SDG 6 Country Acceleration Case Studies 2023

Singapore

United Nations | UN WATER

SDG 6 Country Acceleration Case Studies

UN-Water is a coordination mechanism of the United Nations. It is comprised of over 30 United Nations entities (Members) and over 40 other international organizations (Partners) working on water and sanitation issues. UN-Water's role is to ensure that Members and Partners deliver as one in response to water-related challenges.

The latest progress report shows that we are off track to achieve SDG 6. At the current rate of progress, the world will not reach the SDG 6 targets by 2030. In 2021, UN-Water reported that the world – on average – must quadruple current rates of progress to have a chance to achieve SDG 6 by 2030.[1]

It is not enough to look at what is not working. There is so much we can learn from the many countries that have made significant progress. Since 2022, UN-Water has therefore developed case studies to understand how some countries are advancing towards SDG 6. The case studies highlight achievements and describe processes, enabling conditions and key lessons learned in countries selected for their progress on SDG 6. As such, each case study is a significant recognition of the progress made at the country level on one or several SDG 6 targets.

The case studies are meant to enable the replication of what has worked in other countries and encourage continued action to achieve SDG 6 in the selected countries. The 2030 Agenda for Sustainable Development forms an overarching lens for the case study to capture inter-linkages and opportunities that are relevant across sectors and SDGs.

Three countries are selected every year, starting in 2022. The selection of the case studies is made by the UN-Water Expert Group on the 2030 Agenda for Sustainable Development, based on country progress reporting on the SDG 6 global indicators, compiled by the United Nations custodian agencies. For 2023, the selected countries for case studies are Brazil, Ghana and Singapore.

The contents of the case studies are prepared by UN-Water, based on material shared by UN-Water Members and Partners and representatives from relevant ministries and institutions in the selected countries, including the country monitoring focal points for the SDG 6 global indicators. The 2023 case studies also include inputs from a participatory webinar, as well as background interviews with a variety of stakeholders, conducted online and in-person during the UN 2023 Water Conference. The case studies are reviewed and validated by UN-Water Members and Partners before publication.

To enable cross-country comparison and learning, the case studies examine key underlying factors and enabling conditions that brought about the change. Very often these are political, institutional or behavioural, and they span over the five accelerators identified in the SDG 6 Global Acceleration Framework: financing, data and information, capacity development, innovation, and governance.

1 As evidenced by UN-Water (2021).

So far, the following countries have been selected for country acceleration case studies:

2022: Costa Rica, Pakistan, Senegal

2023: Brazil, Ghana, Singapore

More information: www.unwater.org/news/sdg-6-country-acceleration-case-studies

Table of contents

Executive summary

In recent years, Singapore has managed to reduce water stress, despite facing extreme water scarcity. Water-use efficiency has also increased. The Singapore water story started in the 1960s with the cleaning up of rivers allowing more rainwater to be harnessed for treatment into potable water, to then separate the used water system from drainage and effectively close the water loop. Moreover, Singapore expanded its water resources though unconventional sources, such as desalinated water and water reuse (NEWater). Singapore also showed the world that universal access to water and sanitation, the safe treatment of wastewater, good ambient water quality and integrated water resources management (IWRM) are within reach. Key factors and drivers that enable these achievements include:

- **Institutions and society are geared for learning and innovation**, starting with small pilots and then learning fast how to scale up;
- **Singapore nurtures an innovation ecosystem that is open to the world**, with solutions coming from everywhere, while protecting intellectual property rights;
- **Trade in virtual water** considerably expands the freshwater resources available to the country;
- **Water is high on the political agenda**, with commitment at the highest level of government; all policies must take into account water security;
- **The country sets ambitious goals and targets and plans how to achieve them**, through long-term master plans that are regularly updated, taking key performance indicators seriously;
- **Water is priced to reflect its scarcity value**, incorporating the higher cost of producing water from incremental sources (i.e. unconventional sources like desalination and NEWater) and allowing for the water utility to recover costs, while remaining affordable;
- **The state budget covers a significant proportion of costs**, including for public storm-water drainage infrastructure and progressive rebates on utilities bills for lower-income households;
- **Water saving technical standards and water efficiency labels reduce water use**, effectively limiting the pressure from water scarcity;
- **"All of society" awareness including public education campaigns to promote water conservation**, effectively reducing demand, coupled with standards, labels, as well as economic, legal and other instruments;
- **Smart meters and sensor data are used to detect leaks**, minimizing water distribution losses and encouraging water conservation, while improving billing;
- **Long-term transboundary commitments** form part of available water resources.

Singapore used all five accelerators of the SDG 6 Global Acceleration Framework, plus trade, to achieve the observed progress on SDG 6.

The experience of Singapore is highly relevant for small island states and large cities experiencing water stress. Every two years, the Singapore International Water Week brings together leaders, experts and practitioners from governments, utilities, academia and industry from around the world. The Singapore Cooperation Programme also supports the United Nations Children's Fund (UNICEF) on training in "WASH" (water, sanitation and hygiene), while Singapore's Sustainability Action Package supports capacity building in developing countries on sustainability and climate change. These tools and platforms can help replicate some of the experiences of Singapore in other countries. Singapore participated at a high level in the UN 2023 Water Conference and submitted ambitious commitments to the Water Action Agenda on building expertise for coastal protection and flood management, technology to promote water conservation, as well as the role of research and development to improve energy efficiency and reduce the carbon footprint of water processes research and development to improve energy efficiency and reduce the carbon footprint of water processes.

1. Country context

Singapore is a small island state in Southeast Asia. It is also a large city with more than 5 million inhabitants. It is densely populated and highly urbanized with almost no rural areas (Table 1). Singapore is one of the richest countries in the world, with a Gross Domestic Product of 116,486 United States dollars (USD) per capita. Singapore became independent in 1965, when it left the federation of Malaysia. Its political system is a unitary parliamentary republic, with regular elections. All governments have been an expression of the same political party for over sixty years.

Water management in Singapore is based on long-term master planning. The city is divided into ten drainage catchment areas and six sewerage catchments. The water sector is under the purview of the Ministry of Sustainability and the Environment. PUB (Singapore's National Water Agency) acts as the water utility for the whole country. Other ministries and authorities also contribute to water management. Seventeen town councils, which are led by elected Members of Parliament, are responsible for the day-to-day operations in managing the common water infrastructure in public housing estates.

Singapore can only count on 103 m³ of renewable freshwater resources per inhabitant per year. This is far below the threshold that is generally considered to be the limit after which a country experiences extreme water scarcity and it will get worse as the population grows[2]. Industry and the economy are also growing, which puts additional pressure on water resources. According to the Government of Singapore, water demand in the country is expected to almost double by 2065.

Singapore has "four national taps": water from the local catchment, imported water, desalinated water and high-grade reclaimed water, also called "NEWater". The country developed an extensive stormwater drainage system to allow two-thirds of the country's land surface to serve as water catchment areas. Rainwater is then collected and channelled to reservoirs before it is treated for drinking water. Additional water is imported through pipes from Johor, Malaysia. NEWater and desalinated water are produced locally, in plants that collect water from the public sewerage system and the sea, respectively. In addition, some wastewater effluent is reclaimed to serve industries; this water, solely used for industrial purposes, has a lower quality than NEWater.

About 5 per cent of the land area is covered by water-related ecosystems, with specific zoning and four protected nature reserves, three of which are water-related: the central catchment area, one wetland and one coastal site. Inland waters and green areas, including man-made reservoirs, play an important role for water source protection, rainwater collection and flood risk reduction. The country has very limited natural groundwater. In the 1970s, Singapore River and Kallang Basin used to be heavily polluted, and a significant clean-up effort was successfully carried out from 1977 to 1987. However, public perception of these water bodies and green areas remained not favourable, even after they had been cleaned up. In 2006, the Active, Beautiful, Clean (ABC) Waters Program was launched to green urban spaces and open up water bodies for recreational uses, reconnecting community with water-related ecosystems.

2 For the definitions of water scarcity and water stress see inter alia White (2018).

Table 1: Overview of key water-related data

Population	5,453,566 (100% urban) *Source: World Bank (2021)*
Gross domestic product	116,486 USD per capita/year (PPP, high income) *Source: World Bank (2021, current international)*
Renewable freshwater resources	103 m³/habitant/year *Source: FAO (2020)*
Water sources	Water from local catchment, imported water, reclaimed water, desalinated water *Source: PUB*
Natural groundwater	Very limited *Source: Lim (2018)*
Water-related ecosystems	7.3% of land area (mostly protected) *Source: Calculated from the Freshwater Ecosystem Explorer (2020) data*
Water withdrawal	51% industry, 45% municipal, 4% agriculture *Source: FAO (2020)*
Cultivated land	0.1% of land area *Source: FAO (2020)*
Hydropower	0.8% of power generation (imported) *Source: Calculated from IEA (2020) data and Keppel Electric information*
Drought risk	Medium *Source: World Resources Institute (WRI) Aqueduct 3.0*
Riverine and coastal flood risk	Low-medium *Source: World Resources Institute (WRI) Aqueduct 3.0*

Industry represents about 51 per cent of water withdrawals. Demand from industry is expected to grow in the future. 45 per cent of withdrawals are for municipal purposes through the public distribution network, whose proportion of total water consumption is expected to decrease. In 2019, the per capita use was 141 litres per day, which Singapore aims to reduce to 130 litres per capita per day by 2030[3].

According to the Food and Agriculture Organization of the United Nations (FAO), only 0.1 per cent of agricultural land is cultivated, representing around 660 hectares. Still, agriculture, forestry and fishing account for 4 per cent of water withdrawals, based on FAO estimates. Singapore is currently exploring different forms of urban farming, including fish and seaweed farming. Given the country context, FAO considers environmental flows to be negligible.

According to the Water Resources Institute, the risk of water-related disasters is medium. Compared to other countries, the risk of drought is medium, while the risk of riverine and coastal flood is medium-low. Nevertheless, over the last decade, Singapore has experienced more than a dozen major flooding events, such as the flash floods that occurred in 2010 and 2011.

3 141 litres per capita per day was the figure in 2018 and 2019, before the COVID-19 crisis. According to a statement by the Minister of State for Sustainability and the Environment of 7 March 2022, household water consumption went up to 154 litres per capita per day in 2020 and 158 litres per capita per day in 2021, in the context of the COVID-19 crisis and adoption of work-from-home practices.

These events have driven the implementation of several disaster risk reduction measures, such as increasing the capacity of the drainage network, constructing tidal gates at rivers and reservoirs, as well as retention ponds, green roofs and rain gardens in urban areas to slow down surface runoff into the drainage system[4]. This is particularly important in the context of climate change.

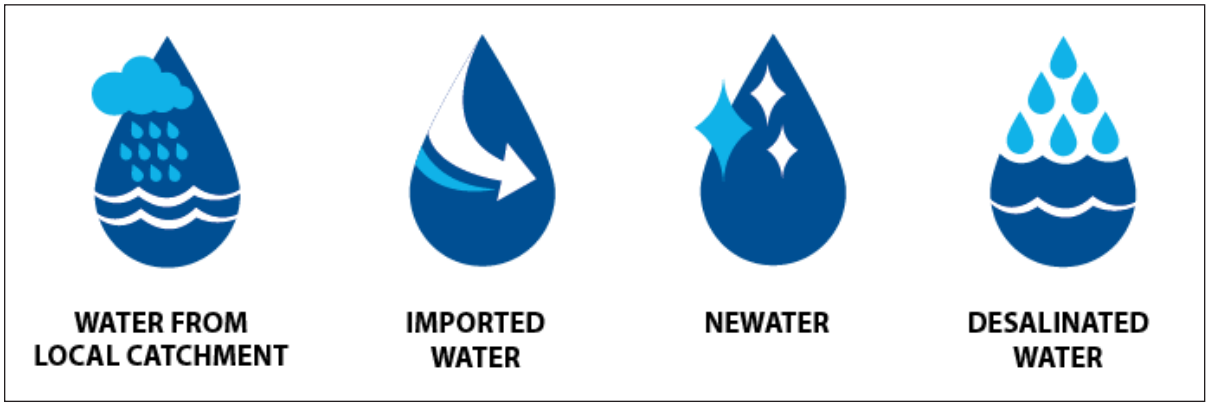

Figure 1: The "four national taps" of Singapore.
Source: PUB

4 Major floods in Singapore, accessed on 16 June 2023 at https://eresources.nlb.gov.sg/infopedia/articles/SIP_780_2004-12-30.html.

2. What was achieved

Over the years, Singapore has reduced its level of water stress (SDG indicator 6.4.2), with a 2% reduction most recently between 2015 and 2020. Key interventions behind this achievement include water conservation across sectors, expanded catchment areas (now covering two-thirds of Singapore's land surface) and increased supply of reclaimed water. As reflected in Figure 2, the sales of freshwater have gone down slightly since 2016, while the sales of NEWater have increased with 17%. The number of desalination plants in Singapore has also increased from one in 2005 to five in 2022. While this progress greatly contributes to Singapore's achievement of SDG 6.4, due to its low natural availability of water, the country is still considered to have a high level of water stress, withdrawing 83% of its available freshwater resources in 2020. The country aims at further enhancing its infrastructure and capabilities to produce desalinated and reclaimed water. This is expected to further contribute to water security in the country.

Water stress is lower than 20 years ago.

Moreover, water-use efficiency increased by 9 per cent in the service sector and industry (SDG indicator 6.4.1), between 2015 and 2020. In 2020, water-use efficiency amounted 227 USD/m³ in industry and 802 USD/m³ in the service sector.

Singapore also scores high on other parts of SDG 6, including 100 per cent universal access to safely managed drinking water (SDG 6.1.1) and sanitation (SDG 6.2.1a), 100 per cent safe treatment of all domestic wastewater (SDG 6.3.1)[5], good ambient water quality in 100 per cent of water bodies (SDG 6.3.2), 100 per cent integrated water resources management (IWRM) (SDG 6.5.1) and 0 per cent of water basins experiencing rapid changes in surface water area. This means that the reduction in water stress and increase in water-use efficiency was achieved alongside progress in other reported indicators. Singapore shows the world that achieving SDG 6 is within reach.

Data is not available on some parts of SDG 6, including on the proportion of population with a handwashing facility with soap and water available (SDG 6.2.1b) and procedures in law or policy for participation by users and communities and level of participation (SDG 6.b.1).

SDG indicator 6.4.1 "Change in water-use efficiency over time" is measured as the ratio of dollar value added to the volume of water used. It considers water use by all economic activities, with a focus on agriculture, industry and the service sector. Increasing water-use efficiency over time means decoupling a country's economic growth from its water use.

SDG indicator 6.4.2 "Level of water stress: freshwater withdrawal as a proportion of available freshwater resources" tracks how much freshwater is being withdrawn by all economic activities, compared to the total renewable freshwater resources available. When a territory withdraws 25 per cent or more of its renewable freshwater resources it is said to be 'water-stressed'; values above 75 per cent are classified as high water stress, and values above 100 per cent as critical water stress.

5 According to the Singapore Department of Statistics, also all industrial wastewater is safely treated (www.singstat.gov.sg/find-data/sdg/goal-6).

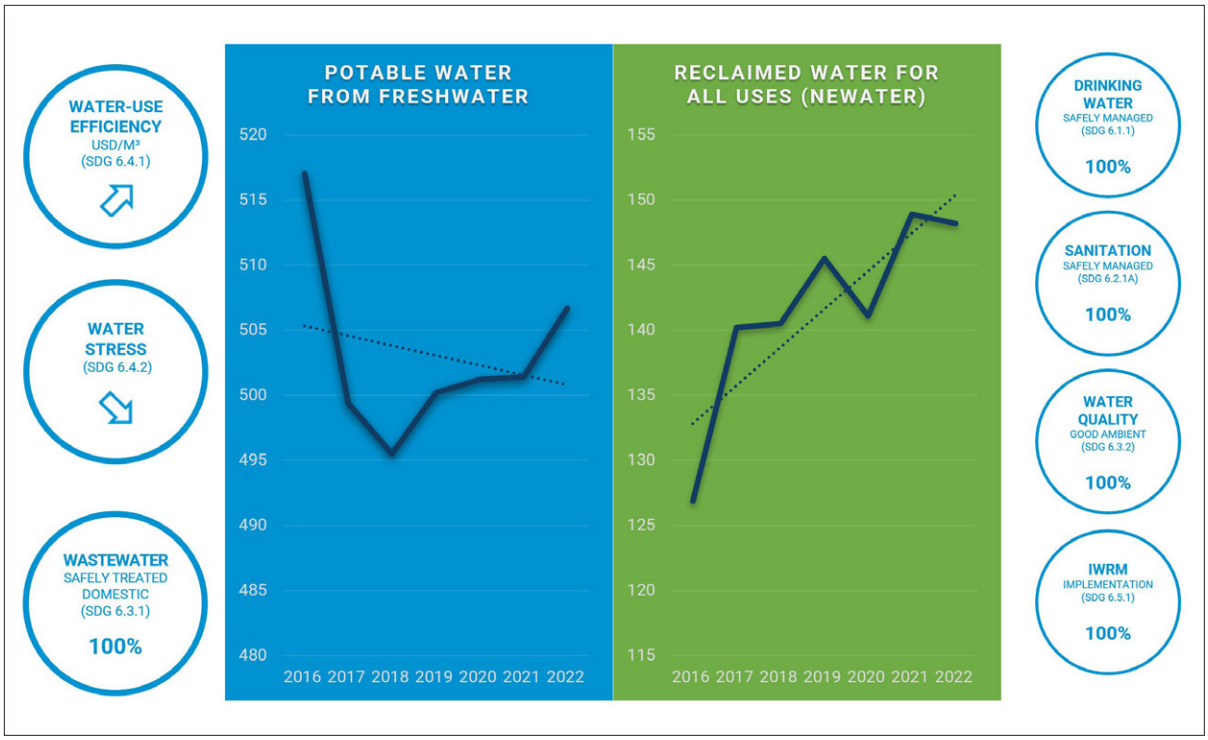

Figure 2: Trends in the sales (million m³) of potable water from freshwater sources and higher-quality reclaimed water (NEWater) (million m³), together with progress on relevant SDG 6 indicators

Source: Ministry of Sustainability and the Environment, PUB - Singapore's National Water Agency (water sales, 2016-2022) and UN-Water SDG 6 Data Portal, with data from the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) (6.1.1, 6.2.1, 2020), WHO and the United Nations Human Settlements Programme (UN-Habitat) (6.3.1, 2022), United Nations Environment Programme (UNEP) (6.3.2, 6.5.1, 2017-2020), the Food and Agriculture Organization of the United Nations (FAO) (6.4.1, 6.4.2, 2015-2020).

3. Understanding the achievement

This section describes how and why the progress took place. It examines the direct and indirect factors that enabled the achievement, paying attention to which factors can perhaps be replicated in other countries. Six main drivers have been identified in the case of Singapore: innovation, governance, financing, trade, capacity development, as well as data, information and communication. They are presented in order of relevance.

Innovation: enabling environment for water solutions

Institutions are geared for learning. The starting point is research and development, to then learn fast how to scale up, from small pilots and demonstrators, which partners are encouraged to develop, to full implementation of solutions for a large city like Singapore. Over the decades, this small island has become a major laboratory for innovative solutions to be implemented not only in Singapore, but also in other countries across the world.

PUB – Singapore's National Water Agency - has a dedicated budget for innovation, with a fixed component to provide regular support to research and development partners and a variable component to address specific needs. Technology and innovation are at the heart of Singapore's experience: they have enabled the collection of all used water and rainwater, the development of desalinated water and NEWater, as well as the fight against leaks through smart meters and sensor networks. Also, innovation allows Singaporean partners to share and export solutions globally, which contributes to the return on investment. The budget for research and development currently amounts to around 11 million USD per year.[6]

The innovation ecosystem is open to the world. As no one has a monopoly of good ideas, solutions come from the whole world. Singapore has a practical approach to the use of technology and innovation. PUB works with research, industrial and financial partners from all over the world. PUB has a project evaluation panel, whose members include international experts.

Incentives are in place for innovative solutions. PUB provides support at each step of the innovation and enterprise value chain. The intellectual property of innovative solutions stays with the partner companies and universities.

Global Innovation Challenge

PUB regularly issues challenge statements, open to research centres, but also companies with solutions. The challenge seeks to accelerate the discovery and adoption of smart solutions and new technologies to improve operational excellence and meet future water needs. PUB also publishes regular grant calls to support research and development in various water-related topics.

Photo: The Straits Times

6 Source: PUB Annual Report 2021-2022.

Governance: long-term goals and plans

Water is high on the political agenda. The importance of water security for Singapore emerged strongly during the Second World War, when the main pipe supplying water to the country from Johor, Malaysia, was cut with the bombing of the pipe. Since independence, water security has been prioritized, with commitment at the highest level of government. In Singapore, all policies must take into account water security.

The government sets ambitious goals and carefully plans how to achieve them. Problems are formulated and defined in a clear manner. Policy options undergo cost-benefit analysis. Water is always seen in the broader framework and as key to socio-economic development.

Singapore adopts long-term master plans, which are regularly updated. A first master plan was adopted in 1972. The water master plan is updated regularly, with 2030 as medium-term and 2060 as long-term time horizon.[7] Key performance indicators (KPIs) are an essential part of the planning culture and are taken seriously.

An enabling legal and institutional framework is in place. Government possesses regulatory levers over industry for water supply, pollution control and drainage. In particular, the Public Utilities Act 2001 and the Sewerage and Drainage Act 1999 play an important role in this regard. Legislation is regularly reviewed and updated, if required.

Talent is attracted to the public sector. Public officers receive competitive remuneration. As a result, the Ministry of Sustainability and the Environment and PUB can compete for well-educated and trained people in the jobs market. Competitive salaries and benefits also reduce motives for corruption.

7 See PUB *Our Water Our Future* 2018.

Financing: valuing water by getting the price right

Water is priced for financial sustainability. The combination of user tariffs and government funding ensures cost recovery and accessibility. Water is priced not just to recover the full costs of its supply and production, but also to incorporate the higher cost of producing water from incremental sources, which are unconventional sources like desalination and NEWater. The ability to recover the costs of its operations allows PUB to sustain a sound level of capital expenditure. Government funding also plays an important role, covering expenditures for public services, including public stormwater drainage.

Water tariffs are much lower than the OECD average.

Progressive rebates on utilities bills are provided for lower-income households to ensure affordability. This is important even for a high-income country and is also covered by the state budget.

Industry can receive funding for water efficiency measures, representing a cost-efficient form of public-private partnership that also contributes to a circular economy, by incentivizing water conservation, as well as the recycling and reuse of used water.

Capital depreciation is accounted for. PUB depreciates its property, plants and equipment on a straight-line basis over their estimated useful lives. This enables sound capital investment and the timely upgrading of infrastructure.

Singapore promotes principled public-private partnerships in the water sector. In addition to a legal and institutional environment that protects investment and intellectual property, long-term concessions (typically of 25 years) and the Design-Build-Own-Operate approach incentivize private sector investment in the water sector. This is complemented by a robust regulatory

PUB Green Bonds

Financial innovation helps find cost-efficient solutions, such as the use of public-private partnerships through water purchase agreements to lower the cost of investment in the water sector, as well as issuing bonds to finance infrastructure development. In 2022, PUB raised around 600 million USD in inaugural Green Bond issuance and has in place a Medium-Term Note Programme of about 7.5 billion USD.

More information: www.pub.gov.sg/news/pressreleases/2022PR14

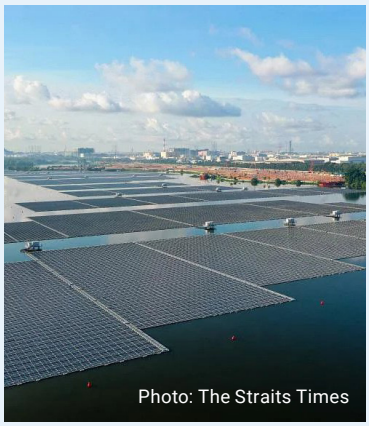

Photo: The Straits Times

framework. For instance, when a private operator encountered financial difficulty in 2019, PUB stepped in to find a pragmatic solution and safeguard Singapore's water security.

Trade: counting on virtual water and imported water

Virtual water considerably expands the renewable freshwater resources available. Like most small countries, Singapore relies a lot on trade not only for its food and energy security, but also in many other aspects of life. Singapore currently imports more than 90 per cent of its food from more than 170 countries and regions.[8] A recent report estimated the virtual water imported by Singapore for food and beverages alone to be about ten times higher than the renewable freshwater resources available in the country.[9] Trade is therefore a key driver in reducing the pressure from water stress. Supply chains are critical not only for water and food security, but also for industry and other sectors, whose water footprint is certainly not negligible, such as in the case of imported hydropower.

Imported water currently meets about half of Singapore's water demand. Long-term agreements are in place to import water from Johor, Malaysia. The 1962 Johor River Water Agreement entitles Singapore to draw from the Johor River up to 250 million gallons of water per day, which is about 73 m³ of freshwater per inhabitant per year.[10] This considerably expands available resources, making transboundary commitments particularly important for Singapore.

Capacity development: investing in education and "all of society" awareness

Yearly water conservation campaigns, together with water awards, such as the Watermark Awards and the prestigious Lee Kuan Yew Water Prize, raise awareness about the need to value water and solve water problems. They target both youth and adults in an ageing, multicultural society. Coupled with technical standards, water labels, as well as economic, legal and other policy instruments, "all of society" awareness raising contributed to reducing domestic water consumption from 176 litres per capita per day in 1994 to 141 litres per capita per day in 2018. In the case of NEWater, this was not always well accepted when it was

8 Quoted from the Singapore Food Agency (2022).

9 For more information, see WWF Singapore (2019), which calculated an average weekly water footprint of the food and beverages consumed in Singapore of 19,586 litres and 1,312 litres per inhabitant, respectively, which corresponds annually to 1,065 m³ per inhabitant, compared to 105 m³ of renewable freshwater resources.

10 Calculated based on the 250 million (imperial) gallons of water per day mentioned in the agreement and the population served (2021).

introduced back in 2003. Investment in education and awareness raising has paid off, both domestically and internationally, resulting in greater current acceptance and adoption of this source of water.

Singapore hosts some of the best universities in the world. The water sector benefits from the country's higher education and research. As some innovations are still at the scientific stage, PUB currently supports programs and projects at institutes of higher education such as the National University of Singapore and the Nanyang Technological University.

Water scholarships are provided. PUB offers financial support, such as through the Singapore Sustainability Scholarship, to encourage people, such as public officers and students, who are passionate about the strengthening of Singapore's water security to pursue higher education and personal development.

Singapore has developed a vibrant industrial ecosystem. Singapore's water industry comprises about 350 water companies serving both the industrial and municipal markets, supplying key components for drinking water supply and sanitation, as well as irrigation. It represents an enabling environment for capacity development.

Data, information and communication: smart solutions for water security

Connected sensors are used to encourage water conservation and achieve greater operational efficiency. Data from smart meters and other connected sensors can be used to actively monitor water usage and detect leaks. A web application is used as a two-way communication tool, allowing users and PUB to share on suspected leaks and other relevant information. Smart meters also provide information to water users, who can monitor and possibly reduce their water consumption.

Water quality is monitored in real time. A network of sensors is deployed in water bodies, as well as distribution and sewage systems, to monitor drinking water and ambient water quality and tackle pollution. This is particularly important to reduce the risk of industrial pollution. Sensors mounted on drones are used to monitor the quality of water in reservoirs.

Singapore's entire water system has been digitized. Environmental data, water quantity and quality data feed into PUB's digital twins for water system monitoring, modelling and forecasting, thus enabling a smarter management of water.

SMU Waterloo Project

A faculty member of the Singapore Management University (SMU) and her students joined forces with civil society organizations to screen public hygiene standards in toilets at coffeeshops and hawker centres. The Government of Singapore also recognized the need to raise the cleanliness standards of public toilets in these public spaces. Efforts to do so included providing co-funding in 2020 to replace ageing toilet infrastructure in these premises. Fines can be issued to ensure compliance with laws.

4. Role of the global accelerators

Singapore invested in all five global accelerators at the same time. Available information shows that most of the progress on reducing water stress was achieved through increased production of desalinated water and reclaimed water. This progress was enabled by a conducive policy and institutional framework. It would have been impossible to achieve such impressive results, if it had not invested in all five accelerators identified in the SDG 6 Global Accelerator Framework, namely: financing, data and information, capacity development, innovation, and governance. Trade in virtual water and transboundary commitments also play a key role in ensuring water security.

Together with trade, joint efforts in innovation, governance, financing, capacity development, and data and information enable Singapore to keep closing the water loop and further expand rainwater collection, desalinated water and reclaimed water, while promoting water conservation. These efforts are essential to achieve the country's ambitious goals of providing high-quality water for a growing population, area and economy, while reducing the carbon footprint of the water sector and promoting climate change adaptation. They will also further increase water security, as well as the sustainability of water management.

The SDG 6 Global Acceleration Framework is a unifying initiative that aims to deliver fast results, at an increased scale, towards the goal of ensuring the availability and sustainable management of water and sanitation for all by 2030. The Framework contributes to the new Water Action Agenda, an outcome of the UN 2023 Water Conference, held in March 2023.

More information: www.unwater.org/our-work/sdg-6-global-acceleration-framework

5. Replicability in other countries

Singapore's experience is highly relevant for small island states and large cities facing water stress. Half of the world's largest cities experience water scarcity. Singapore shows that change is possible. One of the objectives of this case study is to present the experience of Singapore in an accessible manner, so that it appears less out of reach to countries that do not necessarily have the same level of revenue. Key factors and drivers that may be replicated elsewhere include:

- **Institutions and society are geared for learning and innovation,** starting with small pilots and then learning fast how to scale up;
- **Singapore nurtures an innovation ecosystem that is open to the world,** with solutions coming from everywhere, while protecting intellectual property rights;
- **Trade in virtual water** considerably expands the freshwater resources available to the country;
- **Water is high on the political agenda,** with commitment at the highest level of government; all policies must take into account water security;
- **The country sets ambitious goals and targets and plans how to achieve them,** through long-term master plans that are regularly updated, taking key performance indicators seriously;
- **Water is priced to reflect its scarcity value** incorporating the higher cost of producing water from incremental sources (i.e. unconventional sources like desalination and NEWater) and allowing for the water utility to recover costs, while remaining affordable;
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- **Water saving technical standards and water efficiency labels reduce water use,** effectively limiting the pressure from water scarcity;
- **"All of society" awareness including public education campaigns to promote water conservation,** effectively reducing demand, coupled with standards, labels, as well as economic, legal and other instruments;
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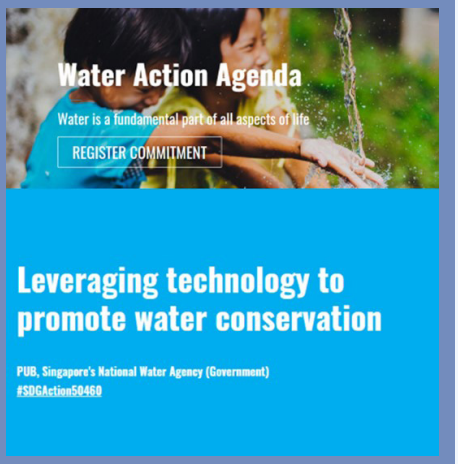
Opportunities for experience sharing

The Singapore International Water Week brings together leaders, experts and practitioners from governments, utilities, academia and industry from around Asia and the world. It is held every two years, in conjunction with the World Cities Summit and CleanEnviro Summit Singapore. This facilitates the sharing of experience with other cities.

The Singapore Cooperation Programme supports UNICEF on training in WASH, while the Sustainability Action Package supports capacity building in developing countries on sustainability and climate change. These tools and platforms can help replicate some of the experiences of Singapore in other countries.

Singapore-based United Nations global and regional entities, including the World Meteorological Organization (WMO) Regional Office for Asia and the South-West Pacific and the United Nations Development Programme (UNDP) Global Centre for Technology, Innovation and Sustainable Development, as well as the United Nations Country Team in Singapore, can help share the Singapore water story at the regional and global level.

Participation in the UN 2023 Water Conference
Singapore participated at a high level in the UN 2023 Water Conference. H.E. Mr. Tharman Shanmugaratnam, former Senior Minister and Coordinating Minister for Social Policies, co-chaired an important session dedicated to the Water Action Decade. H.E. Ms Grace Fu, Minister for Sustainability and the Environment, delivered Singapore's national statement. PUB organized a high-level side event and submitted ambitious commitments to the Water Action Agenda, including building expertise for coastal protection and flood management, technology to promote water conservation, as well as the role of research and development to improve energy efficiency and reduce the carbon footprint of water processes.



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