Water Sector Strategy 2050

Discussion paper

water authority of fiji

Clean Water & Sanitation for a Better Life

THE WORLD BANK

Contents

Foreword

Minister of Public Works

Water remains crucial for the socio-economic development of Fiji. Access to clean water and sanitation for all Fijians is a priority for the Coalition Government. We are in the middle of the UN Decade (2018-2028) for Action on Water and Sanitation. As we review our mid-term achievements, it is also opportune moment to initiate discussion and strategic planning for the remainder of this decade and beyond.

According to the Organisation for Economic Co-operation and Development, the provision of water supply and sanitation services generates substantial benefits for public health and the economy. Global experience confirms that economic benefits from investment in the provision of water supply and sanitation services are massive and far outstrip costs.

The water and sanitation infrastructure requires long-term thinking. We, the current generation must plan for a better Fiji. As a nation, for the first time, the Water Sector 2050 Strategy will provide a national vision of water and ensure that we are not in the same position come the year 2050.

During World Water day in March, an **ideation workshop** was held to kick-start this Water Sector 2050 Strategy development process. The outcome of this workshop was a number of key ideas that were prioritised and are summarised in this discussion paper to continue dialogue with wider community and critical stakeholders.

The ideas listed here and additional suggestions and ideas that may emerge from the stakeholder engagement that would follow, will form the basis of Water Sector 2050 Strategy. The strategy will prioritise initiatives and projects critical for providing water services to support national development through investments in the climate-resilient water infrastructure and to improve environmental outcomes. It will identify the priorities to be tackled in the short and medium term. The Water Sector 2050 Strategy will focus on improving customer service and delivery of water services to citizens.

Water Authority of Fiji (WAF)

To date, just over 82% of the total population has access to clean drinking water whilst only 28% of the population has access to wastewater services. The Water Authority of Fiji (WAF) continues to upgrade and build new water and wastewater infrastructures but we need a coordinated sector wide strategy to ensure access to safe water for all.

Investment in water supports GDP through better healthcare, reduced pollution, greater workplace productivity, increased school attendance and a number of other social benefits. Every dollar invested in water results in a return of $4.80, so no serious conversation regarding economy can be had without talking about water.

Moving forward, our biggest challenge will be climate change. As an island state in the Pacific, we are at the coalface of that challenge. The impacts of climate change are growing more severe every year. Just this year, an unusually dry period throughout March to April had severely impacted the water supply for Suva Nausori area.

Considering Fiji's current and future challenges, it is imperative to collectively create a common vision and an action plan for water in 2050, right now.

The backbone of the water sector strategy are the top-level priorities driven by the sector's purpose and the challenges Fiji faces:

- Economic sustainability
- Climate resilience and vulnerability
- Environment and tourism nexus
- Infrastructure and asset health
- Circular economy

Ro Filipe Tuisawau
Ministry of Public Works,
Meteorological Services &
Transport Minister

Dr. Amit Chanan
Chief Executive Officer
Water Authority of Fiji

Overview

The urgent need for change

The discussion paper is developed to **initiate a dialogue** on the state of Fiji's water and wastewater service provision, with a view to develop a national vision and sector wide strategy.

Water service management is crucial to the future of this country, people and economy.

Currently, in many areas, the water sector is not meeting the supply and demand needs, whilst the number of critical water shortages and water restrictions are increasing.

Infrastructure is old and operating far beyond the capacity for which it was built. Pipes are leaking at such a rate that almost half the treated water that travels through them is lost. There is also a deep imbalance in the supply of clean drinking water and sanitation between urban and rural Fijians.

Fiji's climate has changed with prolonged dry period when it used to be wet season and flooding rains in the areas expected to be dry. Water infrastructure is increasingly vulnerable to this changed climate and associated river behaviour.

This matter is one of extreme urgency. It must start now or the challenge will become increasingly harder to overcome.

Water Sector Strategy 2050

The Water Sector Plan 2050 is not a requirement but a necessity for Fiji given the state of the services for water and sanitation. The strategy shall provide a stronger foundation for a collaborative approach as a nation to ensure availability of these services for future generations to come.

The Water Sector Strategy 2050 is intended to:

1. detail current and future challenges
2. identify real opportunities, and
3. outline a strategy for the delivery and management of sustainable water and wastewater services.

This discussion paper, puts forward ideas that emerged from the **ideation workshop.** It aims to raise the supreme and undeniable importance of a new approach to water management and develop an action plan.

Challenges

The five biggest challenges facing Fiji's water

Meeting the nations goals towards water and sanitation is not without its challenges. Without economic sustainability of the WAF, climate resilience, infrastructure improvements, and looking beyond the take-make-dispose extractive industrial model, it will be impossible for the water sector to meet the National Development Plan's goals. The whole sector needs to collaborate more effectively under the 2050 strategy to accelerate the rate of positive change required to deal with the 5 biggest challenges facing Fiji's water services sector.

Economically unviable water utility

Climate change

Ageing infrastructure

Environmental impact

Skills & capability gap

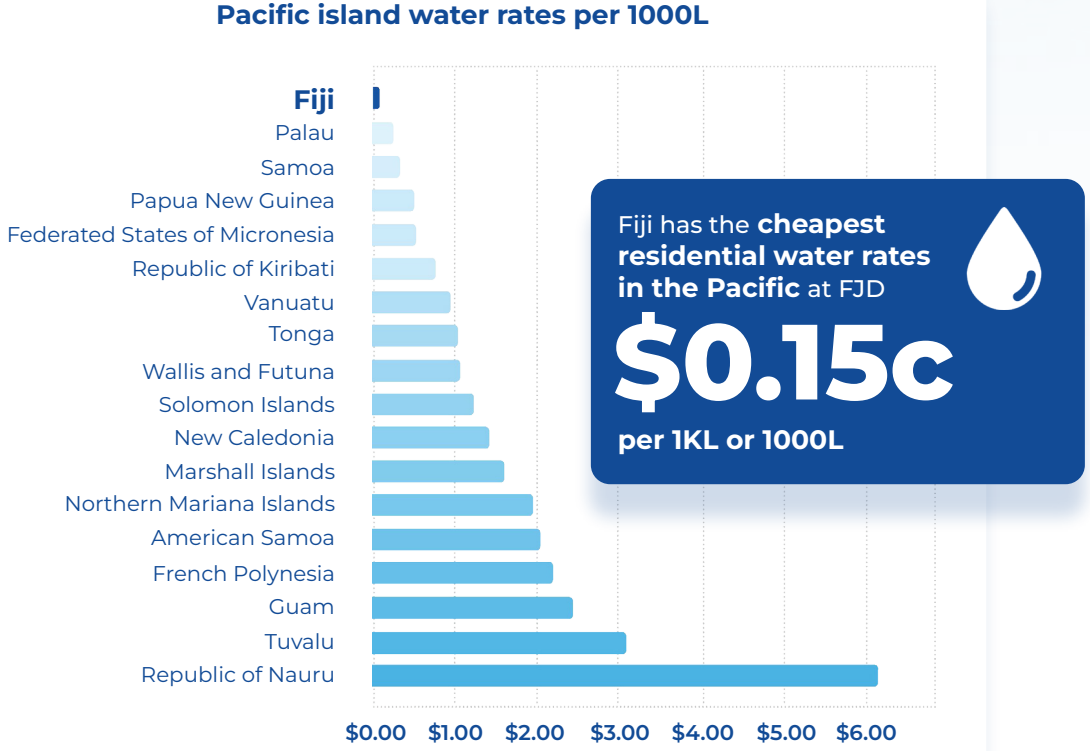
Economically unviable water utility

The current tariff rate being charged to domestic and commercial customers is the cheapest in the Pacific region. The extremely low tariff means that, for the last six years, the WAF has only been able to meet 50% of its operational costs. This impacts the WAF's ability to be a commercial statutory body, and necessitates relying heavily on government funding both for operational and capital expenditures.

The irony of the current tariff is that the more water the WAF supplies, the more loss it makes because cost of supply is higher than sale price.

In addition to the low tariff cost, the WAF also provides free water to households with an annual household income of less than $30,000 for up to 92,500 litres of water per year through the free water allowance scheme. As of December 2022, a population of 151,470 benefitted from the scheme.

There is an urgent need to review the WAF financial model to ensure the national water utility is financially viable and thus able to provide water and sanitation services to all Fijians.



Climate change & environmental impacts

Climate Change Act 2021: S.6 recognises and declares that Fiji and the earth are facing a climate emergency. Fiji, being a small island state, is particularly vulnerable to the climate emergency, including drought and floods. Over the last 40 years, Fiji has had one flood per year, which will continue to rise in parallel with other natural disasters, such as tropical cyclones, which have already affected GDP growth in a significant manner. In 2016, tropical cyclone Winston caused F$2 billion, or 20% of GDP, worth of damage. The impact of climate change is already felt and there will be further consequences if actions are not taken now to reduce impact on the environment, especially for the tourism sector.

Tourism is the largest foreign exchange earner for Fiji with $2 billion in earnings during pre-Covid years (2018/2019 financial years) contributing over 40% of the GDP. It will continue to be the backbone of Fiji's economy and, by 2024, aims to become a $3.37-billion industry. Fiji's tourism sector is critical to the country, however, what is even more critical is tourism's heavy reliance on the environment. Many tourists in Fiji are looking for a pristine environment and exceptional ecosystems. They are sensitive to consequences of climate change and without tourism, Fijian economy will not see a significant growth.

As detailed in the Climate Vulnerability Assessment : Making Fiji Climate Resilient report, here are other major risks that must be faced if climate reliance is not at front of mind:

- Sea-level rise, ocean acidification, and damage to the Fijian marine ecosystem.
- Prolonged drought and low rainfall means low water level.
- Increasing disruption in the provision of water and wastewater services from damaged assets.
- Wastewater overflows from increased flooding and sea-level rise into the local flora and fauna.

"Is water safe to drink in Fiji?[1]"

1. Brent Hill, Tourism Fiji

Ageing infrastructure and skills & capability gap

Most of Fiji's water assets are nearing the end of their design life but are continued to be overworked to meet the demand caused by population growth. This results in breakdowns of water supply and services as well as costly operations. There is a need to invest in asset renewal to build system redundancy.

For example, Greater Suva Area is supplied by two main water treatment plants that are more than 40 years old:

- Tamavua, built in 1961 for 60 million litres/day capacity
- Waila, built in 1982 for 95 million litres/day capacity

Population has tripled since the plants were built and these plants are now operating at 110%, surpassing their designed production capacity. Even then, there is still a daily shortage of 3-million litres between supply and demand. There is currently no redundancy or capacity for continuity of supply; a failed pump could bring the entire system to a halt.

The international benchmark for pipe networks is 13 burst mains annually for every 100km of network. In March 2023 alone, the WAF responded to 150 burst mains. The water that is lost through leakage, also known as non-revenue water, is now costing the WAF F$23 million annually.

The lack of proper sanitation poses significant threats to public health, currently wastewater collection and treatments are only available in urban areas (28% of the population) with the current sewerage network already reaching capacity.

Water scarcity is also causing difficulties for the people of Fiji. Although Fiji has four main water sources (which include surface water, groundwater, rainwater, and seawater), there is a heavy reliance on surface water to supply all major towns and the prolonged dry periods are impacting the volume of water availability.

Lastly, there is some workforce skill and competency gap in WAF that needs to be addressed immediately because it is impacting the water sector operations.

Almost

50%

of treated water is lost across the pipe network while traveling to reach customers

10 big ideas

10 big ideas

When critical stakeholders from tourism, government, universities, not-for-profit, and communities were asked what a state of success may look like for the 2050 water sector strategy, these were the 10 ideas that were emerged and commonly shared.

Complete WAF corporatisation

Diversify water sources to build climate resilience

Future proof infrastructure / asset health

Smart water network

Action on sanitation through innovation

Meet customer expectations

Living Lab: Kena Taukei ni Wai

New financing & contracting models

Improving environmental performance

Water smart living

10 big ideas

Complete WAF corporatisation

i. Ensure the success of the WAF reform process to create a self-sustainable, commercial entity by:

a. Completing the asset transfer to WAF
b. Creating separate P&L and providing multi-year budget certainty with revenue retention opportunity

iii. Protecting low-income households with a water subsidy, while implementing a new tariff structure with a gradual pathway to full cost recovery.

Diversify water sources to build climate resilience

i. Reduce the risk of water scarcity inherent in single-source dependency on rivers through:

a. Increasing storage capacity of weirs and dams
b. Incorporating groundwater sources into water supply system
c. Identifying and implementing desalination as resilience strategy

ii. Mandating rainwater harvesting on all new developments and improving water use efficiency.

iii. Investing in infrastructure to capture stormwater and greywater for treatment and supply.

Future-proof infrastructure/asset health

i. Invest in asset renewal and optimisation of ageing assets and increase system redundancy.

ii. Build sector capability in whole-of-life asset management.

iii. Design and build climate-resilient infrastructure appropriate for our changed climate.

iv. Proponents of new urban subdivisions must pay for water and wastewater services prior to planning approval stage.

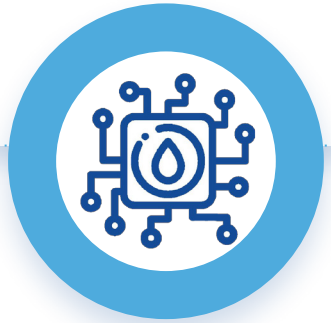
Smart-water network

i. Extend SCADA & automation program to have real-time monitoring of water network.

ii. Install digital water metering for accurate measurement of consumption.

iii. Implement performance-based contract with real-time leak detection capability to eliminate non-revenue water.

iv. Install pressure management devices across the network to better control pressure and improve pump optimisation.



10 big ideas

Action on sanitation through innovation

i. Implement decentralised wastewater treatment strategy, minimising extensive costs involved in pipe network and pumping.

ii. Circular-economy model for combined wastewater treatment and municipal organic and food waste (from tourism sites) treatment:

a. With biosolids recovered to achieve 100% beneficial reuse as fertiliser
b. Incorporate on-site energy generation with methane recovery

iii. Enhance capability in designing and management of nature-based sanitation solutions.

iv. Pilot leading non-sewered solutions in areas with no existing sewer network.

Meet customer expectations

i. Review customer service charter to offer improved response times and implement transparent reporting.

ii. Continuous engagement with customer forums and other community outreach programs to keep customers informed.

iii. Improve customer experience through innovative digital service delivery and retaining skilled labour workforce balanced with outsourced service delivery.

iv. Build customer confidence in water product quality.

Living lab: Kena Taukei ni Wai

i. Catchment initiatives/incentives for landowners to work with WAF in ensuring catchment protection for improved water quality being extracted from their land.

a. Pilot a pricing model based on avoided treatment costs for WAF.
b. Local aquifer recharge scheme.

New financing & contracting models

i. Market test for innovative O&M service contracts for critical water treatment assets, incorporating asset renewal obligations.

ii. Implement greater private sector partnership through Private Public Partnerships (PPP) model for wastewater treatment infrastructure (including BOOT).

iii. Pursue integrated development with tourism and hotel proponents, securing upfront investment in water and sanitation infrastructure on agreed amortised pricing arrangements.

iv. Continue to develop partnerships with donor agencies for grants or other long-term funding options for critical climate-resilient water infrastructure needs.

v. Incentive models to attract top-tier contracts to deliver infrastructure projects.

10 big ideas

Improving environmental performance

i. Reduce impact on the receiving environments by investment in treatment processes.

ii. Energy Transition from diesel to solar and self-reliance through a power purchase agreement with solar and/or mini-hydro generator.

Water smart living

i. Develop and implement minimum water-efficiency standards for fixtures and appliances, e.g., low-flow showerheads and washing machines/dishwashers).

ii. Engage with customers and the local community to:

a. Expand education and awareness programs and campaigns on using water wisely.
b. Expand government-subsidised retrofit programs to install water-efficiency measures at household level.
c. Implement rainwater tank rebate programs.
d. Create incentives for water conservation through tiered tariffs.

Next steps

February 2023

Concept paper

March 2023

Ideation Workshop
(20th & 21st March)

April 2023

Discussion paper

June 2023

Second Workshop

July 2023

Water Sector Strategy 2050

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