



Spotlight

Interview with Mr Norazmi Othman
Director of Technical Services, Brunei Darussalam

PUB: Please tell us about yourself and your company / organisation.

Norazmi: I have 27 years of professional experience in civil engineering and was involved in projects related to geotechnical and structural engineering, and infrastructure work such as road drainage and water and sewerage network. I have a bachelor degree in civil engineering and a master degree in geotechnical engineering. I am also a chartered member of the Institute of Civil Engineering (MICE) in the UK. Currently, I am the Director of Technical Services of the Public Works Department Brunei. Under the umbrella of the Ministry of Development, the Public Works Department functions to serve the populace of Brunei by developing comprehensive infrastructure, buildings and services for the nation with the aim towards a better quality of living.

The Department of Water Services (DWS) is one of eight Department under Public Works Department. The mission of DWS is to provide clean, safe, affordable and continuous water supply to the people of Brunei Darussalam. To achieve this mission, DWS has various main objectives set in place.

These objectives are:

1. Ensure potable water supply in compliance with WHO Standard for drinking water quality;
2. Reducing wastage / reducing Non-Revenue Water (NRW);
3. Providing continuous water supply;
4. Effective Bill Management and revenue collection;
5. National Water Policy Framework & Water Supply Act; and
6. Achieving water production efficiency.



Inculcating water conservation awareness to younger generation.

Additionally, DWS core functions include:

- Plan, create and develop water assets
- Manage, maintain and operation of water supply system
- Provide technical support and specialist advice to all ministries & departments
- Regulate and governance of water services
- Maintain and monitor water quality to WHO standard
- Manage water billing and collection of revenue
- Provide customer care and services
- Promote water conservation

The DWS employs over 500 workers and is responsible in overseeing the planning, design and managing the country's water resources to ensure sustainability and adequate resource to meet future demand which include protection and conserving the existing and future potential resources.

PUB: Could you tell us more about the situation of the water sector in the markets/countries your organisation operates in, such as the water supply network or water treatment market? Which issues in particular do you think are most important/are most pressing?

Norazmi: In Brunei Darussalam, water supply is managed and administered by the DWS under the Public Works Department. The quantity, quality and water security have always been, and continue to be key priorities to the country. Brunei's main source of water comes from the four major river basins. The average rainfall in Brunei is 2,900mm. Raw water is extracted from these major river basins and treated to potable water that is compliant to WHO standard. New water infrastructure development is continuously realized and existing water asset is being upgraded to keep pace with the growth in social and economy growth of the country.

DWS provides 99.9% of potable water to the people of Brunei Darussalam from the national water grid network (0.1% of rural water supply from independent slow sand filtration system). About 77% of water supplied goes to domestic and commercial use, whilst about 18% to industrial sector (mostly oil and gas) and 5% to agriculture.

Currently, DWS produces 500 MLD of treated water for domestic, commercial and industrial use, and supplies 30 MLD of raw water for industrial use. DWS manages 3 water dams and extracts water from 3 major rivers and 1 dam. Water is treated by 9 existing water treatment plants, and the DWS is in the process of building 2 additional water treatment plant with a total capacity of 150 MLD to meet future demand. DWS also manages 500km of transmission and 3200 km of distribution network.



Staff using a ground microphone to verify and pin-point leak location.

At the moment, there are three pressing issues on water supply in Brunei. Firstly, the operational and technical challenges of managing the transmission network to ensure a continuous supply to the population and meet the needs of industrial and commercial activities. This involves ensuring adequate clean and safe water supply, acceptable water pressure, managing pipe leaks efficiently, reducing NRW to acceptable level, as well as resolving customer water issues. Secondly, the need to strengthen the existing Water Act so that policies and regulations stay up-to-date with the new economic activities. Lastly, the implementation of Brunei's new water tariff which was recently reviewed and updated to improve water conservation and consumption.

PUB: In view of the current COVID-19 pandemic and the need to keep communities safe and healthy, how is the Brunei Public Works Department reacting to the pressing need for access to clean water and adequate hand-washing facilities in the regions that you are responsible for?

Norazmi: In light of the COVID-19 pandemic, DWS has followed the guidelines and directives issued by the Ministry of Health in Brunei to collectively work together to reduce the spread of the virus. DWS has stepped up efforts to ensure continuous access to clean water in critical areas such as hospitals, clinics, isolation centres. DWS was also able to supply clean water to 99.9% of the population in Brunei Darussalam.

Additionally, DWS has activated its business continuity plan to cope with issues related to COVID-19. For example, DWS ensured control measures were carried out to protect the well-being and health of workers and operators at water treatment plants, laboratories and offices. This ensures DWS have enough resources to maintain operations at critical infrastructure.



Lab technician testing various parameters of water quality.

PUB: What are some of the key water management challenges that you are tackling in your work at the Brunei Public Works Department?

Norazmi: The key water management challenges include meeting the increasing demand of water usage, especially from agriculture and industrial activities. Apart from that, managing NRW at reasonable level, securing capital expenditure for water infrastructure projects and maintaining the water quality are some of the other challenges faced by DWS.



River barrage at the Tutong River managed by the Public Works Department of Brunei.

PUB: What are some personal stories that you have garnered, based on your experience in these projects?

Norazmi: One of the key challenges is to manage raw water quality. The fluctuating raw water quality from the rivers sometimes yields very high turbidity, very high colour (Hazen) and very high acidity levels. This occurrence is most frequent in the Tutong River. To tackle this challenge, DWS has installed water quality monitoring sensors and static mixers in water treatment plants so that operators can react accordingly to undesirable raw water quality intake.

PUB: There is a need for global collaboration to co-create solutions that address the world's water challenges. The Singapore Water Academy has a broad alumni network, comprising management executives and technical staff. What possible collaborations do you see between your organisation and other alumni?

Norazmi: We are fortunate that surface water in Brunei is sufficient to meet current and future water demands. However, we must not be complacent and heedless, especially when it comes to water sustainability and to have clean water and sanitation for all. In this aspect, ongoing research and development from academic institutions worldwide plays a pivotal role to meet and exceed goals set forth by each nation.

DWS is an advocate of R&D as we believe adopting technologies and best practices can solve local water supply issues and bring many downstream benefits for the country. DWS welcomes R&D collaborations and exchanges through visits and capacity-building training programmes to address water challenges. For example, DWS had a collaboration with the industry to provide affordable telemetry systems to address the shortfall of manpower and expertise to meet the National Development Plan & Vision 2035, as well as to achieve the United Nations Sustainable Development Goal 6.



Delegates from ASEAN member countries and the host from the Republic of Korea (ROK) in a meeting on ASEAN-ROK strategic partnership.

On the topics of collaboration, DWS welcomes exchanges on water treatment and water network operations, especially on leak detection, reduction of NRW and smart water meters. In addition, DWS is keen on exploring the use of IOT and smart sensors for water quality and network monitoring, and technologies for water re-use and water conservation. In managing climate change issues such as prolong drought, DWS is keen to learn the best practices on climate adaption strategies.



The Singapore Water Management Series on Supply Network Management (13 to 17 Jan 2020) certificate presentation.

PUB: You attended the Singapore Water Management Series. What are some of the valuable takeaways from this programme for you?

Norazmi: The most valuable experience would be to learn on how Singapore meets the water demand for domestic and industrial use. This is achieved through its leaders' long-term vision of building necessary water infrastructure and leveraging technologies to improve productivity. Singapore is also in the forefront of water re-use where Singapore adopts an integrated management of water resources.



Group picture of the Singapore Water Management Series on supply network Management (13 to 17 Jan 2020). Mr Norazmi is seated second from the right in the bottom row.

The course is very relevant to water managers. It covers various topics such as integrated water resource management, water quality management, reliable supply of good water to customer, water demand management and metering, NRW and network renewal, customer service, utility reform in the urban water sector and tackling water network challenges.

The various site visits to Marina Barrage, WaterHub, automated meter reading trial sites at Hougang and PUB joint operation command and control centre have provided me the opportunity to obtain first-hand information on how Singapore manages water network operations.

I have learnt a lot from the course as it provides an in-depth understanding of the planning, research and development, operation and maintenance of water supply systems. The course has also shared the best practices on operating procedures and the technologies that were implemented.