


**Past Featured Stories (Mar - Nov 2017)**

Date	Description
<p><b>30 November 2017</b></p>	<p><b>Enhancing Drains to Cope with More Rain</b></p> <p>The day-to-day work of drainage engineers in PUB involves coming up with ingenious solutions to tackle varied challenges in drainage projects, which are often massive and complex. This includes encountering hard rock during excavation, diverting underground services, carrying out concurrent work activities within tight spaces onsite and labouring eight storeys underground.</p> <p>The media was given a glimpse of this exciting challenges at a briefing cum visit to the Bukit Timah First Diversion Canal (BTFDC).</p>  <p><i>Ongoing works at Bukit Timah First Diversion Canal – Phase 3 (Holland Green to Clementi Road)</i></p> <p>Built in 1972, the BTFDC runs 3.2km long, from Bukit Timah Road near Maple Avenue to Clementi Road. Its expansion works is ongoing and when completed in 2018, will give the upper Bukit Timah catchment more flood protection.</p> <p>BTFDC runs through unique and historically-rich terrain. A section of the canal goes through Military Hill and the conventional approach of open trench digging cannot be used. Instead, C&amp;W engineers have to use tunnelling to create two new tunnels under the hill. These new tunnels, the size of MRT tunnels, will supplement the existing tunnels in conveying more rainwater.</p>



*As part of the Bukit Timah First Diversion Canal expansion, two new tunnels were created to supplement two existing tunnels under the Military Hill. Above picture shows one of the new tunnels.*

With upgrading works taking place in a “live” canal, engineers have to ensure that BTFDC continues its function of channelling stormwater away quickly, and its drainage capacity is never compromised.

#### **Extensive Investment in Drainage Infrastructure**

The Government has spent some \$1.2billion on drainage improvement works islandwide since 2011 to increase flood protection for Singapore. Drainage projects at 325 locations have been completed over the past 6 years.

PUB is preparing for more intense rainfall and the frequency of such rain events to happen more often. In the next 2 to 3 years, the Government plans to spend a further \$500 million to upgrade more drains, and the public can look forward to drainage improvement works commencing at 16 locations in the coming year.

There are also ongoing drainage projects taking place at 75 locations. Besides BTFDC, these include Sungei Pandan Kechil, Stamford Detention Tank and Stamford Diversion Canal.

29  
November  
2017

## Water Efficiency Awards 2017 Live Radio Interview



*From left: Mr Philip Chan (Asia Square's Sustainability Manager), Ms Irene Toh (PUB Water Supply Network's Principal Engineer) and Capital 958 FM DJ Pan Jia Biao.*

Following the Water Efficiency Awards (WEA) and Industrial Water Solutions Forum on 21 November, Ms Irene Toh (PUB) and Mr Philip Chan (Asia Square) shared the measures and initiatives on water efficiency with the audience of MediaCorp's popular Chinese radio station Capital 95.8FM.

Irene explained that WEA is a biennial award which recognizes the top water efficiency performers in the respective sectors. She described how the best performers are chosen based on Water Efficiency Index (WEI) by sector, or industrial plants with the highest recycling rates. She also added that PUB has compiled a publication "Best Practice Guide for Water Efficiency - Buildings" and is seeking comments from the industry to further refine this document.

Asia Square Tower 2, a recipient of WEA, was represented by its Sustainability Manager Mr Philip Chan. He shared the importance of water efficiency to them and the types of water efficient fittings and appliances they have installed. In addition, he carries out checks upon receiving feedback on leakage or inefficiency in water fittings.

**24  
November  
2017**

**The Quest for Water Security**

A two-page comic depicts Singapore's quest for water security through three chapters: "Early Struggles & Resolve: Local Catchments", "Across the Causeway: Imported Water", and "The Way Forward: NEWater and Desalinated water".

This comic highlights the challenges Singapore faced as a nation with little natural water resources, and how these challenges were overcome with the Four National Taps. Moving forward, R&D and technology would be key in maintaining a sustainable water supply for Singapore.



**13  
November  
2017**

**Preparing for the Coming Monsoon**

To prepare for the upcoming Northeast Monsoon season, PUB officers have been busy checking drainage systems at critical installations and construction sites. This is to ensure that the canals are free-flowing and can function smoothly to convey stormwater and reduce flood risks.

**How often are the checks?**

Twice a month, PUB officers check on the 28 construction sites adjacent/close to major canals to ensure the canals are free from debris and construction materials. They also inspect another 100 major construction worksites island-wide ahead of the monsoon season.



*PUB engineer Jeremy Tan checks works at a construction site to ensure that*

*the diversion channel for the canal is built according to plan.*

### **What should building owners do?**

Public agencies, Town Councils and building owners play a key role in monsoon preparations. PUB sent out reminders to them to ensure that their pump drainage systems are well-maintained and the internal drains are debris-free. Building owners with flood barriers are also alerted to maintain flood barriers and ensure their proper operation.

Door-to-door visits to residents and shop-owners living in low-lying areas and hotspots are an annual affair. Flood advisories are distributed to over 600 residents and business owners, offering tips on how to protect their belongings and premises in the event of flash floods.

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*PUB officers share the flood advisories with residents and business owners.*

### **How does PUB do flood monitoring?**

Officers at PUB's 24/7 Operations Centre are on heightened alert for any storms. Through a network of about 200 CCTV cameras, they check road conditions in the low-lying areas and hotspots during heavy rain.

The network of CCTV is supplemented by 208 water level sensors at major drains and canals to help PUB monitor the water levels during storms.

Despite the efforts, flash floods may still occur especially when heavy rain coincides with high tides. This is when the Quick Response Team is activated to carry out on-site inspections and render assistance, where possible.

**12  
November  
2017**

**Water Closet Replacement Project**

Launched in June 2017, the aim of the Water Closet Replacement Project is to help residents save water each time they use the toilet.



*Above: Replace your non-water efficient water closet (left) with a water efficient model (right).*

**Eligible Households**

Targeted at older HDB flats built between 1986 and 1992, the replacement project helps households that are currently on community assistance replace their existing 9-litre water closets with more water-efficient ones. Non-water efficient wash basin taps and kitchen sink taps are replaced at the same time. This project aims to help an estimated 7,000 eligible families.

Note: Households that are not eligible for the project can approach the Singapore Plumbing Society to replace their non-water efficient water closets at a special rate.

**Visiting Residents**

Senior Minister of State, Ministry of Environment and Water Resources, Dr Amy Khor, gave an update on the replacement project at a Hong Kah community event on 12 November 2017. She encouraged eligible households to take up the offer, and visited a few beneficiaries within her constituency.



*Above: SMS Amy Khor at a Hong Kah Exhibition for the Hong Kah North Environment Day.*



*Above: SMS Dr Amy Khor sharing the benefits of a water efficient water closet with a resident.*

### **Meeting the Media**

Dr Khor announced the start of Phase 2 of this replacement project which is targeted at 4-room HDB flats and above. She shared that about 30% of the 2,500 notified households under Phase 1 (3-room flats and below) have responded positively to date. Of these, PUB has replaced the 9-litre water closets for 230 households. Replacements for the remaining households are ongoing. Households have seen an average of 10% in water savings after the replacement.



*Above: SMS giving a media update on the replacement project.*

**Total Water Savings**

PUB estimates total monthly water savings equivalent to five Olympic size pools of water when the project is completed in 2020. PUB plans to notify the remaining 19,000 eligible households by May 2018.

**10-12  
November  
2017**

**Cultivating Good Water Habits in Our Young**

PUB partnered Mummy's Market to cultivate good water habits education in our children. With a whole new, exciting theme for this year Kids World Fair, families got to enjoy a great variety of activities, which covered the three themes on Health, Education and Fun. Held at Singapore Expo from 10 to 12 Nov this year, families could take part in interactive quiz and storytelling session conducted by our Friends of Water volunteers, including students from the Chongzheng Primary School.





**28  
October  
2017**

### **PUB Participates in Exercise Northstar**

Exercise Northstar is a series of exercises first introduced in 1997 to validate multi-agency emergency response plans and exercise co-ordination among national agencies in responding to major emergencies.

On 28 October, Deputy Prime Minister (DPM) Teo Chee Hean, together with Minister for Home Affairs and Law K. Shanmugam and Second Minister for Home Affairs Josephine Teo observed phase two of the tenth edition of Exercise Northstar. PUB was one of the key agencies involved in the exercise. Others include Singapore Civil Defence Force (SCDF), Singapore Armed Forces (SAF), People's Association (PA) and Ministry of Social and Family Development (MSF).



*From left: Chief Engineers of Water Supply Network, Yeo Wee Leong and Lai Kah Cheong, Director of Water Supply Network, Michael Toh and DPM Teo Chee Hean interacting during Exercise Northstar.*

During Exercise Northstar, PUB staff carried out a demonstration on the emergency valve operations during a pipe leak. PUB's response team was deployed to isolate the leak and facilitate repair work. PUB's water wagon was also at site to provide temporary water supply (water bags) to affected residents with the PA helping to distribute.



*DPM Teo Chee Hean with the engineer of Water Supply Network, Azraf Khan Bin Ahmad, who led a team to develop an automated system to fill up water bags for distribution to residents.*

**4 October 2017**

**A Showcase on Water Supply Network Inspection and Maintenance**

To address public concerns over the recent Bukit Batok pipe leak incidents, Water Supply Network (WSN) and 3P Network (Comms) proactively planned a media briefing cum site visit for key media outlets (Straits Times, Lianhe Zaobao, Channel NewsAsia and Channel 8) to Blk 222 Bukit Batok East Ave 3 on 4 Oct 2017 (Wednesday) to help them understand why pipe leaks occur, and how PUB inspects all pipelines in Singapore at least once a year.

The media viewed the leak detection inspections being conducted at the pipelines onsite. These inspections were conducted using technology via deployment of leak noise loggers and correlators on the distribution pipes, where analysis of noise data transmitted can indicate leak spots.

Pipe leaks can be caused by various factors for example, wear and tear due to age, damage by other works, soil settlement, and pipe corrosion due to soil conditions.



*PUB technicians carrying out leak detection inspection work using leak noise loggers and correlators*



*Analysis of noise leak data*

Leading the visit, Director of Water Supply Network, Michael Toh, shared with the media that PUB will replace 170m of pipes in Bukit Batok East Ave 3 as well as carry out additional inspections on a total of 100km of pipelines in Bukit Batok.

He also shared on the overall management of the water supply network, Smart Water Grid sensors, ongoing pipeline replacement programme as well as PUB's efforts to leverage technology to enable us to better detect potential leaks and for preventive maintenance and replacement.



*Director of Water Supply Network, Michael Toh being interviewed on PUB's pipe replacement plans for 170m of pipes in Bukit Batok East Ave 3*

*Watch our in-house [video](#) on how PUB inspects and maintains its water supply network using technology such as Smart Water Grid Sensors, leak noise loggers and correlators – which all serve to detect leaks.*

**29  
September  
2017**

**Start Small Dream Big - Big Bang Finale 2017**

**Start Small Dream Big** is an initiative by the Early Childhood Development Agency for pre-schools to inculcate values and engage children in activities that allow them to contribute to the society.

Supported by PUB, together with the teachers of PCF Bishan North, students between the ages of 4 to 6 years old shared about the importance of water conservation, as well as NEWater - Singapore's Third National Tap, NEWater to their families. Participants also got to sample of a bottle of NEWater bottles as part of the education. The fruitful day ended with a fun rain-garden workshop activity with their families.





**16  
September  
2017**

**PARK(ing) Day 2017**

PUB participated in the PARK(ing) Day 2017 where members of the public dropped by our NEWater pop-up café to learn more about Singapore's Third National Tap, NEWater, and even tasted a sample of a bottle of it!

The PARK(ing) Day is an annual event organised by SUTD Singapore University of Technology & Design in collaboration with the Urban Redevelopment Authority.



**25 August 2017**

**Going Green in JurongHealth Campus**

With the aim of raising awareness on the importance of water conservation and recycling in staff, JurongHealth Campus worked together with PUB, NEA and Kuo Chuan Presbyterian Primary School to organise an event comprising of skits, presentations and a place-based ABC Waters Learning Trail for staff.



**23 August 2017**

**Visit by Mayor of Liu Zhou City, Guanxi, China**

Mayor of Liu Zhou City, Guanxi, China visited the Marina Barrage to learn and understand about Singapore Integrated Water Management, so that Singapore's experience could be applied in Liu Zhou City, Guanxi.



**12 August 2017**

**Water Audit Challenge by Yio Chu Kang Zone 3 Residents' Committee**

Yio Chu Kang Zone 3 Residents' Committee continued to rally their residents to monitor their water consumption and bring their most recent water bill with at least 0.5 Cubic Metre of water savings to their Residents' Committee (RC) Centre in exchange for a token.





**9 August 2017**

**National Day Awards 2017**

PUB congratulates our employees for being recognised at the National Day Awards 2017.

**The Public Administration Medal (Gold)**

Mr Tan Yok Gin, Deputy Chief Executive (Operations), Chairman's/Chief Executive's Office

**The Public Administration Medal (Bronze)**

Mr Neo Ai Chye, Chief Engineer, Water Supply (Plants) Department

Ms Wong Wai Cheng, Chief Engineer, Water Supply (Network) Department

**The Commendation Medal**

Mr Mokhtar Bin Hashim, Senior Engineer, Water Reclamation (Plants) Department, Operations

Mr Koh Kok Kiang, Senior Engineer, Catchment & Waterways Department, Electrical, Mechanical & Instrumentation

Mr Kwok Moh Shot, Senior Engineer, Water Supply (Plants) Department, Johor Works

Miss Ng Siew Tuan, Senior Engineer, Water Supply (Network) Department, NEWater & Industrial Water Supply Services



**The Efficiency Medal**

Click [here](#) for the full list of recipients [PDF].

**The Long Service Medal**

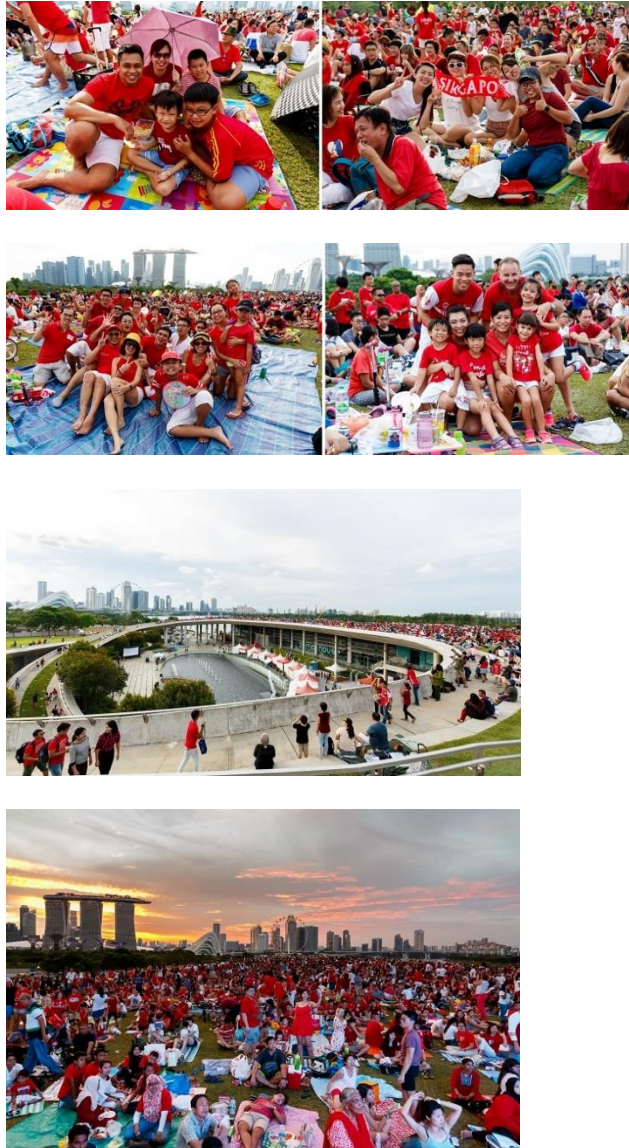
Click [here](#) for the full list of recipients [PDF].

**9 August 2017**

**National Day Celebration 2017 @ Marina Barrage**

Close to 16,000 crowd gathered on the Green Roof at Marina Barrage to celebrate Singapore's 52<sup>nd</sup> birthday. Highlights of this National Day celebration include gourmet selections by food trucks, carnival games, flea markets and live screening of the National Day Parade 2017.





**9 August 2017**

**NVC Celebrates Singapore's National Day!**

About 40 participants had a fun-filled and enriching morning at the NEWater Visitor Centre (NVC) this National Day. Families took part in the hands-on workshop, where they learnt how to build their own Mini Rain Garden, and how rain garden worked to cleanse water without the use of chemicals.



**8 August 2017**

**MEWR Family National Day Observance Ceremony 2017**



*(Top) The Ministry of Environment and Water Resources (MEWR) Family gathered at the lobby of Environment Building to celebrate Singapore's 52<sup>nd</sup> Birthday.*



*(Top) Mr Masagos Zulkifli, Minister for the Environment and Water Resources, joining the MEWR Family at the National Day Observance Ceremony.*



*(From left) Mr Ronnie Tay (Chief Executive Officer of National Environment Agency), Mr Choi Shing Kwok (Permanent Secretary for the Ministry of the Environment and Water Resources), Mr Masagos Zulkifli (Minister for the Environment and Water Resources), Dr Amy Khor (Senior Minister of State for Ministry of the Environment and Water Resources) and Mr Ng Joo Hee (Chief Executive of PUB) singing the National Anthem.*



*(Top) Children from the Kiddiewinkie Place, participating at this year MEWR Family National Day celebration.*

**2 August  
2017**

**Licensed Plumbers Conversion Course**

About 70 existing PUB Licensed Water Service Plumbers (LWSP) and sanitary plumbers attended the 2-day Licensed Plumber Conversion Course conducted at Waterhub Auditorium.

Click [here](#) to find out more about the Revised Licensed Plumber (LP) Scheme 2018.



**28-29 July  
2017**

**Singapore Kite Day @ Marina Barrage 2017**

The annual kite flying festival organised by PUB and the Singapore Kite Association was back at Marina Barrage for the 8th year running. Held on 29 and 30 July 2017, about 15,000 participants/visitors were thrilled by these international kite flyers kite performances.

Other fun activities and workshops like kite and wind garden making were also available. Admission to this event was complimentary.



**28 July  
2017**

**Visit of Jamaican Prime Minister H.E. Andrew Holness to NEWater  
Visitor Centre**

Hosted by PUB's Deputy Chief Executive (Operations) Mr Tan Yok Gin, Jamaican Prime Minister H.E. Andrew Holness visited NEWater Visitor Centre.



*(Top) Mr Tan Yok Gin explaining to Prime Minister H.E. Andrew Holness on the rigorous treatment process of NEWater.*



*(Top) Prime Minister H.E. Andrew Holness wrote down his thoughts after the visit at NEWater Visitor Centre.*



**18-19 July 2017**

**Singapore International Water Week Spotlight 2017: Forging Alliances Amongst Water Utility Leaders**

The Singapore International Water Week (SIWW) Spotlight 2017 is part of a series of exclusive by-invitation only events held once every two years. This year's theme – Forging Alliances Amongst Water Utility Leaders – brings together about 200 of the world's leaders in water, with the aim of optimising utility performance through the sharing of common challenges.

Twenty-five distinguished speakers and panellists from prominent utilities in Asia, Australia, Europe, North America and the Middle East. They will lead the discussions on four of the most pressing issues of the utility industry today:

Our holistic approach to water management, however, can be distilled into three key strategies:

- Managing all water as one
- Improving water network performance
- Guaranteeing water quality
- Recycling and reusing wastewater

Global case studies and insights from eight countries including Africa, Australia, Cambodia, Japan, Singapore and the USA, will be shared.



*(Top) Governor H.E. Eng. Ali Bin Abdul Rahman Al-Hazmi (from left) and Mr Ng Joo Hee, Chief Executive of PUB, exchanged handshakes during the MOU signing between Saudi Arabia's Saline Water Conversion Corporation (SWCC) and PUB.*



*(Top) Western Australia's Water Corporation CEO, Ms Sue Murphy (from left), with Mr Ng Joo Hee, PUB Chief Executive, at the MOU signing between Water Corporation and PUB.*



*(Top) Governor H.E. Eng. Ali Bin Abdul Rahman Al-Hazmi (from left) and Mr*



*Masagos Zulkifli, Minister for the Environment and Water Resources, sharing a moment at SIWW Spotlight 2017.*




*(Top) Mr Bruce Gordon, Coordinator of Water, Sanitation, Hygiene and Health, World Health Organisation ( left) and Mr Ng Joo Hee, PUB's Chief Executive ( right) at the launch of the WHO document 'Potable Reuse: Guidance for producing safe drinking water'.*



*(Top) Dr Lim Mong Hoo, PUB's Chief Specialist ( Water Quality) speaking at the SIWW Spotlight Session 3: Entirely Wholesome – Guaranteeing Quality in Every Drop.*



*(Top) Mr Harry Seah, PUB's Chief Engineering and Technology Officer*

	<p><i>speaking at SIWW Spotlight 2017 Session 4: Never Lost – Recycling and Reusing Wastewater.</i></p>
<p><b>20 June 2017</b></p>	<p><b>Replacement of Non-Water Efficient Water Closets for Households</b></p> <p>On 8 June 2017, PUB launched a project in the older HDB flats to help households who are currently placed on community assistance schemes replace their existing 9-litre water closets (WCs) with more water efficient ones. This replacement will be done for free, and is aimed at helping families to save water. PUB will also replace existing non-water efficient basin taps/mixers and kitchen taps/mixers at the same time. Click <a href="#">here</a> for more information on this programme.</p> <p>Mr Masagos Zulkifli, Minister for the Environment and Water Resources visited a few of the households which had their WCs replaced on 20 June 2017.</p>  <p><i>(Top) Mr Masagos Zulkifli, Minister for the Environment and Water Resources addressing the residents at wellness@west.</i></p>



*(Top) Mr Masagos Zulkifli, Minister for the Environment and Water Resources (left), and Mr Ng Joo Hee, Chief Executive of PUB, Singapore's national water agency viewing the display set of the non-water efficient 9-litre water closet.*

*(Bottom) Mr Masagos Zulkifli, Minister for the Environment and Water Resources (second from right) and Mr Ng Joo Hee, Chief Executive of PUB, viewing the installation of the water efficient water closet.*

15 March  
2017

**Dr Amy Khor, Senior Minister of State for Ministry of the Environment and Water Resources (SMS) & Ministry of Health, visited NurtureStars Pre-school at SAFRA Toa Payoh**

In conjunction with Singapore World Water Day (SWWD), Dr Amy Khor visited NurtureStars Pre-school, which is one of the edu-services under the Crestar Education Group, during their water rationing exercise.

In March 2017, 3,000 students from all of Crestar's 31 centres joined this exercise, where they were taught the importance of water as well as how to value and conserve water. Children were encouraged to bring 2 empty bottles (1.5 litres each) to school. Their teachers then filled up these bottles with water for their day's needs as the centres turned off water supply for 4 hours to simulate a "no water" scenario. Parents were also encouraged to participate in a follow-up activity by monitoring their water usage/bills at home in the following two months.



Other Crestar brands include Kinderland, ELFA, and Skool4kidz.