

**For discussion on
18 December 2023**

**Legislative Council
Panel on Food Safety and Environmental Hygiene**

**Enhancement of Environmental Hygiene of Public Toilets managed
by the Food and Environmental Hygiene Department and
Implementation of the Smart Public Toilet System**

Purpose

This paper reports to Members the efforts of the Food and Environmental Hygiene Department (FEHD) in enhancing the environmental hygiene of its public toilets and implementing the Smart Public Toilet System (SPTS).

Background

2. The FEHD currently manages 810 public toilets, with 91 on Hong Kong Island, 60 in Kowloon and 659 in the New Territories and on outlying islands. In addition, there are 34 aqua privies in the New Territories and on outlying islands. All public toilets and aqua privies are open 24 hours daily for public use free of charge and are thoroughly cleansed at least twice a day. Toilet attendants are deployed¹ in public toilets with high utilisation rates or near tourist attractions to ensure that these toilets are clean and hygienic.

3. The FEHD has been enhancing the overall hygiene level and image of public toilets under a multi-pronged approach, including actively taking forward the Enhanced Public Toilet Refurbishment Programme (the Programme), utilising technologies in rolling out the SPTS, striving to

¹ Currently, 293 public toilets are provided with toilet attendant services.

enhance the management of public toilets as well as stepping up publicity and education.

The Programme

4. It was announced in the 2019-20 Budget that the Government would make an allocation of over \$600 million to implement the Programme for refurbishment or facelifting of about 240 public toilets managed by the FEHD by phases within the subsequent five years. There are mainly two types of works under the Programme, namely **full refurbishment works** and **facelifting works**. Having regard to factors such as the utilisation rate, location, condition of facilities as well as year of completion and refurbishment, the FEHD identifies and prioritises public toilets for full refurbishment or facelifting works under the Programme.

5. Generally speaking, full refurbishment works include adopting new design, improving overall layout, beautifying facades and replacing toilet facilities, etc., while facelifting works mainly involve replacing aged facilities and installing new facilities, normally without alteration of the prevailing layout. The scopes of the two types of works are at **Annex I**.

6. During full refurbishment or facelifting works, the FEHD will provide toilet attendant rooms at public toilets with suitable conditions and/or enhance the room facilities, such as installing wall-mounted fans, mechanical ventilation equipment, power sockets, lighting and storage facilities, so as to improve the working environment and safeguard the occupational safety of toilet attendants. Since the implementation of the Programme in 2019, a total of 10 public toilets have been provided with toilet attendant rooms, and 45 public toilets have the room facilities enhanced².

² In 2019, the FEHD reviewed 264 public toilets with attendants on duty, and improved the basic facilities of 208 of them with attendant rooms in 2020.

Design and public participation

7. The full refurbishment or facelifting works under the Programme adopt flexible design options which seek to blend in with the surrounding environment as far as possible. Before the works commence, the FEHD consults the respective District Councils on the overall layout, partitioning and facilities of public toilets, as well as the interim arrangements³ during the project period.

8. To further promote public participation in the design of public toilets, the FEHD and the Architectural Services Department (ArchSD) jointly organised a design thinking programme called “Toilet Tells: Rediscover Public Toilet” in 2020 to 2021 to garner views and innovative ideas from various stakeholders (including users of public toilets, such as citizens of different age groups or people with disabilities, design professionals, academics, architects, cleansing staff, management and maintenance personnel, etc.), such as new designs which facilitate the elderly and people with disabilities in using toilet facilities, provision of information display boards, etc. The FEHD and the ArchSD made reference to the relevant views, and formulated plans to enhance public toilet services from the perspectives of service, design and management of public toilets. In parallel, the two departments also co-organised the “PT 2.0 – Public Toilet Design Competition”, with the aim to encourage the relevant sectors and the public to create innovative designs featuring smart technologies, high buildability and cost-effectiveness⁴.

Progress of the Programme

9. As at October 2023, full refurbishment or facelifting projects for over 250 public toilets were commenced by the FEHD. Among these, about 130 projects have been completed and the remaining projects are

³ To reduce the impact of the suspension of public toilet service during the project period on the residents nearby and users, the FEHD and the Architectural Services Department will discuss the feasibility of shortening actual on-site construction time as far as practicable. Solar-powered portable toilet service will be provided at suitable locations (particularly in rural areas) if circumstances permit, while clear directions indicating locations of the nearest public toilets will be provided for the convenience of the public in need.

⁴ Inspired by siphonophores, the agile modules of the First Prize entry in the Professional Group can adapt to different site contexts. Its design concept has been adopted in the reprovisioning project of the Lei Yue Mun (Ling Nam Sun Tsuen) Public Toilet in Kwun Tong; while those of other winning entries will be adopted in works projects as appropriate.

under way as planned. As announced in the 2023 Policy Address, the Government would expedite the refurbishment of public toilets of the FEHD. Apart from ensuring timely completion of the projects of about 250 public toilets commenced in the first stage, the FEHD has advanced the planning of the work in the next phase by streamlining and compressing the relevant advance work where feasible, and will adopt such technologies as Modular Integrated Construction (MiC)⁵ and Design for Manufacture and Assembly (DfMA)⁶ as far as practicable to shorten construction time. The aim is to commence the full refurbishment or facelifting works for about 220 public toilets between 2024 and 2026, and commence the remaining full refurbishment or facelifting works for the about 210 remaining public toilets by 2028.

10. The fully refurbished or facelifted public toilets have been widely acclaimed and highly rated by the public and relevant organisations. In the “Hong Kong’s Best Public Toilet Award” organised annually by the Hong Kong Toilet Association, public toilets managed by the FEHD won gold, silver and bronze awards for four consecutive years from 2020 to 2023, reflecting the public’s recognition of the Government’s efforts in enhancing the public toilet service. Photos in **Annex II** demonstrate the conditions of some public toilets before and after completing full renovation or facelifting works.

Utilising Technologies in Implementing the Smart Public Toilet System

11. The FEHD has been actively utilising technologies in enhancing the public toilet service in recent years, such as using innovative air purification technologies (e.g. the Nano Plasma Driven Catalysis air purification technology and the Nano Confined Catalytic Oxidation

⁵ MiC transfers labour-intensive processes and site-bound wet works (such as concreting, screeding and plastering) and most building services installations to off-site manufacturing yards through standardisation, thus enhancing productivity, site safety, environmental performance and cost-effectiveness. Although public toilet projects are smaller in scale and there is not much repetition of modules, the use of MiC can still shorten construction time, in particular for interior finishes, fixtures and fittings on-site, and allow better quality control. MiC can also minimise the impact of factors, such as weather and manpower, on the works and better ensure delivery of projects on time.

⁶ DfMA is a design approach that emphasises the ease of manufacture and efficiency of assembly of construction components. It enables off-site manufacturing for on-site assembly, which can reduce on-site construction processes.

technology) in suitable public toilets to eliminate odour and improve air quality.

12. In addition, the FEHD has developed the SPTS to collect daily operation data of public toilets for the improvement of service quality. At present, the SPTS is mainly equipped with the following technologies and facilities (relevant pictures at **Annex III**) –

- (1) various types of sensing devices for real-time monitoring of the utilisation of public toilets, environmental parameters, the usage of consumables, the operating status of electrical and mechanical (E&M) equipment, etc.;
- (2) the Internet-of-Things technology for transferring real-time data collected to the backend computer system which will immediately notify toilet attendants or service contractors of common operation issues (e.g. the malfunction of the hand dryers, running out of soap and toilet paper, etc.) to be followed up according to the pre-set alerting functions;
- (3) the backend computer system which can automatically control some E&M equipment (such as lighting systems and exhaust fans) according to the environmental parameters collected to achieve energy saving and environmental protection;
- (4) the user feedback system for collecting users' views on the public toilet service; and
- (5) liquid crystal display (LCD) panels for displaying useful information, such as temperature and humidity, as well as the relevant educational/promotional videos for public view.

13. The FEHD first introduced and piloted the SPTS in the Tsim Sha Tsui East Public Transport Interchange Public Toilet and the Southorn Centre Public Toilet in Wan Chai in May 2021, and progressively installed the system in another 12 public toilets under its management⁷ with the Electrical and Mechanical Services Department (EMSD) and the ArchSD since the third quarter of 2021 for testing.

⁷ The FEHD and the EMSD have installed the SPTS in 10 public toilets with different utilisation rates and with some near tourist attractions. These 10 public toilets include the Old Peak Road Public Toilet (Central & Western), Canal Road Public Toilet (Wan Chai), Tong Shui Road Public Toilet (Eastern), Tsim Sha Tsui Ferry Concourse Public Toilet (Yau Tsim), Apliu Street Public Toilet (Sham Shui Po), Tak Wah Park Public Toilet (Tsuen Wan), Chuen Lung Village Public Toilet (Tsuen Wan), Fuk Hang Tsuen Public Toilet (Tuen Mun), Ho Sheung Heung Old Village Public Toilet (II) (North) and Po Lo Che Road Public Toilet (Sai Kung). Moreover, the FEHD and the ArchSD have introduced the relevant system in the newly built and opened Pak Shek Kok Public Toilet (Tai Po) and Sha Tau Kok Lai Chi Wo Eco-Smart Public Toilet (North) in January and November this year respectively.

14. To ensure that the SPTS achieves the goal of enhancing the quality of public toilet services, the FEHD and the EMSD conduct regular assessments, monitoring and data analysis of the relevant facilities, which include assessing whether the sensing devices can accurately reflect the utilisation of public toilets, environmental parameters, the operating status of equipment, etc. in a real-time manner. The FEHD and the EMSD have also compared and conducted field tests on various smart equipment options in order to select the more cost-effective equipment and ensure that such equipment can be expanded and upgraded to cope with changes in demand and technological developments in the future.

15. Based on the consolidated experience of the existing 14 smart public toilets, the preliminary assessment of the FEHD and the EMSD is that the SPTS has achieved notable results in collecting data on, among others, the utilisation of public toilets, following up on the supply of consumables and reducing toilet odour, which can help enhance the management and service quality of public toilets. Moreover, the monthly management reports compiled by the SPTS can provide the FEHD with useful data for future planning and development. The FEHD and the EMSD will continue to review and enhance the SPTS. They have planned to introduce the relevant system to another 11 public toilets⁸ in different districts with different scales and utilisation for further testing.

16. Furthermore, to have a more accurate grasp of the utilisation of public toilets, the FEHD has also introduced a distance measurement system⁹ under dedicated contracts since 2019 to carry out a headcount of users for over 800 public toilets, aqua privies and public bathhouses. By providing the current and estimated utilisation rates of public toilets, the system can facilitate the FEHD in formulating development strategies, enhancing public toilet facilities and adjusting staffing and cleansing arrangements to raise service standards.

⁸ The 11 public toilets include Ngong Ping Road Public Toilet (Islands), Mui Wo Ferry Pier Public Toilet (Islands), Lok Ma Chau Public Transport Interchange Public Toilet (Yuen Long), Hang Mei Tsuen Public Toilet (Yuen Long), Lei Yue Mun (Ling Nam Sun Tsuen) Public Toilet (Kwun Tong), Kwun Tong Road Public Transport Interchange Public Toilet (Kwun Tong), Nai Chung Public Transport Interchange Public Toilet (Tai Po), Gillies Avenue South Public Toilet (Kowloon City), Tsz Tin Tsuen Public Toilet (Tuen Mun), Tai Tong Kuk Public Toilet (Yuen Long) and Siu Lek Yuen Village Public Toilet (Sha Tin).

⁹ Through a device installed near the entrance of public toilets, the system measures the data of users upon entry and exit, thereby calculating the utilisation rates of these toilets.

Enhancing the Management of Public Toilets

Inspections and contract management

17. The FEHD has put in place a contract management mechanism for monitoring service contractors. Currently, performance standards, including the scope of service, level of cleanliness and timeframe for rectifying substandard services, are clearly stipulated in the tender documents for outsourced cleansing services. The documents also stipulate the minimum requirements on manpower, work shifts and cleansing frequencies according to operational needs. Service contractors are required to deploy staff and mobile cleansing teams to keep public toilets clean and hygienic, and to ensure that their public toilet management service is up to standard¹⁰.

18. According to the operational guidelines on contract management, FEHD staff will check the compliance of contractors with cleansing service contracts and monitor their work and performance through site inspections, surprise checks and examination of job records. Starting from 2020, the FEHD has required its district management staff and contractors' management to conduct regular inspections of public toilet facilities in the district to ensure that the service delivered is up to the satisfaction level as required under the contracts. In the event of any irregularities, defaults or non-compliance with contract provisions in the delivery of the public toilet cleansing service, the FEHD will take follow-up actions, including giving verbal and written warnings, issuing default notices and deducting monthly payment.

19. Separately, the FEHD has implemented an approach of procuring the public toilet management service separately through dedicated contracts on a pilot basis in Mong Kok and Tsuen Wan districts since October 2022 and May 2023 respectively. This means that the public toilet management service is taken out from the current street cleansing service contracts and covered separately by dedicated contracts. Provisions requiring toilet attendants to have undergone relevant vocational training with recognised qualifications have been added to the new three-year contracts with a view to upgrading the service standard.

¹⁰ The standards cover four major performance indicators, namely dry floor; floor, wall and facilities free from stains and dirt; no foul smell; and proper performance of toilet facilities.

According to the FEHD's evaluation, improvements have been seen in both the cleansing service performance and the contract management efficiency for public toilets under the new approach. The FEHD is planning to extend the approach to other districts for implementation.

Monitoring of maintenance and repair works

20. FEHD staff are deployed for daily inspection of the conditions of hygiene, cleanliness and facilities of public toilets. In respect of minor defects or damage, service contractors will carry out minor repairs or replacement within 24 hours. As for damage of a more serious nature, FEHD staff will notify the ArchSD and/or the EMSD for arranging repairs as soon as possible.

21. To enhance the efficiency of repair works in public toilets, the FEHD, the ArchSD and the EMSD have been using the "Minor Works Order Record System" mobile application in all districts since March 2020. The FEHD will tender repair requests to the ArchSD and the EMSD via the mobile application to facilitate progress tracking and hence expedite the repair process, whereas management data could be systematically collated for further analysis.

Publicity and Education

22. In addition to the enhancement in daily cleansing, civic-mindedness of citizens when using public toilets and their proper use of toilet facilities to avoid dirtying the places are equally vital in upkeeping the cleanliness and hygiene of public toilets.

23. To step up publicity and education, the FEHD has displayed posters prominently at some public toilets and made use of the broadcasting systems in public toilets to disseminate messages on the importance of keeping public toilets clean and hygienic as well as the proper use of toilet facilities. In addition, the FEHD will continue to appeal to toilet users to be civic-minded and considerate through posting on the Facebook and Instagram pages of Keep Clean Ambassador Ah Tak.

Advice Sought

24. Members are invited to note this paper and give their views.

**Environment and Ecology Bureau
Food and Environmental Hygiene Department
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Scope of full refurbishment or facelifting works

Full refurbishment works

- (a) Redesign of the exterior of public toilets (including consideration of repainting facades, replacing wall tiles, as well as using theme designs or feature facades, etc.);
- (b) Re-planning of the interior layout and design of public toilets (including replacement of larger floor tiles and wall tiles, improvement of internal lighting, etc.);
- (c) Replacement and improvement of ventilation equipment and exhaust air system;
- (d) Replacement and improvement of water supply, drainage, and flushing systems (including in-building piping, drainage, concealed cisterns, sensor-activated flushing system for urinals, etc.);
- (e) Replacement and improvement of toilet facilities such as liquid soap dispensers and automatic air fresheners, as well as installation of other ancillary facilities (including shelves, emergency alarm bells, baby changing counters, baby rests, children-height water closets, wash hand basins, etc.); and
- (f) If circumstances permit, provision of:
 - age-friendly features including handrails, elderly priority compartments near public toilet entrances and barrier-free facilities;
 - accessible unisex toilets;
 - gender-neutral universal toilets; and
 - toilet attendant rooms with power sockets, lockers, electric fans, ventilation, lighting and exhaust fans, etc. installed for public toilets where toilet attendants are deployed.

Facelifting works

- (a) replacement of aged facilities and installation of new features;
- (b) repainting of ceiling;
- (c) replacement of cubicle partitions, wall tiles and floor tiles; and
- (d) repainting or replacement of piping, conduits and water pipes.

Facilities to be installed/replaced for full refurbishment or facelifting works

- (a) sensor-activated water taps and liquid soap dispensers;
- (b) sensor-activated flushing systems;
- (c) high-performance electric hand dryers (with a drain tank) and hand sanitisers;
- (d) waterproof power sockets;
- (e) lockable stainless steel toilet paper holders (with jumbo roll tissues provided);
- (f) toilet seat sanitisers;
- (g) electric fans and blower fans with timer installed for keeping floor dry;
- (h) light emitting diode (LED) lighting;
- (i) manhole covers of public toilets will be placed at inconspicuous places and away from the toilet entrances as far as practicable; and
- (j) identifying suitable places outside public toilets for installing drinking water dispensers as far as practicable.

**Completed public toilet projects of
full refurbishment or facelifting works**

**(1) Fully refurbished Pound Lane Public Toilet and Bathhouse,
Central & Western District**

Before full refurbishment	After full refurbishment
	
<p>The facade adopts a simple design with a contrasting black-and-white colour scheme.</p>	
	
<p>Lighting system and sanitary fitments are enhanced.</p>	
	
<p>The lighting system in the bathhouse is enhanced, and dry areas are separated from wet shower compartments.</p>	

(2) Fully refurbished Ma Tau Kok Road Public Toilet-cum-bathhouse,
Kowloon City District

Before full refurbishment	After full refurbishment
	
The facade design is eye-catching with a refreshing and vibrant colour palette.	
	
Modern mirror cabinets with wash hand basins are provided.	
	
Toilet compartments in vivid colours and new sanitary fitments are installed.	
	
Sanitary fitments in the accessible unisex toilet are enhanced.	

(3) Facelifted Rumsey Street Multi-Storey Car Park Public Toilet,
Central & Western District

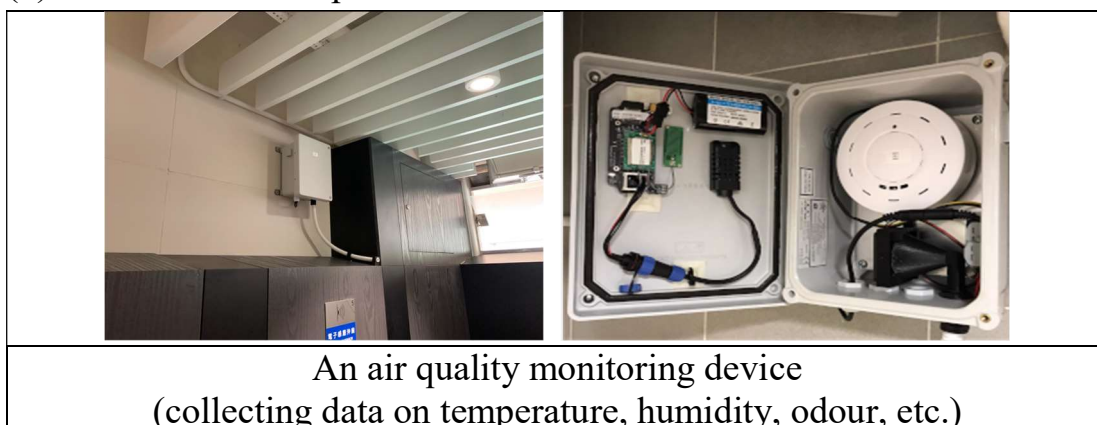
Before facelifting	After facelifting
	
Feature wall is installed at the entrance, with clear signage for the male and female toilets.	
	
Stylish materials are used for toilet compartments, and sanitary fitments are replaced.	
	
Sensor-activated water taps, liquid soap dispensers and high-performance electric hand dryers are installed.	

Equipment installed in smart public toilets

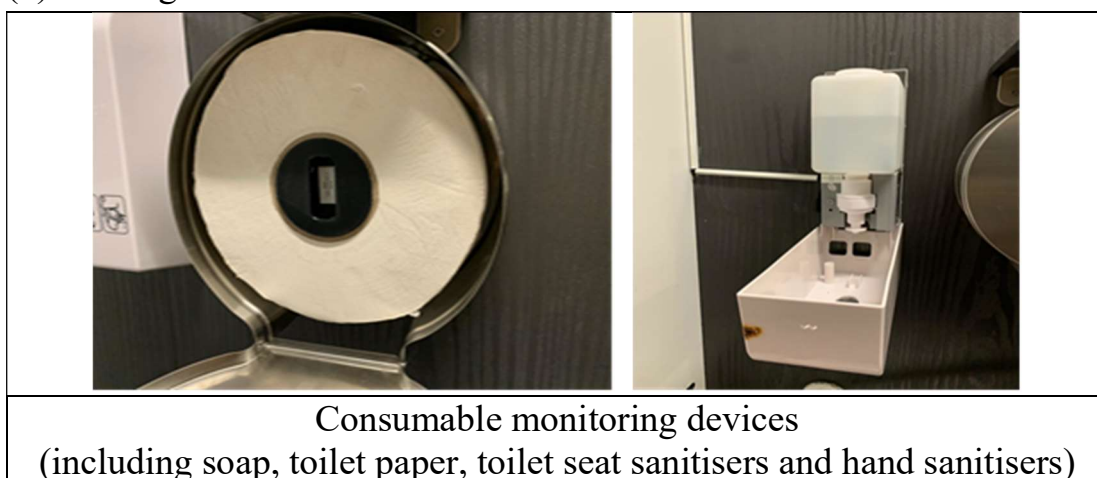
(1) Utilisation of public toilets



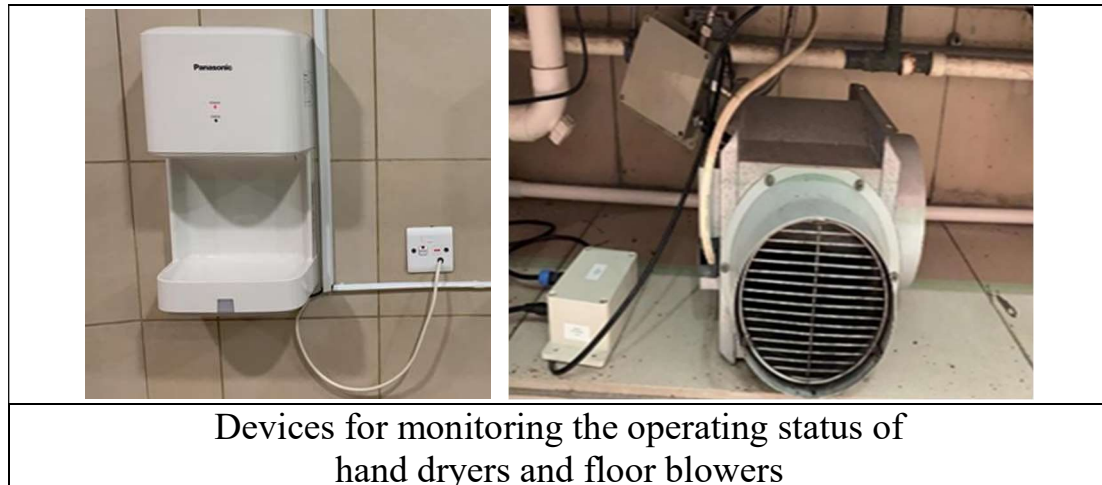
(2) Environmental parameters



(3) Usage of consumables



(4) Operating status of electrical and mechanical equipment



(5) Other equipment

