

Name: Ng Yen Nie

Designation: Senior Hydraulic Engineer

*Please tell us about yourself and your company/organisation.*

My Name is Yen Nie and I am a senior hydraulic engineer at Mott MacDonald. I have 12 years' experience working in integrated water management design, water resources study, sustainable urban storm water management design, urban storm water and sewer system modelling. This year is my fifth year working with Mott MacDonald in Singapore. I have been involved in several infrastructure development projects in Singapore, Indonesia, Philippines, Cambodia.



Mott MacDonald is a US\$2bn engineering, management and development consultancy and the first company in its class to be independently certified carbon neutral. Our purpose is to improve society by considering social outcomes in everything we do; relentlessly focusing on excellence and digital innovation, transforming our clients' businesses, our communities and employee opportunities.

We are involved in solving some of the world's most urgent social, environmental and economic challenges. We aim to help governments and businesses plan, deliver and sustain their strategic goals, responding to humanitarian and natural emergencies and improving people's lives.

Our Mott MacDonald Singapore operations first commenced in 1972. As a multi-disciplinary consultancy, we bring together services and expertise across a broad range of industries and sectors including buildings, environment, power, transport, urban development, water, wastewater and more. Over the years, we have been involved in numerous major infrastructure projects for both public and private sector clients including the Public Utilities Board, the Land Transport Authority, the Civil Aviation Authority of Singapore, Semcorp, Keppel etc.

*What are the issues that keep you awake at Mott MacDonald Singapore Pte Ltd?*

***Sustainability challenges for our clients is perhaps the biggest issue for Mott MacDonald Singapore Water Sector. Two areas where we are particularly active are climate change and circular economy.***

Climate change is among the biggest threats facing humanity and governments and businesses around the world are working towards greenhouse gas neutrality.

Within our Asia Pacific, New Zealand and Australia region, we continue our investment in the digital world, pathways to net zero and energy solutions for our changing world to best support our clients and our communities.



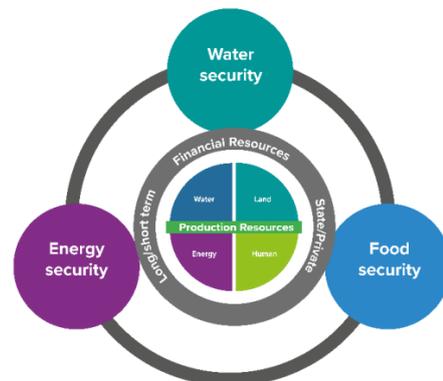
In the UK, we have collaborated with several water companies and industry body Water UK to develop the world's first sector strategy for achieving **Net Zero Carbon** on operational emissions. The Net Zero 2030 Routemap highlights a broad range of 'levers' for reducing emissions and offers different pathways to net zero.

It is evident that we will all have to live with the effects of climate change and increasingly frequent extreme weather events in high-density living environments common to Singapore and other regional Asian cities. We do however have a responsibility to respond to the climate emergency and do what we can to manage and mitigate the immediate consequences of climate change for the world's most vulnerable people.



Mott MacDonald is engaged as delivery partner on the Global Future Cities Programme (GFCP) for South East Asia, responsible for carrying out targeted technical assistance to support sustainable urban development. The Programme builds upon a coherent series of 13 targeted interventions in 9 cities across 6 countries to support and encourage the adoption of a more sustainable approach to urban development.

Circular Economy continues to be a major industry theme. In a **Circular Economy**, the value of products and materials is maintained for as long as possible. Waste and resource use are minimised, and when a product reaches the end of its life, it is used again to create further value. By closing resource loops, we can open opportunities for the Singapore economy and promote positive social outcomes.



In 2018, Mott MacDonald was commissioned by the National Environment Agency (NEA) to study on gaining optimal energy efficiencies for the Integrated Waste Management Facility (IWMF) to be co-located with the Public Utilities Board's (PUB) Tuas Water Reclamation Plant (TWRP). We expect the above concepts to feature heavily in future waste management projects.

*In view of the Singapore Green Plan 2030 that was unveiled in Feb 2021, how is Mott MacDonald Singapore leveraging the opportunities emerging from the national focus on sustainability?*

Mott MacDonald is committed to placing the Sustainable Development Goals (SDGs) at the heart of what we do as a business. We continue to leverage opportunities to procure public infrastructure which supports the Singapore Green Plan 2030 and aligns with our own sustainability objectives.

At Mott MacDonald we have a focus on unlocking a systems approach to sustainable development via digital delivery. We have a number of products under our Mott MacDonald digital solutions platform MOATA which are well aligned with the Green Plan. Many of these have been deployed under the Global Future Cities Programme in Bangkok, Philippines, and Malaysia.

**City in Nature: to create a green, liveable and sustainable home for Singaporeans**

**Moata People and Planet** provides insights into the impact of infrastructure assets on environment and society.

**Sustainable Living: to make reducing carbon emissions, keeping our environment clean, and saving resources and energy a way of life in Singapore**

**Moata Carbon Portal** (compliant with PAS2080 certification) allows detailed embodied carbon accounting and planning at all stages of a project.

**Energy Reset: to use cleaner energy and increase our energy efficiency to lower our carbon footprint**

**Moata Smart Energy** is a suite of solutions for the renewable energy market that help solve challenges associated with intermittent renewables, such as solar and wind.

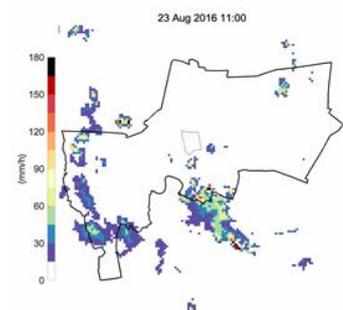
**Green Economy: to seek green growth opportunities to create new jobs, transform our industries, and harness sustainability as a competitive advantage**

A twin is one the key to transform industries and harnessing sustainability as a competitive advantage. The **Smart Infrastructure Index** is the tool for assessing client digital maturity, to assess the performance against industry standards and provide suitable solutions and plan.

**Resilient Future: to build up Singapore's climate resilience and enhance our food security.**

With climate change we cannot eliminate the risk of coastal flooding, but digital tools can visualise its impacts and help us prepare for them. Smart technologies e.g. **Smart Water Suite** can be used to increase the resilience of coastal communities against weather events of increasing severity and frequency.

One of the successful projects that Mott MacDonald implemented Moata System is Bangkok Flood Management Decision Support System (DSS) under the Future Cities Programme. [Mott MacDonald is helping the Bangkok Metropolitan Administration \(BMA\) to enhance the city's ability to prepare and respond to flooding](#) caused by high-intensity rainfall and identify mitigation solutions. **Moata Rain Wise** is adopted in the DSS, to provides state-of-the-art geotemporal rainfall prediction across an entire catchment area in real-time. It provides a foundational data input to other Moata solutions related to the urban water cycle and provides critical insights to operational event managers and first responders. This enhancing our knowledge of the water cycle through sophisticated rainfall prediction, putting us one step ahead in preparedness.



*The Singapore Water Academy has a broad alumni network, which presents opportunities to co-create solutions that address the world's water challenges. How can the SgWA alumni collaborate with Mott Macdonald Singapore in this regard?*

In 2017 I participated in a Singapore Water Management series as part of the Sustainable Stormwater Management. This was an incredibly valuable experience and I gained great exposure and insights into sustainable solutions in terms of strategies, planning, and technologies in Singapore as well as the rest of the world. Singapore Water Academy was a great platform to gain knowledge and networks with other water professionals and leaders in the industry.



***Photo: Visiting the Stamford Diversion Canal Construction During the Singapore Water Management Series 2017***

Mott MacDonald has been actively participating in various international industry events to engage and connect professionals and clients. The Singapore Water Academy alumni is a broad, diverse network of water professionals, welcome further collaboration with the Singapore Water Academy to explore connections and knowledge sharing in the areas of sustainable development, climate resilience and digital delivery in the water industry. Sharing our expertise and knowledge could help support ongoing training and development of our existing and emerging water professions. We look forward to continuing to engage with Singapore Water Academy and believe a sustainable water future will only be realised through collaboration and strategic partnerships.

***Photo: MottMacDonald conducted Technical Sharing Session with PUB(January 2021)***



**Photo: MottMacDonald Conducted Presentation in IP.5 Breaking Boundaries in Digital Delivery (SIWW Online June 2021)**

