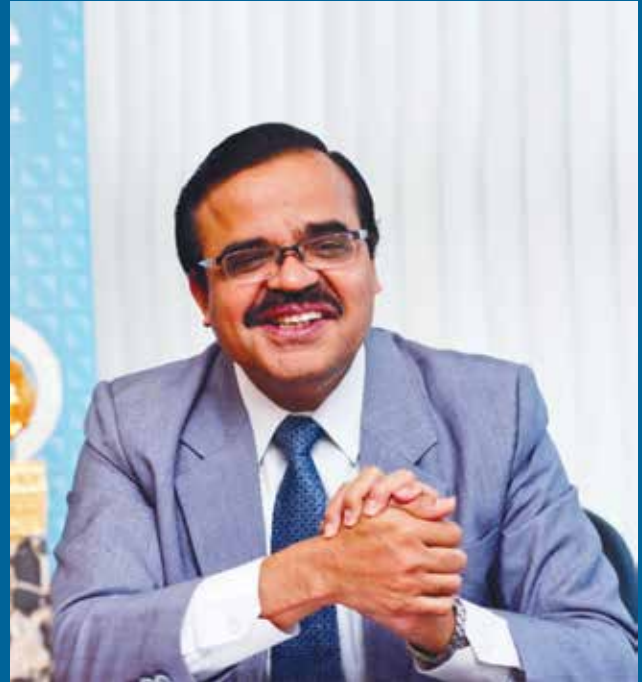


# People in water research

## Mr Jagadish C.V. CEO of Systems on Silicon Manufacturing Company (SSMC)

Mr Jagadish C.V. was appointed CEO of Systems on Silicon Manufacturing Company (SSMC), a joint venture between the Taiwan Semiconductor Manufacturing Company and NXP Semiconductors, in December 2006. He graduated with a first class honours bachelor's degree in Electronics & Communication from the National Institute of Engineering Mysore, India, and completed the International Executive Program by INSEAD Management School, France. He has worked extensively in business development and the semiconductor industry, and is a member of the NXP Semiconductors operations management team. Mr Jagadish has been the Deputy Chairman of the Singapore National Quality Award Governing Council and Power Quality Advisory Panel since 2007. He has also been the Vice Chairman of Semiconductor Equipment and Materials International, Singapore Regional Advisory Board since 2010; and Deputy Chairman of the PUB Water Network since 2015.



© Systems on Silicon Manufacturing Company

### Water resilience for competitiveness

I distinctly remember walking to the river in my village to fetch drinking water and drawing from the well in the early stages of my life. These humbling experiences have deeply ingrained in me a strong appreciation for our world's natural resources and a bigger perspective of water which is our national asset today.

As with all companies in the semiconductor wafer fabrication industry, having a consistent supply of good quality water is of vital importance to SSMC's manufacturing process. Even a slight contaminant at a part per billion level could penetrate through the purification process and be harmful to the delicate micro devices. Today, SSMC's manufacturing processes require a daily water usage equivalent to 6,500 4-room Housing Development Board flats, and up to 130,000 cubic metres of consistently good quality water per month.

In 2002, SSMC became the first company to use NEWater for wafer manufacturing when it was introduced as a source of water supply in Singapore. It was a bold step towards water sustainability and conservation, and one that has paid off for us. As a supply of high-grade, ultra-clean water, we have found NEWater to be of better quality for industrial use. It also removed our need to further treat tap water to meet wafer fabrication standards, thus saving on maintenance costs. There has been no trade-off involved and we were able to achieve a healthy and meaningful return on investment within a few years.

### Environmental conservation as a corporate social responsibility

SSMC is committed to the conservation of our environment. This is a corporate social responsibility, and

I believe that efforts have to start at the top, which then cascade down to other levels in the organisation.

My belief is that switching to NEWater alone is not enough, and we need to look at ways to further reduce our water consumption. Our water recycling facility currently recycles NEWater 3.5 to 4 times before it is discharged, and we hope to increase this rate to 6 times. Other water conservation initiatives include reusing used water, optimising flow rates, and commissioning a new plant to recycle used water.

SSMC also believes strongly that environmental awareness starts from young, and has adopted three schools to promote environmental consciousness among youths. In addition, SSMC has adopted Lorong Halus Wetland since 2012 and conducts Active, Beautiful, Clean (ABC) Waters Learning Trails to share information about the area with the public.

### Industrial water sustainability

With our efforts, SSMC's water consumption per wafer produced has fallen over the years, while our water reclamation rate has grown from 50% to 80% between 2011 and 2015. This has yielded an annual reduction of about 1 million cubic metres of water since 2003. SSMC remains committed to exploring new technologies for reclaiming water and its by-products like fluoride, and new methods of water treatment before discharge. We also hope to further our collaboration with PUB and explore more ways to conserve water in our operations.