的微粒，過濾後的水經消毒後才供應市民飲用。為避免食水在輸送往用戶途中滋生細菌，微量的氯氣仍然會保留在水中；並會加入氟化物，保護牙齒。

During the water treatment process, raw (untreated) water is pre-treated by dosing with chemicals and then passes to the clarifiers for removal of relatively large particles and impurities. Clarified water then flows into filters for filtering out the more finely divided particles. The filtered water is disinfected before supply to the public. A small amount of residual chlorine is maintained in the water to prevent bacterial growth on the rest of its journey. Fluoride is also added for dental protection.

典型食水處理過程
Typical Water Treatment Process



預先處理 Pre-treatment

將以下化學品預先加進原水中，以促進後續處理過程：

▪ 聚電解質	– 加速水中雜質的凝聚
▪ 明礬	– 把水中雜質凝聚成較大顆粒
▪ 熟石灰	– 調節水的酸鹼度
▪ 氯氣	– 抑制水藻及氧化雜質
▪ 高錳酸鉀	– 幫助消除水中的錳
▪ 臭氧	– 氧化雜質、抑制水藻、消除味道和氣味
▪ 粉狀活性碳	– 消除水中味道和氣味

Various chemicals may be added into raw water as pre-treatment to facilitate the subsequent treatment process:

• Polyelectrolyte	– to facilitate coagulation
• Alum	– to coagulate impurities
• Hydrated lime	– to adjust pH
• Chlorine	– to control algae growth and oxidise impurities
• Potassium permanganate	– to facilitate removal of manganese
• Ozone	– to oxidise impurities, control algae growth and remove taste & odour
• Powdered activated carbon	– to remove taste & odour