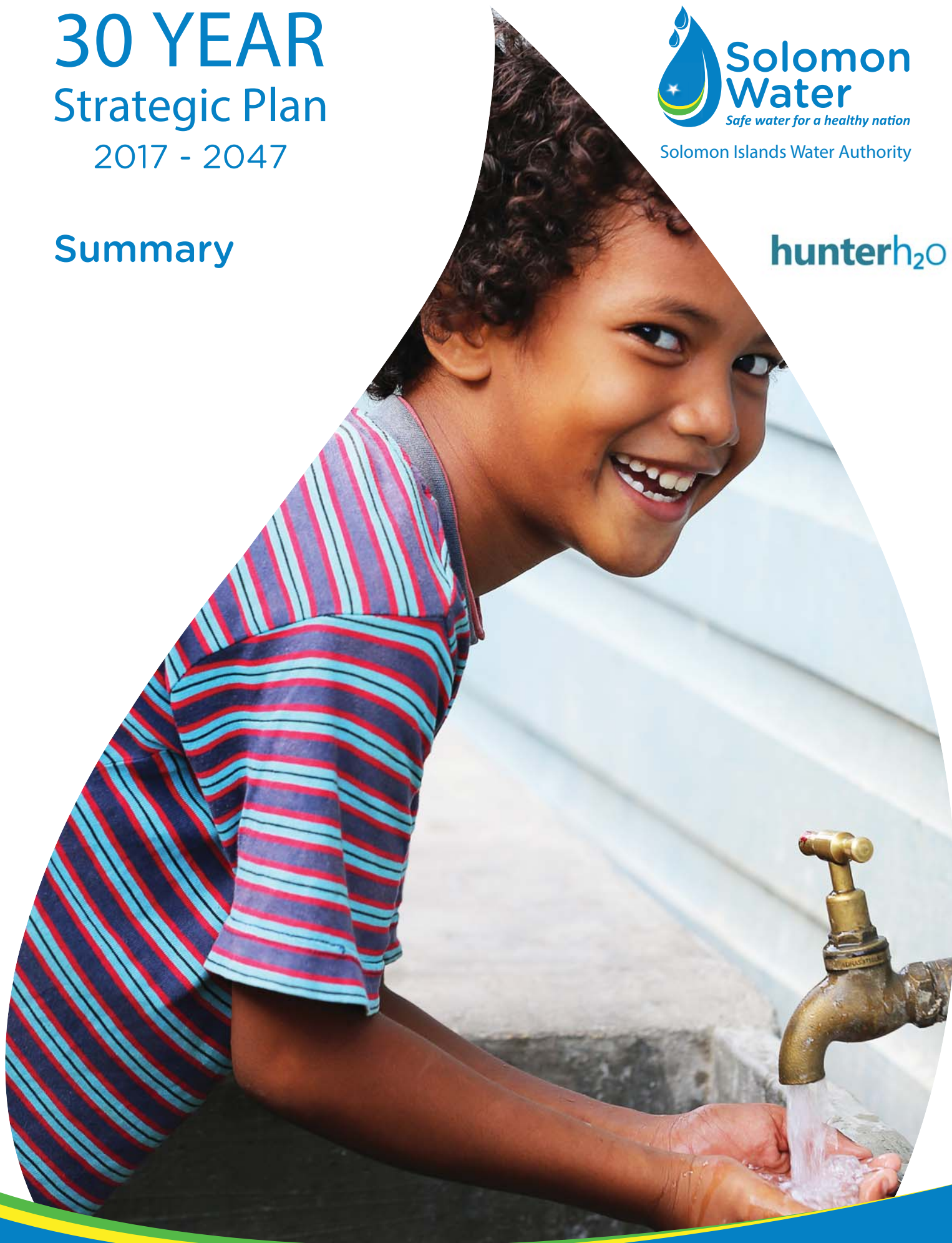


30 YEAR Strategic Plan 2017 - 2047



Summary

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This report provides an overview of the outcomes of work undertaken on behalf of the Solomon Islands Water Authority (SW) to develop a 30 Year Strategic Plan to ensure the ongoing sustainable development of SW's urban water and wastewater services throughout the Solomon Islands to at least 2047. Further technical detail is provided in the accompanying 30 Year Strategic Plan and 5 Year Action Plan.

Honiara is located on the north coast of Guadalcanal and is the capital of the Solomon Islands. The population of the capital city, Honiara, was estimated at approximately 105,000 in 2017. SW provides water services to approximately 58,000 people in Honiara and surrounding areas in Guadalcanal. The population served by SW in Honiara and surrounding villages is projected to increase to approximately 295,000 people by 2047. This increase is driven primarily by migration from the rural communities to urban areas, and the provision of backlog services to existing communities (infill development).

Noro is located in the Western Province, with a population of approximately 4,000 is projected to increase to 7,000 by 2047.

Auki is located in the Malaita Province, with a population of approximately 6,000, which is projected to increase to 13,000 by 2047.

Tulagi is located in the Central Province, with a population of approximately 1,300, which is projected to increase to 1,800 by 2047.

The projected population increase over the next 30 years will have a significant impact on current water supply and wastewater systems, including:

- Increased health, environmental and water quality impacts of wastewater discharge
- The need for additional water sources due to increased water supply demand
- The need to extend reticulation systems and improve the capacity of transfer systems

Provision of Safe Drinking Water and Basic Sanitation

The provision of safe drinking water and basic sanitation has been a focus of the international community over recent decades. The adoption of the Millennium Development Goals (MDGs) by the Member States of the United Nations in 2000, and subsequent Sustainable Development Goals (SDGs) in 2015, further reinforced the importance of adequate water and sewer services.

30%
target by 2047
for access to
SIWA's reticulated
wastewater system

Specifically, Goals 6.1 and 6.3 of the SDGs include targets to achieve universal and equitable access to safe and affordable drinking water, and adequate and equitable sanitation and hygiene for all by 2030. Solomon Islands Government recognises that significant work is required to meet these targets. As of 2012, 81% of the Solomon Islands was using an improved drinking water source, and only 29% were using an improved sanitation facility. In order to address this, the Government has developed a National Development Strategy to map out the strategic direction for the future development of the Solomon Islands.

The main focus in the water and sanitation sector is on the provision of public utilities to the urban and rural population so that the majority of the country's population can access the basic public utilities for their livelihoods. Increased accessibility to these public utilities will improve standards of living for Solomon Islanders and relatively reduce the potential epidemics of disease that have adverse impacts on the lives of Solomon Islanders and the development of the country.

95%
target by 2047
for access to
SIWA's reticulated water
supply
system

Through the 30 Year Strategic Plan, SW has adopted a target of achieving 95% coverage of properties within its service areas with access to the reticulated water supply network. SW has also adopted a target of achieving 30% coverage of properties within Honiara with access to the reticulated wastewater network, including the majority of non-residential properties. This requires significant investment in new and improved water and sewer infrastructure.

“The SW water and sewer systems have been identified for major upgrades in response to population growth and to ensure that the health outcomes identified in the Sustainable Development Goals and National Development Strategy are met.”

Current Water Supply Services

The Honiara water supply system currently supplies approximately 55% of the population in Honiara city and the surrounding peri-urban centres in Guadalcanal. A total of nine primary supply zones have been identified, with limited cross-connection between systems. The generally discrete operation of supply zones and insufficient reticulation storage across most systems results in frequent water outage, as there is limited ability to supply water from other systems.

Operation and maintenance of the raw water sources regularly impacts on the continuity of water supply to customers. Despite recent improvements, there are still some areas without 24/7 water supply. There is a large proportion of small diameter reticulation pipes within the system, which accounts for poor supply pressures across much of the network, particularly in Rove, Mataniko, Panatina and Lungga areas of Honiara. This is further exacerbated by inadequately sized trunk mains.

Most of the water supply sources only have chlorination facilities for basic treatment. Individual chlorination facilities are sometimes offline for lengthy periods due to maintenance issues, which can compromise water quality. The majority of urban and industrial areas within the water supply catchments are not sewered, which poses a risk to water quality and public health.

More than 60% of water produced at the sources is not billed due to a combination of leaks, illegal connections and meter inaccuracy. This high volume of Non-Revenue Water (NRW) increases operation costs and is the cause of a major amount of lost income for SW.

SW also operates water supply systems in Auki, Noro and Tulagi. These systems suffer similar issues to Honiara, including high NRW, limited redundancy, intermittent supply, areas of low pressure and the impacts of unsewered catchments.

Current Sewer Services

The SW wastewater system currently provides reticulated sewerage to some commercial and industrial properties in Honiara, as well as a limited number of adjacent residential properties. There are no wastewater systems in any of the provincial centres. At 6% coverage, SW has the lowest sewerage coverage of all medium-sized utilities in the Pacific.

The wastewater system does not undergo any form of treatment, with raw sewage discharging directly to the ocean and the Mataniko River. Additionally, operational issues and limited backup power means that sewage regularly overflows to customer properties at multiple locations across the catchment.

Poor hygiene, lack of on-site treatment and poor access to sewerage are the main issues affecting the sanitation sector in the Solomon Islands. The widespread use of septic systems in urban areas is a significant issue, due to poor construction, lack of maintenance and lack of resources to enforce construction and operating standards. This may result in contamination of rivers, coastal waters and groundwater near urban centres, with severe health and environmental implications.

Other Issues

A future challenge for SW is the vulnerability of key water and wastewater assets to extreme events and climate change, which will affect the availability of potable water in the Solomon Islands. Measures to reduce these impacts include designing critical infrastructure for hazards, improving water efficiency, reducing water losses, increasing storage and diversifying water sources.

Whilst there have been significant improvements in recent years, institutional capacity is an ongoing challenge for SW and an area that needs further attention over the short to medium term. The financial capacity of SW is very limited, with heavy reliance on external funding for capital works, renewals and senior management. Operation and maintenance of systems is basic and largely reactionary, with little strategic planning. SW needs significant support to develop the capacity of all staff, including both technical and management positions.

The affordability of water is also a challenge in a nation where tariffs are up to three times higher than estimated affordability thresholds, which particularly affects low income households. Other barriers to access include insufficient water management awareness, large upfront connection fees, poor debt recovery, access rights relating to land tenure issues, water quality issues, reliability of supply and limited access to infrastructure in informal settlements and peri-urban areas.

Servicing Existing and Future Customers

A 30 Year Strategic Plan was developed in order to ensure an integrated approach to improving water and sewer services to Honiara and provincial centres. This approach ensures that current capacity and operational issues are identified and considered together with future development needs.

A regional servicing strategy determined the most appropriate and efficient method for provision of drinking water and wastewater systems to existing customers, areas not currently serviced by SW and identified future development zones. This new strategy will substantially improve the access and availability of drinking water in the urban centres of the Solomon Islands over the next 30 years, whilst significantly improving environmental impacts and reducing the risk to public health.

The identified strategy generally allows for existing customers to be serviced by the current networks with unserviced customers and future development areas being serviced by new infrastructure. This includes a new river offtake, a new Water Treatment Plant, a new Sewage Treatment Plant and new deep ocean outfall.

Water Supply Capital Works

It is proposed to improve water sources in stages. The first stage involves recommissioning bores at White River and expanding bore extraction at Mataniko. The subsequent stages involve constructing a centralised water treatment plant, where water quality will be improved through filtration and chemical dosing, with the Lungga River providing a reliable long term water source. The treatment provides additional barriers against contamination from uncontrolled surface water and groundwater sources.

Major water supply capital works to be completed by 2047 include:

- New 80 ML/d water treatment plant and Lungga River offtake
- New reservoirs, pumping stations and interconnected pipes
- Recommission White River bores
- Expand bore extraction at Mataniko
- New trunk pipes at Mataniko and White River
- New reticulation to areas not currently serviced
- Communal standpipes to some informal and peri-urban areas

Population
connected to SW
water supply by
2047:

300,000 people

The provision of an improved reticulated water supply system will reduce the burden on women and children who currently undertake water carrying roles, particularly in informal settlements and peri-urban areas. The alternative of encouraging a multitude of wells is far more costly and will potentially add stress to the limited electricity supply system.

Sewer Capital Works

It is proposed to improve effluent quality in two stages. The first stage involves constructing a trunk network to divert all existing flows to a single centralised deep ocean outfall, where primary screened effluent will be diluted away from the shore line. The second stage involves constructing a centralised treatment plant at Panatina, where effluent quality will be improved by removing dissolved and suspended organic compounds.

Major sewer capital works to be completed by 2047 include:

- A new 25 ML/d sewage treatment plant
- A new deep ocean outfall and pumping station
- 19 new wastewater pumping stations
- 25km of trunk gravity mains
- 240km of reticulation mains

Population
connected to SW
sewer system by
2047:

90,000 people

The key benefit of the centralised sewer system is that it significantly reduces the biological load and disease causing bacteria and viruses that are accumulating in the soil profile and potentially seeping into the groundwater and the river systems. The alternative of more onsite septic tanks cannot meet this goal, requires far higher ongoing costs and is unsuitable as the density of population increases.

5 Year Capital Works Program (2017-2022)

	Improves service	Aids accurate decision making	Aids financial position	Protects public health	Estimated capital cost USD	Estimated capital cost SBD
Honiara bores	x				1.1m	8.8m
New water source planning/design		x			8.2m	65.6m
Lungga pump station and pipeline	x			x	6.4m	51.2m
Water treatment plant Stage 1A construction	x			x	27.1m	216.8m
Water trunkmains	x				4.3m	34.4m
Additional reservoirs	x				5.7m	45.6m
Temporary sewer outfalls	x			x	1.0m	8.0m
Planning/design of long term outfall		x			1.1m	8.8m
New sewer reticulation	x			x	11.5m	92.0m
Provincial water supply investigations and improvement	x			x	4.6m	36.8m
NRW reduction program	x	x	x		3.0m	24.0m
Maintenance improvements, facilities	x		x	x	2.7m	21.6m
Existing asset replacements	x			x	12.0m	96.0m
Facilities	x	x			2.1m	16.8m
Operational improvements	x			x	1.5m	12.0m
Reform, policy, planning and data management		x	x		2.3m	18.4m
Project management		x	x		3.0m	24.0m
Capacity building		x	x		1.2m	9.6m
TOTAL					98.8m	790.4m

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