

SINGAPORE

Enterprise Singapore (SSC)

Supporting water conservation in Singapore

Overview

Climate change has contributed to the erratic weather our world is facing. There has been a noticeable increase in the frequency of floods and droughts, which is affecting water resources everywhere. It is globally recognized that water is a scarce resource and its scarcity is exacerbated by the impacts of climate change. By 2050, without new policies, global water demand is projected to increase by some 55 %, especially due to growing demand from the manufacturing sector (OECD, 2012).

As one of the most water-stressed countries in the world, managing industrial water demand has been a key priority for Singapore's national water agency, PUB, to support long-term water sustainability. Singapore currently consumes around 430 million gallons of water a day and that figure is expected to nearly double by 2060. The non-domestic sector accounts for more than half of the demand today. Therefore, it is critical that industry users put in place a system to manage their water use more efficiently and play their part in conserving water.

To help manage the situation, PUB, together with Enterprise Singapore (then SPRING Singapore) and industry stakeholders, developed Singapore Standard SS 577:2012 on water efficiency management systems to support the efforts of industry players towards the efficient use of water. The standard complemented PUB's water conservation strategy to better manage the growing demand for non-domestic water.

The Singapore Standardisation Programme provided a public-private partnership platform to engage relevant key stakeholders involved in the standard's development. These included PUB as well various associations and industry leaders from sectors such as building, manufacturing and semiconductors, among others. The standards development platform helped PUB secure the buy-in of key stakeholders through consensus.

In 2019, the International Organization for Standardization (ISO), led by Singapore, developed and published ISO 46001, *Water efficiency management systems – Requirements with guidance for use*, based on SS 577. The standard includes a set of frameworks and guidelines as well as suggested tools and best practices for water users to adopt and improve on their water usage and efficiency. A certifiable standard, ISO 46001/SS 577 supports industry players (including premises consuming

less than 60 000 m³ of water per calendar year) that want to demonstrate their water stewardship beyond applicable regulatory requirements.

Outcomes and benefits

Since January 2015, PUB has included the requirements on water efficiency management practices under Part IV A of the Public Utilities (Water Supply) Regulations. These require big water users with a net water consumption of at least 60 000 m³ of water per calendar year to submit a water efficiency management plan annually. As part of the mandatory water efficiency management practice, about seven hundred large commercial and industrial premises have adopted the water efficiency practices of ISO 46001/SS 577.

The standard enables companies to better manage their water use and achieve water savings, thus reducing operational costs. It also provides international recognition for their water conservation efforts. What's more, users of the standard will contribute directly to United Nations Sustainable Development Goal 6 (Clean Water and Sanitation), which seeks to “ensure availability and sustainable management of water and sanitation for all”. It specifically addresses Target 6.4: “By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.”

PUB will benefit greatly from the reduced water demand as non-domestic water users scale back their extraction rates from the raw water supplies, contributing to the sustainability of the environment. The standard is predicted to achieve industrial water savings of three million gallons per day every year, or savings equivalent to the water demand of more than 25 000 households.

ISO 46001/SS 577 supports the national effort to promote water conservation in organizations. By way of example, Systems on Silicon Manufacturing Company Pte Ltd (SSMC) has implemented several measures for water efficiency, such as using alternative water sources – NEWater now makes up 100 % of its process water usage – and treating exhaust gases with recycled water to achieve an additional 11 % total water recycling rate. SSMC now recycles 70 % of its water, including recycling and reusing water several times before discharging it. Through these water efficiency measures, SSMC saves around 1.15 million cubic metres of water annually, or the equivalent volume from 461 Olympic-sized swimming pools. This translates into sizeable cost savings for the company.

Partners involved

In 2012, Singapore's national water agency (PUB), together with Enterprise Singapore (then SPRING Singapore) and industry stakeholders, developed a national standard to support Singapore's water sustainability journey.

Timeline

Singapore Standard SS 577 on water efficiency management systems was published in 2012 after 17 months in the making. The standard was then elevated to ISO in December 2014 to be given

international status. After four years in development, ISO 46001, *Water efficiency management systems – Requirements with guidance for use*, was published in July 2019.

References

- OECD, "[OECD Environmental Outlook to 2050: The Consequences of Inaction – Key Facts and Figures](#)"
- PUB, "[Singapore Standards on Water Efficiency Management Systems](#)"