



LAUNCH OF LOO (LETS OBSERVE OURSELVES) CAMPAIGN @ COFFEESHOPS

Singapore, 16 November 2023 – At the 15th LOO (Let's Observe Ourselves) Awards held to commemorate World Toilet Day on 19 November, Guest-of-Honour Mr Baey Yam Keng, Senior Parliamentary Secretary for Sustainability and the Environment, launched the LOO (Let's Observe Ourselves) Campaign @ Coffeeshops (**Annex A**) together with Mr Ho Chee Kit, Honorary President of the Restroom Association (Singapore) or RAS. The LOO Campaign @ Coffeeshops is targeted to end in 2026.

Mr. Ho Chee Kit, President of the RAS, said, "With the LOO Campaign @ Hawker Centres, which started in April 2021, ending in March next year, we wish to duplicate its holistic approach for the coffeeshops. Same as in previous years, we supported Ms Rosie Ching, Principal Lecturer of Statistics of Singapore Management University or SMU, with the latest Public Toilet Cleanliness Index study, by training the SMU undergraduates on restroom assessment in August this year. I wish to congratulate Ms Ching and the SMU undergraduates, who worked tirelessly on the study for the past two months, for receiving our awards today. With the study results, we hope to first work with low-rated coffeeshops on a similar approach to rectify the lapses and achieve positive results like our LOO Campaign @ Hawker Centres."

Apart from the 57 award recipients (**Annex B**) recognised at the LOO Awards, 4 companies namely Advancer Smart Technology Pte Ltd (Sensor System), Convergent Smart Technologies Pte Ltd (Feedback System), SmartClean Technologies Pte Ltd (Sensor and Feedback System) and UnaBiz Pte Ltd (Sensor System) were also presented with certificates for certifying their smart restroom products under the Singapore Green Building Product (SGBP) certification scheme (**Annex C**). A joint certification pathway co-managed by the RAS and the Singapore Green Building Council (SGBC), products with Detect, Feedback, Eliminate & Clean (DFEC) smart features (**Annex D**) are rated against established criteria.

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About Restroom Association (Singapore)

The vision of the Restroom Association (Singapore) or RAS is A Gracious Society Embracing Excellence in Restroom Culture. Started in 1998 as a non-profit organisation, RAS is dedicated to building an excellent restroom culture by actively engaging owners, the cleaning industry and users to play their part. Some of its programmes or activities – supported by the National Environment Agency (NEA) – initiated and conducted include the Happy Toilet Programme, Happy Toilets @ Preschools Programme, STAR (Sustaining Toilets As Restrooms) Awards Programme, Eco-Assessor Programme and LOO (Let's Observe Ourselves) Carnival & Awards. RAS is a strategic partner in national community events like Clean & Green Singapore and is also a founding member of the World Toilet Organization and the Keep Singapore Beautiful Movement.

About World Toilet Day

World Toilet Day is observed annually on 19 November. This international day of action aims to raise global awareness of the daily struggle for proper sanitation that a staggering 3.6 billion people face today. In a bid to make sanitation for all a global development priority, the United Nations General Assembly designated 19 November as World Toilet Day on 24 July 2013.

Glossary of Chinese Terms (In alphabetical order)

1. Detect Feedback Eliminate Clean (DFEC) Smart Products	检测反馈消除清洗 (测馈除洗)智能产品
2. LOO (Let's Observe Ourselves) Awards	卫浴文化奖
3. LOO (Let's Observe Ourselves) Campaign @ Hawker Centres / Coffeeshops	咖啡店 / 小贩中心卫浴文化活动
4. President Ho Chee Kit	会长何主杰
5. Restroom Association (Singapore)	新加坡卫浴文化协会
6. Singapore Green Building Council	新加坡绿色建筑委员会
7. Singapore Green Building Product Certification Scheme	新加坡绿色建筑产品认证标志
8. World Toilet Day	世界厕所日

ANNEX A

LOO (Let's Observe Ourselves) Campaign @ Coffeeshops

Background

The campaign, which will end in 2026, aims to have coffeeshops achieve at least 3-stars equivalent rating in toilet cleanliness and better hygiene in public toilets. The RAS will work with coffeeshop operators on the following package:

- Audit – Audit toilets to determine the toilet standard.
- Training – Train cleaning attendants on an implementable clean toilet checklist.
- Education – Educate users to show kindness to attendants and nominate them for LOO Awards as well as conducting surveys.
- Recognition – Recognise exemplary coffeeshops to encourage them to come on board the Happy Toilet Programme.

The RAS will conduct toilet assessments, and public outreach and cleaners' trainings to educate users on good toilet behaviours and good practices for cleaning attendants to keep the toilet clean respectively. For operators, RAS will also share reports of the assessments with recommendations on how to keep the toilets clean and operators may consider participating in RAS' Happy Toilet Programme (if they are not already part of the programme). Toilet assessments, online training session and public outreach will be conducted during the campaign period.

ANNEX B

LOO (Let's Observe Ourselves) Awards

Scope

All efforts made by an organisation and individual in promoting and enhancing the standard of restroom cleanliness are taken into account in the selection of recipients for the awards.

Eligibility

The LOO Awards is open to all organisations and individuals in Singapore.

LOO Awards Categories

There are three (3) LOO Awards categories open for nominations: Organisation, Cleaning Industry and Individual.

- Organisations are awarded in the following categories:
 1. Private Sector/Public Sector/Community Sector
- Cleaning Industry is awarded in the following categories:
 1. Cleaning Service Provider
 2. Restroom Cleaning Attendant
- Individuals are awarded in the following categories:
 1. Adult individual
 2. LOO Kidz (primary)

The following categories are not open for nominations.

- Best Happy Toilets are awarded in the following categories:
 1. Market and Food Centre
 2. Office
 3. Public Transport
 4. Shopping Centre
 5. Happy Toilet of the Year

ORGANISATION (IN APLPHABETICAL ORDER)

S/N	Recipient	Type	Description of Achievements
1	Marina Bay Sands Pte Ltd	Private Sector	<ul style="list-style-type: none"> The Shoppes at Marina Bay Sands conferred the ASEAN Public Toilet Awards for year 2023-2024. All 36 toilets at The Shoppes at Marina Bay Sands certified as 6-star Happy Toilets. Adoption of holistic smart solutions on toilet maintenance including advance wet floor sensors powered by machine learning and Artificial Intelligence algorithm, to alert cleaners when the floor is wet. Shared expertise with visiting staff of Asia's largest Real Estate Investment Trust (REIT) Link REIT from Hong Kong.
2	Sentosa Development Corporation	Public Sector	<ul style="list-style-type: none"> Palawan Beach West awarded ASEAN Public Toilet Awards. 5-star rating for all its 24 participating Happy Toilets.
3	Waterloo SMU	Community Sector	<ul style="list-style-type: none"> Group comprising of a lecturer and 170 undergraduates who visited and physically examined 110 out of 118 hawker centres and 978 out of 1,092 coffeeshops nationwide. Conducted surveys on 9,411 people comprising 460 employees and 8,951 customers.

CLEANING INDUSTRY

S/N	Recipient	Type	Description of Achievements
4	A-Force Maintenance Pte Ltd	Cleaning Service Provider	<ul style="list-style-type: none"> More than 100 MRT train stations, bus interchanges and bus depots certified 4 or 5-star Happy Toilets. Certified ISO 9001:2015 and ISO 45001:2018 for cleaning services. Accredited National Environment Agency's Clean Mark Gold Award.

5	Mdm Kum Chew <Agape Little Uni @ Upper Serangoon Crescent>	Restroom Cleaning Attendant	<ul style="list-style-type: none"> • 10 years of cleaning experience. • Completed 1 WSQ course in environmental cleaning and training conducted by the Restroom Association (Singapore) on restroom cleaning. • Preschool certified with Early Childhood Development Agency's Singapore Preschool Accreditation Framework and Platinum Award for achieving three thumbs-up certifications under the Happy Toilets @ Preschools programme.
6	Mr Chia Yang Song <LS2 Services Pte Ltd>		<ul style="list-style-type: none"> • 5 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 3 WSQ courses in environmental cleaning.
7	Ms Mary Goh <LS2 Services Pte Ltd>		<ul style="list-style-type: none"> • 12 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 2 WSQ courses in environmental cleaning.
8	Mr Koh Ho Pheng <LS2 Services Pte Ltd>		<ul style="list-style-type: none"> • 5 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 1 WSQ course in environmental cleaning.
9	Mr Ridzwan Bin Maamon <LS2 Services Pte Ltd>		<ul style="list-style-type: none"> • 10 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 2 WSQ courses in environmental cleaning.
10	Ms Raman Sathya <LS2 Services Pte Ltd>		<ul style="list-style-type: none"> • 5 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 1 WSQ course in environmental cleaning.

11	Mr Tan Hock Seng <LS2 Services Pte Ltd>	Restroom Cleaning Attendant	<ul style="list-style-type: none"> • 5 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 3 WSQ courses in environmental cleaning.
12	Mr Voon Wai Leong <LS2 Services Pte Ltd>		<ul style="list-style-type: none"> • 5 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 4 WSQ courses in environmental cleaning.
13	Mdm Wong Lai Ying <LS2 Services Pte Ltd>		<ul style="list-style-type: none"> • 12 years of cleaning experience. • Maintained 5-star Happy Toilets at Paya Lebar Quarter Mall. • Completed 4 WSQ courses in environmental cleaning including washroom cleaning.
14	Mdm Chen Li Qing <PCF Sparkletots Preschool @ Limbang Blk 543>		<ul style="list-style-type: none"> • 3 years of cleaning experience. • Completed training conducted by the Restroom Association (Singapore) on restroom cleaning. • Preschool certified with Early Childhood Development Agency's Singapore Preschool Accreditation Framework and achieving a three thumbs-up certification under the Happy Toilets @ Preschools programme.
15	Mdm Goh Hoong Hian <PCF Sparkletots Preschool @ Marsiling>		<ul style="list-style-type: none"> • 5 years of cleaning experience. • Completed training conducted by the Restroom Association (Singapore) on restroom cleaning. • Preschool certified with Early Childhood Development Agency's Singapore Preschool Accreditation Framework and achieving a three thumbs-up certification under the Happy Toilets @ Preschools programme.
16	Mdm Habsah Binte Abdul Rahim		<ul style="list-style-type: none"> • 5 years of cleaning experience.

	<PCF Sparkletots Preschool @ Marsiling>	Restroom Cleaning Attendant	<ul style="list-style-type: none"> Completed training conducted by the Restroom Association (Singapore) on restroom cleaning. Preschool certified with Early Childhood Development Agency's Singapore Preschool Accreditation Framework and achieving a three thumbs-up certification under the Happy Toilets @ Preschools programme.
17	Mdm Salmah Binti Mohd Noh <PCF Sparkletots Preschool @ Marsiling>		<ul style="list-style-type: none"> 10 years of cleaning experience. Completed training conducted by the Restroom Association (Singapore) on restroom cleaning. Preschool certified with Early Childhood Development Agency's Singapore Preschool Accreditation Framework and achieving a three thumbs-up certification under the Happy Toilets @ Preschools programme.
18	Mdm Wong Poh Choo <PCF Sparkletots Preschool @ Marsiling>		<ul style="list-style-type: none"> 5 years of cleaning experience. Completed training conducted by the Restroom Association (Singapore) on restroom cleaning. Preschool certified with Early Childhood Development Agency's Singapore Preschool Accreditation Framework and achieving a three thumbs-up certification under the Happy Toilets @ Preschools programme.
19	Mdm Lim Siew Too <PCF Sparkletots Preschool @ Nanyang Blk 934>		<ul style="list-style-type: none"> 27 years of cleaning experience. Completed training conducted by the Restroom Association (Singapore). Preschool accredited with Early Childhood Development Agency's Singapore Preschool Accreditation Framework and three thumbs-up certification under the Happy Toilets @ Preschools programme.
20	Mdm Inkaew Siraphat <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> 4 years of cleaning experience. Maintained toilets at SGX Centre. Completed 4 WSQ courses in

		Restroom Cleaning Attendant	environmental cleaning including washroom cleaning.
21	Ms Li Yan Kui <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 11 years of cleaning experience. • Maintained toilets at Environment Building. • Completed 5 WSQ courses in environmental cleaning including washroom cleaning.
22	Mdm Norlin Bente Ali <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 6 years of cleaning experience. • Maintained toilets at Singapore American School. • Completed 2 WSQ courses in environmental cleaning including washroom cleaning.
23	Ms Nursyifa Binti Ja'al <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 11 years of cleaning experience. • Maintained toilets at Singapore Land Tower. • Completed 3 WSQ courses in environmental cleaning.
24	Mdm Ramlah Bte Jaafar <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 14 years of cleaning experience. • Maintained toilets at 30 Hill Street office building. • Completed 3 WSQ courses in environmental cleaning.
25	Ms Rohani Binti Ajis <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 11 years of cleaning experience. • Maintained toilets at Singapore Land Tower. • Completed 3 WSQ courses in environmental cleaning.
26	Mdm Sevagami A/P Iyavoo <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 10 years of cleaning experience. • Maintained toilets at office building at Stamford American International School. • Completed 4 WSQ courses in environmental cleaning including washroom cleaning.

27	Mdm Sim Geock Ling <Re Sustainability Cleantech Pte Ltd>	Restroom Cleaning Attendant	<ul style="list-style-type: none"> • 10 years of cleaning experience. • Maintained toilets at 1 Goodwood Hill condominium. • Completed 6 WSQ courses in environmental cleaning including washroom cleaning. •
28	Mdm Sun Xueling <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 5 years of cleaning experience. • Maintained toilets at UIC Building. • Completed 5 WSQ courses in environmental cleaning including washroom cleaning.
29	Mdm Vasugi A/P Muttiah <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 9 years of cleaning experience • Maintained toilets at 78 Shenton Way office building. • Completed 7 WSQ courses in environmental cleaning including washroom cleaning.
30	Mr Zailani Bin Abdul Ghani <Re Sustainability Cleantech Pte Ltd>		<ul style="list-style-type: none"> • 14 years of cleaning experience • Maintained toilets at OUE Downtown office building. • Completed 7 WSQ courses in environmental cleaning including washroom cleaning.
31	Mdm Zarina Binte Osman <Seng Foo Building Construction>		<ul style="list-style-type: none"> • 11 years of cleaning experience. • Maintained toilets at Assumption English School which was awarded Gold STAR award under the STAR (Sustaining Toilets As Restrooms) Awards Programme. • Completed 6 WSQ courses in environmental cleaning including washroom cleaning.
32	Mr Chanar Singh Quat <Shiners Facilities Pte Ltd>		<ul style="list-style-type: none"> • 10 years of cleaning experience. • Maintained toilets at Seletar Country Club. • Completed 2 WSQ courses in environmental cleaning.

33	Mr Teo Yew Huat <Transquest Supplies & Co Pte Ltd>	Restroom Cleaning Attendant	<ul style="list-style-type: none"> • 10 years of cleaning experience. • Maintained 4-star toilets at MRT Stations. • Completed 6 WSQ courses in environmental cleaning including washroom cleaning.
34	Mr Wong Kee Yong <Transquest Supplies & Co Pte Ltd>		<ul style="list-style-type: none"> • 6 years of cleaning experience. • Maintained 4-star toilets at MRT Stations. • Completed 2 WSQ courses in environmental cleaning.

INDIVIDUAL

S/N	Recipient	Type	Occupation / Designation	Description of Achievements
35	Mr Darell Cheng Yi Kang	LOO Kidz	Student, Chongfu School	<ul style="list-style-type: none"> • Student leader who taught his fellow prefects on using online software to facilitate idea development and design work of decorating the student restrooms as well as staff restrooms. • Assigned to take on key responsibilities for the various activities including initiating recess activities, to involve students in activities such as making flower origami and writing notes to show appreciation to the cleaning attendants.
36	Mr Fairus Bin Ismail	Adult	Operations Manager East Spring Primary School	<ul style="list-style-type: none"> • Dedicated to the welfare of cleaning attendants by beautifying their room and making it comfortable for them to rest in. • Created a storage area for cleaning equipment and detergents on every level for the convenience of the attendants to minimise climbing of stairs during cleaning. • Installed a bidet in every toilet cubicle.

37	Mr Vengadasalam Ravichandir	Adult	Operations Support Officer Northland Primary School	<ul style="list-style-type: none"> Dedicated to the welfare of cleaning attendants by proposing a room for the cleaning attendants to rest. Suggested the Annual Appreciation Day for cleaning attendants with buffet lunch and students preparing appreciation cards and presented them to the cleaners on that day.
38	Ms Choi Oi Chan		Teacher PCF Sparkletots Preschool @ Nanyang Blk 934	<ul style="list-style-type: none"> Appointed preschoolers as Clean Environment Ambassadors to check the preschool toilets for cleanliness.
39	Mdm Rohaini Binte Ahmad			<ul style="list-style-type: none"> Educated preschoolers to take ownership by monitoring and keeping the toilets clean and hygienic.
40	Ms Rosie Ching Ju Mae		Principal Lecturer of Statistics Singapore Management University	<ul style="list-style-type: none"> Led a group of 170 undergraduates called the Waterloo SMU. Shared the results of Waterloo, the National Toilet Cleanliness Index results of public toilet hygiene in coffeeshops and hawker centres with the Restroom Association (Singapore) for its LOO (Let's Observe Ourselves) Campaign @ Coffeeshops.

BEST HAPPY TOILET

The following toilets under the Happy Toilet Programme (HTP) are awarded for achieving the highest scores in terms of cleanliness, maintenance, effectiveness, user satisfaction, design and bonus features.

S/N	Recipient	Type	Star Rating	Score	Remarks
41	Holland Village Market & Food Centre	Market & Food Centre	5-Star	98 / 108	Selected among 67 HTP market & food centres
42	mTower Level 18, Maritime and Port Authority of Singapore	Office	6-Star	104 / 108	Selected among 91 HTP office toilets at 12 office buildings
43	Raffles Place MRT Station	Public Transport	5-Star	98 / 108	Selected among 187 HTP public transport hubs, bus interchanges & MRT stations
44	The Shoppes at Marina Bay Sands, Zone 1 Level 1 (Repetto)	Shopping Centre	6-Star	106 / 108	Selected among 316 Happy Toilets at 31 Shopping Centres
45	The Shoppes at Marina Bay Sands, Zone 1 Level 1 (Repetto)	Happy Toilet of the Year	6-Star	106 / 108	Selected among 1269 Happy Toilets islandwide

PLATINUM HAPPY TOILET PRESCHOOLS (IN ALPHABETICAL ORDER)

S/N	Recipient	Remarks
46	Agape Little Uni @ Choa Chu Kang	<p>Preschools awarded the highest Three Thumbs-up accreditation for <u>three consecutive years</u> under the Happy Toilets @ Preschool Programme for completing all of the following three phases:</p> <ol style="list-style-type: none"> 1. Design phase - All toilets meeting the minimum standard equivalent to the 3-star rating of the commercial Happy Toilet Programme. 2. Maintenance phase - On-site training for caretakers and housekeepers on dos and don'ts of preschool and restroom cleaning 3. Education phase - Hygiene talks/activities for preschoolers and hygiene workshops for teachers or hygiene talks for parents/guardians
47	Agape Little Uni @ Kallang	
48	Agape Little Uni @ Upper Serangoon Crescent	
49	Bright Sparks Child Care	
50	PCF Sparkletots Preschool @ Yew Tee Blk 690	
51	Yuvabharathi International School Montessori	

GOLD & PLATINUM STAR SCHOOLS (IN ALPHABETICAL ORDER)

S/N	Recipient	Remarks
52	Assumption English School <GOLD>	Schools are awarded the highest Gold STAR accreditation under the STAR (Sustaining Toilets As Restrooms) Awards Programme when they complete all three phases.
53	Greendale Primary School <GOLD>	Schools with Gold STAR accreditation for <u>three consecutive years</u> are awarded the Platinum STAR. The three phases are as follows:
54	Fern Green Primary School <PLATINUM>	1. Education & Awareness - Assembly talks for students and workshops for students assigned to take up any of the following projects: - Decorating / enhancing the washrooms - Cleaning attendants' appreciation activities - Creating educational/awareness material for an exhibition
55	Northland Primary School <PLATINUM>	- Conducting surveys or case studies - Creating videos or web content - Inspecting their own washrooms and providing feedback - Holding assembly talks in school or at other establishments
56	Qihua Primary School <PLATINUM>	2. Maintenance & Service - Checking the qualifications and cleaning routines of all cleaning attendants to ensure they are trained and to conduct training for those who are not.
57	Teck Whye Primary School <PLATINUM>	3. Design & Standards - All toilets meeting the minimum standard equivalent to the 3-star rating of the commercial Happy Toilet Programme.

ANNEX C

Singapore Green Building Product Certification Scheme

The Singapore Green Building Product (SGBP) scheme is a certification for green building products and materials. It is based on scientific and engineering principles and built upon the collective knowledge and expertise of the building and construction industry. The SGBP certification scheme advances the built environment to one that is greener and more carbon-efficient while facilitating sustainable procurement. The certification ensures that sustainability is integrated throughout the design and manufacturing process of green building products.

Aligned with the World Green Building Council's vision of green buildings for everyone, everywhere, SGBC aims to make the spaces we live, work and play in healthier, more sustainable, and more resource-efficient. SGBC recognises the need for green building products, materials and solutions to support this vision. With the SGBP certification scheme, we've set a high benchmark for sustainable building products and materials. This ensures sustainability targets are met while providing transparency and credibility to the products we choose to use when building green into our spaces and places.

The SGBP covers a wide range of building products across the following categories and assesses them based on their sustainability performance:

- Architectural
- Civil & Structural
- Mechanical
- Electrical
- Landscaping
- Smart

The SGBP Certification Scheme looks at the whole lifecycle of products to account for the full impact. Assessment criteria is categorised into common criteria which apply to most products and specific criteria which apply only to relevant products. For some products, the assessment against criteria covers the whole product lifecycle, while for other products, the assessment criteria focuses on a select few lifecycle stages across raw material extraction or cultivation, manufacturing, distribution, use, and end-of-use. This grounded methodology enables building products to be impartially evaluated for their relevant, noteworthy qualities, benchmarked against similar products in its category.

After the assessment, the certified product will be awarded a rating between 1 and 4 ticks, based on its performance. 1 tick indicates good performance, while 4 ticks indicates leading industry performance.

The SGBP is one of the key standards and benchmarks for green building products in the building and construction industry. Products and materials certified by the SGBP are highly recognised under the Green Mark Scheme, Singapore's national green building rating tool administered by the Building and Construction Authority (BCA), which allows certified products to accrue points that count towards a project's Green Mark rating. The more highly rated a product is under the SGBP Scheme (i.e., the more ticks it has achieved), the more points are awarded towards the Green Mark rating.

The SGBP is also widely accepted by regional green building rating tools for its coverage of product's sustainability performance. Examples include GreenRE, a rating tool set up by the Real Estate & Housing Developments' Association (REHDA) of Malaysia, and LOTUS, Vietnam Green Building Council's rating tool. The SGBP complies with many of the

requirements in ISO 14024 Environmental labels and declarations — Type I environmental labelling.

The SGBP is similar to internationally leading eco-labels, such as Cradle2Cradle, DECLARE, Global Green Tag, Good Environmental Choice Australia, Korea Environmental Industry and Technology Institute. Future versions of the SGBP may provide additional recognition for products that excel in addressing social issues, circular economy, and low embodied carbon, and reorganise the Scheme's governance to allow for products certified under our Scheme to be recognised under other eco-labels.

ANNEX D

Detect Feedback Eliminate Clean (DFEC) Smart Restroom Solutions

The DFEC Smart Restroom Solutions offer the holistic approach on effective maintenance as follows:

- DETECT

The use of sensors, which act as an autonomous system, can effectively detect, monitor and feedback any defects or situations such as ammonia, people traffic, lighting levels, abnormal water usage, hand soap, hand towels, toilet paper and litter bins. Some can be rectified through automation while others will alert on demand cleaning needs through notifications. When toilets are not in satisfactory conditions and cannot be rectified through mechanical automation, notification alerts are instantly sent to the owners, operators, facility management crew and cleaning supervisors so that the cleaning crew can be deployed on site to rectify them in the quickest possible time. The use of sensors can also effectively gather data for useful analytics such as the determination of peak and off-peak usage and forecast cleaning regimes to optimise cleaning crew deployment. The use of sensors not only translates to improved cleaning and maintenance efficiency but also better user satisfaction and lesser reliance on manpower.

- FEEDBACK

Defects and any situations, which cannot be effectively monitored by smart sensors, can be complemented with the installation of an interactive feedback system. Installation of an interactive feedback system effectively complements the smart sensors in the event if the sensors are defective or under servicing and maintenance. On the other hand, the installation of sensors also complements the feedback system to monitor the validity of public feedback. An interactive feedback system can provide a simple and intuitive channel for public users to feedback the state of the toilet. Any negative feedback will instantly alert the maintenance management and cleaning crew for any specific follow-up actions in the quickest possible time, thus ensuring the best user experience. The information collected on the real time monitoring of the performance levels of the cleaning crew can effectively serve as justification for rewards or improvements. In addition, the feedback system is an extensive data gathering platform that also provides relevant preventive and predictive analytics for owners, operators and cleaning companies. The data collected can be used for resource planning and allocation, equipment reliability, cleaning crew's attendance and performance evaluation, visitors trending and others.

- ELIMINATE

Ammonia, odour, bacteria and viruses can be better eliminated during toilet cleaning with the use of green sanitisers and deodourisers such as ozonated water. The application of infused anti-stain material or self-cleaning protective coatings on tiles, basins, urinals and WCs can provide a layer of coating to prevent moisture, dirt, grime and oil. Surfaces protected by this coating facilitate cleaning efforts and eliminate the problem of tough stains and graffiti. Some coatings also have an antibacterial feature and they can eliminate bacteria which comes into contact with the coated tiles.

- CLEAN

The adoption of technology such as machinery to facilitate toilet cleaning and also the adoption of advanced facilities for self-cleaning by users such as the use of bidets, self-powered taps, fast-drying hand dryers, taps integrated with fast and hygienic hand-drying function for effective hand washing. The use of self-powered taps eliminates the need to provide electrical points to power the sensors in the taps. The tap sensors are powered internally. Running water will create power which is stored in a battery built into the tap. Power from the battery will be used for sensing purposes for next use. The use of fast-drying and hygienic hand dryers can eliminate operational complexity to store, replenish and dispose used towels. Fast-drying hand dryers do not need any heating element which is energy saving and eco-friendly as compared to conventional warm air dryers which are high in energy consumption. Fast-drying hand dryers can be equipped with HEPA filters which trap bacteria and viruses but they require replacement periodically. This translates to cleaner air blown onto the hands. There are hand dryers that allow drying of hands at the wash basin without the need to move to a separate drying area, thus reducing wet floors.