

2015 PSTA WINNER CITATIONS

PRESIDENT'S SCIENCE AND TECHNOLOGY MEDAL 2015



Tan Gee Paw
Chairman,
PUB Singapore

“For his pivotal role in harnessing science and technology to enable Singapore to achieve sustainable water supply, and to become a global water hub. He formulated Singapore’s first water master plan in 1972 and played a central role in the development of Singapore’s NEWater and desalination capabilities. His outstanding leadership in Singapore’s water R&D effort has made a profound impact on water sustainability, and spawned a thriving water and environment research, development and industry ecosystem in Singapore.”

Mr Tan Gee Paw has made exceptional contributions through his leadership in the exploitation of science and technology to help Singapore achieve sustainable water supply and to become a global water hub. Most of his distinguished career has centred on advancing Singapore’s water management system. In 1972, Mr Tan formulated a plan of action to create estuarine reservoirs and urbanised catchments, which also envisioned closing the water loop by capturing and reusing every drop of water. The underlying aim of this plan was to bring about Singapore’s sustainability in water supply.

To bring this plan into fruition, Mr Tan systematically exploited R&D leading to his critical strategic contribution in the form of the development of 2 unconventional sources of water for Singapore – NEWater in 2002, and desalinated water in 2005 which used membrane technology for the first time. This technology was combined with the development of new catchments outside traditional water supply schemes. In particular, Mr Tan played a key leadership role in the inter-agency committee responsible for the clean-up of the Singapore River and the Kallang Basin. The clean-up was completed ten years later, and among other socio-economic benefits, had paved the way for the development of the Marina Barrage. The R&D effort in PUB has its roots in Mr Tan’s pioneering experience with NEWater. He developed deep engineering R&D capabilities in PUB and forged an organisational culture that embraces experimentation with emerging technology as a means to provide new and more effective water solutions.

By leveraging technological innovations, Singapore has been able to overcome the water challenge. These successes have given PUB the confidence to pursue R&D with even greater vigour. Since 2003, PUB has supported more than 400 projects and continues to undertake major engineering and technologically challenging projects such as the Deep Tunnel Sewerage System, a superhighway for used water management. Mr Tan’s leadership at the helm of the R&D Committee in PUB has

expanded the traditional boundaries of water management into the development of sustainable technologies to comprehensively manage water collection, reclamation and disposal. Under his stewardship, PUB was awarded the prestigious Stockholm Industry Water Prize, one of the highest accolades for outstanding achievements in the global water arena. Mr Tan's experiences in NEWater, commitment to R&D, and leadership have also had a subtle but pivotal impact on the water and environmental research ecosystem in Singapore that had evolved since NEWater. He is the key driver of the Water Technology and Environment R&D landscape in Singapore since leading PUB in its initial efforts in water research and the establishment of the Environment and Water Industry Programme Office (EWI) in May 2006. His vision is to create a long term plan to build up the ecosystem with space for both the public and private sectors.

Mr Tan has played a role both downstream, by supporting research and stimulating companies to adopt technology, and upstream by building the water research ecosystem. The water R&D initiatives driven by Mr Tan have created enormous value for Singapore, in job creation, in attracting international water companies to locate their operations in Singapore, as well as in strengthening Singapore's water R&D capabilities and competitiveness. The high level of water, environmental and membrane research in the public and private sector would not have been possible without PUB's pioneering effort, under his leadership. Always humble and nurturing towards young scientists and engineers, Mr Tan generously shares his expertise and experience in environmental and water management by serving on several advisory panels, including the Environment and Water Technologies International Advisory Panel (EWT-IAP) and the Institute of Water Policy at the National University of Singapore. Water, once a strategic weakness of Singapore, through Mr Tan's 40 years of perseverance and single-minded focus, has now become a competitive advantage for Singapore.

A thriving global water industry and the setting up of numerous water research institutions including those established by foreign companies owe much to Mr Tan's dedication to advancing the nation's water management system and realising water sustainability through science and technology. Through his efforts, Singapore has emerged as a model for sustainable urban water management to cities around the world. For his leadership, and impact on water sustainability, which has spawned a thriving water and environment research, development and industry ecosystem in Singapore, Mr Tan Gee Paw is awarded the 2015 President's Science and Technology Medal.