

**For discussion on
27 April 2021**

**Legislative Council Panel on Food Safety and Environmental Hygiene
Subcommittee on Issues Relating to the Improvement of
Environmental Hygiene and Cityscape**

Improvement of Environmental Hygiene of Public Toilets

Purpose

This paper briefs Members on the efforts and measures of the Government in improving environmental hygiene of public toilets.

Background

2. Public toilets are essential hygiene facilities in a city. The Food and Environmental Hygiene Department (FEHD) has been improving the facilities and service of public toilets under a multi-pronged approach and committed to promoting public education and monitoring their operation and performance, with a view to enhancing the overall hygiene and service levels of public toilets.

3. FEHD manages 809 public toilets, with 91 on Hong Kong Island, 62 in Kowloon and 656 in the New Territories and on outlying islands¹. In addition, there are 38 aqua privies in the New Territories and on outlying islands. All public toilets are open 24 hours for public use free of charge.

¹ For information on the locations of public toilets in various districts, please browse the FEHD webpage at https://www.fehd.hksarg/english/pleasant_environment/cleansing/clean1.html.

Construction, Refurbishment or Facelifting of Public Toilets

Construction of new public toilets

4. In planning for the provision of public toilets, FEHD will consider a number of factors, including the need for provision of new public toilets. For example, the number of toilets available nearby (including toilets provided by other government departments and the private sector) for use by the public and tourists, the estimated number of users of new public toilets, and whether the current situation can be improved by the provision of new public toilets² will be taken into account. FEHD will also assess the feasibility of providing new public toilets. For example, the availability of suitable government land at the proposed location, environmental or technical constraints (including the impact of toilet facilities on the surrounding environment), electricity and water supply, etc. will be taken into account. Other considerations for provision of new public toilets include the resources required and views of nearby residents, local communities and District Councils³. In 2020, five public toilets were constructed. It is expected that two new public toilets will be constructed by the third quarter of 2021.

Refurbishment or facelifting of public toilets

5. Apart from construction of new public toilets, FEHD has implemented the Public Toilet Refurbishment Programme since 2000 to give a new look to public toilets with enhancements in design and facilities. FEHD and the Architectural Services Department (ArchSD) have set up a working group which holds frequent discussions on how to optimise FEHD's public toilets to ensure that the design of public toilet facilities could blend well with the surrounding environment and keep up with the

² For example, it is necessary to provide public toilet facilities for new developments or public transport interchanges to cope with increased demand from residents or passengers.

³ If the provision of public toilets is not fully justified, or construction of public toilets at individual locations is undesirable under environmental or technical constraints, FEHD will consider providing solar portable toilet service at suitable locations. The newly designed portable toilets are equipped with solar-powered lighting and exhaust fans, etc. for better portable toilet service.

times, with a view to making the public toilet facilities hygienic, clean, safe and decent. In planning new toilets and reprovisioning or refurbishing existing ones, FEHD will follow its established standards of provision. The working group will decide on the exterior design, facilities and materials having regard to the actual circumstances of individual toilets. For public toilets at tourist spots, FEHD will consider adopting thematic layouts, featured facades, multi-colour artistic designs and decorative lighting to make the toilets aesthetical and distinctive, providing good ventilation, making the best use of natural light in addition to artificial lighting, as well as utilising advanced facilities such as infrared sensor-activated taps and flushing system.

6. FEHD, in consultation with the tourism sector through the Tourism Commission (TC), came up with a list of 23 public toilets at major tourist spots that required improvements in April 2018, and communicated with TC on a regular basis to listen to the views of the industry on the public toilet service of concern. Subsequently, FEHD commenced successively the improvement projects of the 23 public toilets. As at end-December 2020, the refurbishment works for three public toilets and facelifting works for 19 public toilets were completed. The refurbishment works for the remaining one (Stanley Municipal Services Building Public Toilet in Southern District) is expected to commence in April 2021 for completion in October 2021.

7. It was announced in the 2019-20 Budget that the Government would allocate over \$600 million to roll out the refurbishment or facelifting works for about 240 public toilets under its management by phase in five years (i.e. 2019-20 to 2023-24), so as to improve toilet facilities and enhance cleanliness and hygiene.

8. There are two types of public toilet refurbishment works, namely full-scale refurbishment and smaller-scale facelifting. The overall timeline for refurbishment takes about 2 to 3 years, while the whole process for facelifting works requires about 1 to 1.5 years. Generally speaking, full-

scale refurbishment will adopt new design, improve toilet layout, beautify facades and replace facilities. Details of refurbishment works are at **Annex I**. For facelifting of public toilets, the scope of works are mainly replacement of aged facilities and installation of new features, with the prevailing layout and facades remained unchanged. Scope of facelifting works is at **Annex II**.

9. Upon implementation of the Enhanced Public Toilet Refurbishment Programme, FEHD has been working closely with ArchSD to streamline working procedures and speed up refurbishment works process. In the first year of the programme (2019-20), refurbishment or facelifting projects for 42 public toilets were rolled out. The facelifting or refurbishment works for 22 public toilets have been completed⁴ and the remaining works are underway as planned. Refurbishment or facelifting projects for 49 public toilets commenced in the second year (2020-21). The facelifting works for 20 public toilets have been completed⁴ and the remaining works are underway as planned. FEHD is planning to commence refurbishment or facelifting works for 50 public toilets in 2021-22. Examples of completed projects are at **Annex III**.

10. To ensure that the design of public toilet facilities could blend well with the surrounding environment, FEHD, having regard to the actual circumstances of individual toilets, will decide on the exterior design, facilities and materials during refurbishment or facelifting projects. For example, Chong San Road Public Toilet in Tai Po is designed under the concept of digital technology given its proximity to the Science Park in Tai Po and its location next to the Tolo Harbour Cycle Track. Tak Wah Park Public Toilet in Tsuen Wan is designed in an ancient style to blend in with the Chinese garden style of Tak Wah Park. The design of Lantau Link Viewing Platform Public Toilet near the Tsing Ma Bridge in Kwai Tsing has been incorporated into the overall design concept of the bridge. Besides, FEHD will beautify the facades of public toilets according to the circumstances of individual toilets, including adopting thematic layouts or

⁴ As at 31 March 2021.

featured facades. For examples, the facades of Apliu Street Public Toilet and Mei Foo Sun Chuen Bus Terminus Public Toilet in Sham Shui Po are featured with Keep Clean Ambassador Ah Tak to promote public education on public toilet hygiene. Photos of murals of the public toilets are at **Annex IV**.

Facility improvement

11. To enhance the environmental hygiene and service performance of public toilets, FEHD will, having regard to the actual circumstances of individual public toilets, adjust the scope of works for refurbishment or facelifting projects, including exterior design, refurbished materials, ventilation system, lighting and installation of the following facilities:

- (a) sensor-activated water tap and soap dispenser for each wash hand basin;
- (b) sensor-activated flushing system for each toilet cubicle and urinal if circumstances permit;
- (c) electric hand dryers (with a drain tank) at suitable places in the common areas;
- (d) waterproof power sockets at suitable places in the common areas;
- (e) lockable stainless steel toilet paper holders to provide jumbo roll tissue in toilet compartments;
- (f) electric fans and blower fans, with timer installed, to keep floor dry;
- (g) light emitting diode (LED) lighting to replace conventional ones;
- (h) manhole covers of public toilets will be placed at inconspicuous locations and away from the toilet entrances as far as practicable; and
- (i) provision of drinking water dispensers outside public toilets if circumstances permit.

12. In order to address the problems of wet toilet floor arising from the humid weather in Hong Kong as well as unpleasant odour at some public toilets, on top of providing air exhaust fan in each toilet cubicle,

FEHD is, in consultation with ArchSD and the Electrical and Mechanical Services Department (EMSD), exploring to put on trial the following initiatives:

- (a) provision of air-conditioning systems and dehumidifiers, if feasible, to ameliorate the wet floor and odour problems as well as to keep temperature in public toilets at an optimal level. FEHD has already installed dehumidifiers at Peak Tower Public Toilet during its refurbishment works and will put on trial the above measure and air-conditioning system in the refurbishment works of Lan Kwai Fong Public Toilet; and
- (b) one stop provision of wash hand basin, soap dispenser and hand dryer in the form of a Cabinet Wash Hand Basin System to alleviate the wet floor problem caused by water dripping by toilet users. Peak Tower Public Toilet in Central and Western District, Tak Wah Park Public Toilet and Tsuen Wan Multi-storey Car Park Building Public Toilet in Tsuen Wan District have already been installed with the system in their refurbishment works.

Enhanced Management of Public Toilets

Monitoring cleansing service of public toilets

13. Public toilets managed by FEHD are open 24 hours and thoroughly cleansed at least twice a day. Toilet attendants are deployed in public toilets with high utilisation rates to ensure that the toilets are clean and hygienic with toilet paper and liquid soap replenished as well as damage of facilities reported. FEHD will consider reviewing relevant data (such as utilisation rates and complaints received) on a regular basis to examine the room for improvement of service.

14. Since September 2018, FEHD has stepped up inspection (at least once in every work shift) and monitoring of contractor's performance in respect of public toilets at tourist spots or with high utilisation rates to ensure that contractors perform deep cleansing service on a regular basis

and provide service up to standard, with focus on 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.

15. FEHD has put in place a management mechanism for its outsourced cleansing service contracts. Performance standards, including scope of service, level of cleanliness and responsiveness, are stipulated in the contracts. The tender documents also stipulate the minimum requirements on manpower, work shifts and frequency of service according to operational needs. In summary, cleansing service contractors are required to deploy staff and mobile cleansing teams to keep public toilets clean and hygienic, replenish toilet supplies (including toilet paper and liquid soap), report damage of facilities for speedy repairs, and carry out thorough cleansing of designated public toilets at least once a week. On top of routine cleansing service, FEHD has also set up deep cleansing teams for public toilets since 1 March 2019 and required contractors to provide dedicated deep cleansing teams to enhance deep cleansing service of public toilets in respective districts.

16. 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. In the event of any irregularities, defaults or non-compliance with contract provisions in the delivery of public toilet cleansing service, FEHD will take follow-up actions, including issuance of verbal and written warnings, default notices and deduction of monthly payment.

17. On top of the existing inspection mechanism, FEHD has set up a new inspection system since 1 April 2020, under which the contractor's management and district management staff are required to conduct regular inspections of public toilets and other facilities in the district to ensure that the service is up to the satisfaction level as required under the contract. The service standards required are also clearly stated to the contractor through site inspections.

Monitoring repair works of public toilets

18. 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, cleansing contractors will carry out minor repairs or replacement within 24 hours. For more serious cases, FEHD staff will notify ArchSD and/or EMSD for arranging repairs as soon as possible.

19. To enhance the efficiency of repair works in public toilets, FEHD, ArchSD and EMSD have jointly developed a “minor works order record system” mobile application (app) since the second quarter of 2019 to link with ArchSD’s and EMSD’s computer maintenance systems to share relevant data. Repair requests could be made to ArchSD and EMSD via the mobile app to facilitate tracking of the progress of repair works, expedite the repair process of public toilets, avoid mismatch in maintenance records and discrepancies, and systematically collate management data for further analysis and service enhancement. Pilot run of the mobile app in three districts to record and transmit repair and maintenance requests with ArchSD and EMSD has commenced since November 2019 and January 2020 respectively. FEHD has extended the use of the mobile app to remaining districts since March 2020.

Measures to Further Improve Hygiene of Public Toilets under the COVID-19 Pandemic

20. In the light of the COVID-19 pandemic, FEHD has stepped up cleansing of public facilities under its management, such as public toilets. For public toilets with toilet attendant service, FEHD has instructed the attendants on duty to cleanse and disinfect the floor, water closets, urinals, wash hand basins, toilet seats, door handles, handrails, etc. every two hours with 1:99 diluted household bleach. For other public toilets, cleansing workers also carry out cleansing and disinfection with 1:99 diluted household bleach in performing routine cleansing service to ensure their

cleanliness. To reduce the risk of spreading virus, anti-microbial coating is piloted at about 270 public toilets with high utilisation rates where coating will be applied to frequently touched surfaces, e.g. door knobs and handrails of toilets, surfaces of toilet seats and hand-dryers, since August 2020. In addition, sensor-type hand sanitisers and sensor-type toilet seat sanitisers have been installed in public toilets by phase since mid-2020 to encourage the use of alcohol-based handrub for hand cleaning and alcohol for disinfecting the toilet seat before use. FEHD will continue to examine and explore technologies and measures for improving the hygiene and cleanliness of public toilet facilities.

Application of Technologies and Innovative Ideas

21. FEHD has applied technologies in a number of areas to improve hygiene, enhance management and achieve timely maintenance of public toilets. For examples, Nano Plasma Driven Catalysis air purification technology, Nano Confined Catalytic Oxidation technology, microalgae green wall systems and atomized ozonated water technology have been put on trial to eliminate odour and improve air quality. Anti-microbial coating technology has been adopted to inhibit the growth of bacteria and viruses. A prototype of smart public toilet system is being developed. Details are provided at [Annex V](#).

22. FEHD will review the effectiveness of such technologies after their trial use, which includes analysing such factors as the testing data and cost effectiveness, and collecting views from various stakeholders. Consideration will then be given to extending the application of individual technologies. At the same time, FEHD will continue to identify technologies that can improve public toilet hygiene through various channels, including making reference to relevant local and overseas experience.

23. For exploration among various sectors on how facilities and operation of public toilets can keep up with the times in the new normal,

FEHD and ArchSD are jointly organising the “PT 2.0 - Public Toilet Design Competition” to unleash the creativity of the public and the architecture sector to come up with innovative designs for cleaner and better public toilets. They have also co-organised a design thinking programme called “Toilet Tells: Rediscover Public Toilet” to gain an in-depth understanding of the needs of various stakeholders and to explore innovative ideas in the design, management and service of public toilets through a series of design thinking workshops, with a view to developing a blueprint for ideal and modernised public toilets in Hong Kong.

Public Education

24. To remind the public of being mindful and considerate while using public toilets, FEHD has installed broadcasting systems or set up health education promotional booths at about 50 public toilets. In March 2021, FEHD completed the installation of compact broadcasting systems for disseminating messages on the importance of toilet hygiene and the proper use of toilet facilities at 195 public toilets with high utilisation rates and toilet attendant service.

25. FEHD has been disseminating messages on the importance of toilet hygiene and proper use of toilet facilities through various means, including making use of the Facebook and Instagram pages of Keep Clean Ambassador Ah Tak, and posting publicity stickers at public toilets. The photos concerned are provided at **Annex VI**.

26. A dedicated thematic website was launched in January 2021 to consolidate the efforts by FEHD on environmental hygiene and improvement of public toilet service. Regular updates will be reported. The website also provides useful information and advice on environmental hygiene, with a view to promoting public collaboration and understanding⁵.

⁵ For more information, please browse the FEHD webpage at https://www.fehd.gov.hk/english/events/keep_clean2020-2021/index.html.

Conclusion

27. Through the above improvement and management measures, collaborative efforts with relevant departments and active public participation, FEHD will continue to enhance the standard of its public toilet service.

28. Members are invited to provide comments on the above work and measures.

Food and Health Bureau
Food and Environmental Hygiene Department
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Scope of refurbishment works

Refurbishment works cover:

- (a) exterior design (neat and decent);
- (b) general layout (spacious and comfortable);
- (c) floor tiles and wall tiles (larger tiles be used);
- (d) lighting (natural lighting be adopted as far as possible and sufficient lighting be provided);
- (e) ventilation and exhaust air system (high headroom, cross-ventilation windows, oscillating fans, exhaust fans, etc.);
- (f) in-building piping, drainage, concealed cisterns, automatic flushing cisterns for urinals, etc.;
- (g) female-to-male toilet compartment ratio increased to 2:1;
- (h) provision of adequate facilities such as hand dryers, toilet paper, liquid soap and automatic air refresheners;
- (i) addition of facilities such as coat hooks, racks/shelves, emergency alarm bells, baby changing counters, baby rests, and child-height water closets and wash hand basins; and
- (j) if circumstances permit, provision of –
 - (i) age-friendly features including handrails, elderly priority compartments near public toilet entrances and barrier-free facilities;
 - (ii) accessible toilets (for the disabled) (unisex);
 - (iii) universal toilets (unisex); and
 - (iv) attendant rooms with power sockets, lockers, electric fans, ventilation, lighting and exhaust fans installed for public toilets provided with toilet attendants.

The exteriors of public toilets will also be refurbished if necessary, which includes repainting of facades and replacement of wall tiles. The facades will be beautified having regard to the circumstances of individual public toilets, where thematic layouts or featured facades may be adopted.

Scope of facelifting works

Facelifting works cover:

- (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.

Annex III

Refurbished Peak Tower Public Toilet, Central & Western District

Before refurbishment	After refurbishment
	
<p>Entrance design is beautified.</p>	
	
<p>New thematic walls and sensor-type flushing urinals are adopted.</p>	
	
<p>Cabinet Wash Hand Basin system is installed.</p>	

Refurbished Southorn Centre Public Toilet, Wan Chai District

Before refurbishment	After refurbishment
	
<p>Sensor-activated water taps and soap dispensers and hand dryers are installed.</p>	
	
<p>Bright and stylish materials and featured design are adopted for toilet compartments.</p>	
	
<p>dedicated female toilet compartment with a baby seat is provided for convenience of female carrying a baby.</p>	

Facelifted Sai Yee Street Public Toilet, Mong Kok District

Before facelifting	After facelifting
	
<p>Sensor-activated water taps and soap dispensers and electric hand dryers are provided.</p>	
	
<p>Urinals with concealed pipework and drainage design</p>	
	
<p>Enhanced lighting for deploying more natural light</p>	

Beautified facades of public toilets



Murals featuring Keep Clean Ambassador Ah Tak of
Apliu Street Public Toilet, Sham Shui Po



Murals featuring Keep Clean Ambassador Ah Tak of
Mei Foo Sun Chuen Bus Terminus Public Toilet, Sham Shui Po

Application of technologies in improving hygiene of public toilets

(1) Nano Plasma Driven Catalysis air purification technology

The Nano Plasma Driven Catalysis air purification technology has been put on trial at Tsuen Wan Multi-storey Car Park Building Public Toilet and Canal Road Public Toilet in Wan Chai District to decompose air pollutants and odour molecules since October 2019. The trial has been extended to Tong Shui Road Public Toilet in Eastern District and Southorn Centre Public Toilet in Wan Chai District since August 2020.



(2) Nano Confined Catalytic Oxidation technology

The Nano Confined Catalytic Oxidation technology has been put on trial at Tak Wah Park Public Toilet in Tsuen Wan District since December 2019, where pollutants are absorbed by filter materials and decomposed by oxidants produced by the system to improve air quality. The trial has been extended to Sheung Yuen Street Public Toilet in Wong Tai Sin District, Jordan Road Public Toilet in Yau Tsim District, Tuen Mun Ferry Pier Public Toilet in Tuen Mun District and Kik Yeung Road Public Toilet in Yuen Long District since August 2020.



(3) Microalgae green wall system

A microalgae green wall has been put on trial at Expo Drive East Public Toilet in Wan Chai District since September 2019. Microalgae grow under lighting and transform carbon dioxide indoors into oxygen, so as to improve indoor air quality and beautify the toilet. The trial has been extended to Ning Foo Street Public Toilet in Eastern District, Larch Street Public Toilet in Mong Kok District and Tai Mei Tuk Public Toilet in Tai Po District since May 2020.



(4) Atomized ozonated water technology

Since March 2019, advance ozone technology has been applied on a trial basis for Sai Yee Street Garden Public Toilet in Mong Kok District. Ozonated water is injected into the flushing system to inhibit bacteria growth and decompose odour molecules. It is planned to be extended to more public toilets in the third quarter in 2021.



(5) Anti-microbial coating technology

Since August 2020, anti-microbial coating is piloted at public toilets with high utilisation rates where coating will be applied to frequently touched surfaces, e.g. door knobs and handrails of toilets, surfaces of toilet seats and hand-dryers to improve the hygiene condition of public toilets.



(6) Smart toilet system

FEHD is developing a prototype of smart toilet system and plans to put on trial a real-time data monitoring system at two public toilets to collect data on visitor flow, odour, temperature, humidity, etc. The system includes an enhanced visitor feedback system to collect users' views on public toilet service. Through analysis of such data, better utilisation of resources and public toilet service will be achieved. FEHD will endeavour to put on trial the smart toilet system in the second quarter of 2021. In parallel, the smart toilet system will be provided in Pak Shek Kok Public Toilet under construction in Tai Po District.



Public education



Compact broadcasting systems are installed at public toilets with high utilisation rates and toilet attendant service.



Messages of keeping public toilets clean and hygienic and proper use of toilet facilities are disseminated through media such as the Facebook and Instagram pages of Keep Clean Ambassador Ah Tak and YouTube



Posters promoting the messages of keeping toilets clean and hygienic and proper use of toilet facilities are displayed at public toilets.