National Rural Water Point Mapping Survey Report

An evidence-based assessment of rural water supply, sanitation and hygiene services to inform equitable, sustainable and inclusive planning.

Contents

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Abbreviations

CBT	Compartment Bag Test
DWS	Department of Water and Sewerage
ECE	Early Childhood Education
FBOS	Fiji Bureau of Statistics
HH	Households
MICS	Multiple Indicator Cluster Surveys
MITA	Ministry of Itaukei Affairs
MOE	Ministry of Education
MOHMS	Ministry of Health and Medical Services
MRMD	Ministry of Rural and Maritime Development
RWSP	Rural Water and Sanitation Policy
WAF	Water Authority of Fiji
WASH	Water Sanitation and Hygiene

Executive Summary

Reliable and comprehensive water, sanitation and hygiene (WASH) data for rural communities has historically been limited in Fiji due to fragmented governance arrangements and the absence of a centralised data management system. Responsibilities for WASH oversight are shared across multiple ministries and agencies, resulting in siloed data collection efforts that constrain coordinated planning and evidence-based decision-making.

As the national regulator responsible for policy formulation and oversight of the water and sewerage sector, the Department of Water and Sewerage (DWS) recognises the critical importance of accurate and up-to-date WASH data. Such data is essential to improving public health outcomes, reducing service inequities, strengthening infrastructure investments, and achieving national development priorities, including Sustainable Development Goal 6 (SDG 6).

While urban populations in Fiji largely benefit from treated and reticulated water supply systems, rural communities continue to rely on a range of water sources that are often vulnerable to seasonal variability, climate impacts, and microbial contamination. Schools, as integral components of rural communities, frequently face similar WASH challenges, directly affecting student health, attendance, and learning outcomes.

To address these challenges and advance equitable access to safe WASH services, DWS initiated the National Rural Water Point Mapping Survey to establish a comprehensive national baseline of rural WASH conditions. Recognising the strong linkages between community and school WASH services, a complementary WASH in Schools Survey was conducted concurrently.

UNICEF supported this initiative through the DWS–UNICEF Rolling Work Plan (2021–2022), providing financial and technical assistance for survey design, digital data collection tools, water quality testing, data analysis, dashboard development, and report preparation.

The Rural Water Point Mapping Survey was conducted at village and settlement level through consultations with village headmen, village nurses, and water committee members. Data collected included demographics, water sources and supply systems, system management arrangements, sanitation facilities, hygiene practices, disease outbreaks, and drinking water quality. The WASH in Schools Survey engaged school heads and designated teachers to capture information on school demographics, water supply, sanitation facilities, handwashing infrastructure, menstrual hygiene management, and water quality. Drinking water samples were collected and analysed for E. coli contamination using the Compartment Bag Test (CBT) method.

In total, 1,600 villages, settlements, and combined village/settlement areas were surveyed nationwide, alongside 978 early childhood, primary, and secondary schools. This report presents a comprehensive assessment of rural and school WASH coverage and service levels in Fiji and provides an evidence base to support policy development, sector planning, and targeted investment decisions.

1.0 Country Profile

Fiji is an island nation located in Melanesia in the South Pacific Ocean, comprising more than 330 islands, of which approximately 110 are permanently inhabited. The country has a total land area of about 18,300 square kilometres. Most of the population is concentrated on the two main islands, Viti Levu and Vanua Levu, with nearly three-quarters of the population residing along the coastal areas of Viti Levu, including the capital city of Suva and major urban centres such as Lautoka, Nadi, and Nausori. In contrast, the interior regions of the main islands and many of the outer islands are sparsely populated due to rugged mountainous terrain, remoteness, and limited transport and infrastructure access. Fiji's population is estimated at approximately 925,000, and the country has one of the more diversified economies in the Pacific, supported by agriculture, forestry, fisheries, tourism, remittances, mineral resources, sugar production, and bottled water exports. The national currency is the Fijian Dollar.

Within this geographic and socio-economic context, the provision of water, sanitation, and hygiene (WASH) services in Fiji is inherently complex. Service delivery is influenced by dispersed island geography, vulnerability to climate-related hazards, and varying levels of infrastructure development between urban, peri-urban, and rural areas. Institutional responsibilities for the water and sewerage sector are distributed across multiple government ministries, departments, statutory authorities, and local governments. This fragmented arrangement has historically resulted in overlaps in mandates, gaps in service delivery particularly in rural areas and challenges in coordination, planning, and accountability across the sector.

The Department of Water and Sewerage (DWS) plays a central policy and regulatory role within the sector. It is responsible for the formulation of national policies, legislation, and regulatory frameworks to support a sustainable, resilient, and inclusive water and sewerage sector. DWS provides policy guidance and technical advice, monitors sector performance and compliance, and ensures alignment with key national and international commitments, including the Constitution of the Republic of Fiji (Clauses 35 and 36) on the right to water and sanitation), the Green Growth Framework for Fiji, the National Development Plan and Sustainable Development Goal 6. However, DWS does not have a direct service delivery function, and implementation responsibilities are shared across several institutions.

The Water Authority of Fiji (WAF), established under the Water Authority Act 2007, is the primary utility responsible for the provision of treated water supply and sewerage services in urban and peri-urban areas. WAF's mandate covers the major towns and cities, industrial and commercial centres, and expanding peri-urban settlements, where piped water and sewerage infrastructure is economically viable. While WAF has made significant investments in expanding and upgrading urban water supply and sewerage systems, its mandate does not extend to most rural and remote communities, particularly in the interior of the main islands and the outer islands.

As a result, rural water supply and sanitation services remain outside WAF's coverage and are delivered through a combination of government ministries, provincial administrations, local authorities, community-based systems, and development partners. These arrangements often rely on communal water systems, rainwater harvesting, or small-scale groundwater and surface water sources, which vary significantly in terms of design standards, operation, maintenance, and water quality monitoring. The absence of a single institution with overall responsibility for rural WASH service delivery has contributed to uneven service levels, sustainability challenges, and difficulties in systematically monitoring functionality and water quality across rural communities.

A major cross-cutting challenge in Fiji's WASH sector has been the lack of a comprehensive and centralised WASH database. Data related to water supply, sanitation facilities, service functionality, water quality, and coverage has traditionally been collected by different agencies and partners using varying methodologies, resulting in fragmented, incomplete, or outdated information. This has constrained evidence-based planning, prioritisation of investments, effective coordination among stakeholders, and consistent national reporting against SDG 6 targets.

In response to these challenges, the Department of Water and Sewerage, in collaboration with UNICEF and other development partners, undertook this survey to establish a national baseline for WASH services. The survey aims to support the development of a centralised national WASH database, strengthen sector coordination, improve monitoring and reporting for SDG 6, and inform more targeted and equitable investments, particularly for underserved rural and remote communities across Fiji.

2.0 Introduction

Reliable, comprehensive, and up-to-date WASH data has historically been a significant challenge in Fiji. Fragmented datasets, inconsistent coverage across rural and maritime areas, and variations in data collection approaches have limited the ability of Government and development partners to undertake evidence-based planning, prioritise investments, and systematically monitor progress towards national and global commitments, including SDG 6. As a result, decision-making has often relied on partial information, making it difficult to clearly identify service gaps, direct resources to the most underserved communities, and mobilise targeted support from development partners and donor agencies.

In response to these challenges, the establishment of a consistent, service-level WASH data collection mechanism was recognised as a critical step towards developing a centralised national WASH data hub. Such a platform would enable Government ministries, sector stakeholders, and partners to access harmonised data to inform policy development, infrastructure planning, budgeting, and investment decisions, while also strengthening accountability and coordination across the sector.

Initial proposals developed in 2021 envisaged the implementation of a National Rural Water Point Mapping Survey incorporating household-level SDG 6 indicators. However, with the simultaneous rollout of the Multiple Indicator Cluster Survey (MICS) in 2021, SDG 6 household indicators were integrated into MICS to avoid duplication of data collection efforts. Despite this, the need for detailed service-level WASH data, particularly for rural communities and schools remained unmet, as such information is essential for assessing functionality, service levels, water quality, and operational sustainability of existing infrastructure.

This critical data gap was subsequently addressed through the DWS–UNICEF Rolling Work Plan (2021–2022), signed in October 2021, under which the National Rural Water Point Mapping Survey and the WASH in Schools Survey were implemented. The surveys aimed to achieve nationwide coverage of all registered rural villages, settlements, and schools across Fiji, capturing current WASH infrastructure, service levels, and water quality conditions. The resulting datasets are intended to support evidence-based planning, identify priority areas requiring improvement, and strengthen the case for technical and financial support from development partners and donor agencies.

Formal requests for collaboration were submitted to, and endorsed by, the Ministry of iTaukei Affairs, the Ministry of Rural and Maritime Development, the Ministry of Health and Medical Services, the Ministry of Education, and the Ministry of Finance. Fiji Bureau of Statistics were also engaged on expert advice on designing and rolling out of the survey.

The survey was carefully structured to ensure comprehensive and reliable data collection at both community and institutional levels. At the village and settlement level, data were primarily collected through key informants, including the Village Headman and the Village Nurse, who possess in-depth knowledge of local water, sanitation, and hygiene (WASH) conditions. This approach ensured that the information gathered accurately reflected the realities, challenges, and service gaps within each community.

For the school component, the survey was designed to capture institution-wide data. Information was collected from the Head of School or a designated teacher, ensuring that responses represented the overall WASH status of the entire school rather than individual perspectives. This methodology strengthened the credibility and consistency of the data across all surveyed institutions.

Prior to the nationwide rollout, a pilot survey was conducted in the Province of Serua, covering villages, settlements, and schools. The pilot phase enabled the refinement of survey tools, validation of data collection processes, and identification of any logistical or technical challenges. Lessons learned from the pilot were incorporated to ensure the effective and efficient implementation of the full survey.

Upon successful completion of the project, the Department of Water and Sewerage (DWS) is expected to establish a comprehensive and reliable baseline dataset on rural WASH in Fiji. This baseline will serve as a critical foundation for evidence-based planning, informed decision-making, and targeted investment. Strengthening the rural WASH sector is essential, as it remains one of the most underserved areas despite its fundamental importance. WASH is a cross-cutting issue that directly influences public health, education outcomes, environmental sustainability, gender equity, and overall socio-economic development. As such, strategic investment and sustained attention to rural WASH should be recognized as a national priority rather than a peripheral concern.

3.0 Survey Methodology

To address long-standing gaps in service-level WASH data in Fiji and to support the development of a centralised national WASH data hub, two separate but complementary survey instruments were developed and implemented:

1. Rural Water Point Mapping Survey for villages and settlements, and

2. The WASH in Schools Baseline Survey.

The use of two tailored questionnaires ensured that data collection was context-specific, relevant, and aligned with the distinct operational, institutional, and service delivery realities of rural communities and schools. Both survey tools were designed to generate reliable, standardised, and comparable data to inform evidence-based planning, investment prioritisation, and monitoring across the WASH sector.

3.1 Rural Water Point Mapping Survey

The questionnaire design methodology for the National Rural Water Point Mapping Survey adopted a comprehensive and systematic approach to capturing essential information on water supply and sanitation conditions in rural villages and settlements across Fiji. The questionnaire was structured into three main sections: Profile Information, Water System Information, and Water Quality Testing.

The Profile Information section serves as the foundation of the survey and captures basic demographic and administrative details of each village or settlement. Information collected includes geographic location, village or settlement name, details of the nominated contact person, and contact information. Demographic data such as total population, gender breakdown, and number of households were also captured. This information is critical for understanding population demand for WASH services and for establishing a robust baseline against which future service improvements and interventions can be measured.

The Water System Information section focuses on the characteristics, functionality, and management of water supply systems serving rural communities. Data collected includes the type of water supply system, water source, number and location of water points, and whether systems are classified as primary or secondary. The section also captures information on system operation, maintenance arrangements, and service reliability. This enables the identification of infrastructure gaps, functionality issues, and areas requiring technical or institutional support to improve sustainability.

The Water Quality Testing section complements the infrastructure assessment by collecting data on water quality at the point of use. The levels of E. coli were tested to assess whether drinking water met minimum national standards. The inclusion of water quality data is essential for identifying public health risks and prioritising corrective actions in communities where water safety is compromised.

In total, the Rural Water Point Mapping Survey questionnaire comprised 94 questions. The comprehensive nature of the tool ensures that collected data can be used to inform rural WASH strategies, guide investment decisions, and support targeted interventions to address water supply and sanitation challenges faced by rural villages and settlements in Fiji.

3.2 WASH in Schools Survey

The WASH in Schools Baseline Survey questionnaire was specifically designed to capture detailed information on water, sanitation, and hygiene conditions in schools, recognising the unique service delivery requirements and institutional arrangements within the education sector. The questionnaire was divided into two main sections: School Information and WASH Information.

The School Information section captures key administrative and demographic details of each school, including geographic location, ownership type, school level, registration status, and total student and staff population. Information on designated contact persons, staff quarters, and related facilities was also collected. This section provides essential contextual data for understanding WASH service demand and institutional responsibilities at the school level.

The WASH Information section focuses on the availability, functionality, and quality of water supply, sanitation, and hygiene facilities within schools. Data collected includes the main source of drinking water, water quality and availability, and the presence of alternative water sources such as rainwater harvesting systems. Information on water treatment technologies, storage tanks, and drinking water points was also captured to assess service reliability and safety. This section also captures the water quality of drinking water for schools.

The sanitation component of the questionnaire documents the number, type, and condition of toilet facilities, including their usability and maintenance status. This information is critical for assessing adequacy of sanitation services, identifying infrastructure deficits, and determining priority areas for rehabilitation or upgrades. Hygiene-related questions further support assessments of overall WASH service quality in schools.

The WASH in Schools questionnaire comprised 68 questions and was designed to generate reliable and actionable data to support planning, resource allocation, and monitoring of school WASH interventions. The collected data enables the Department of Water and Sewerage, the Ministry of Education, and development partners to identify strengths and gaps, prioritise investments, and track progress towards national and SDG-aligned targets.

3.3 Method of Water Quality Testing

For both the National Rural Water Point Mapping Survey and the WASH in Schools Survey, DWS utilised the Aquagenx Compartment Bag Test (CBT) EC + TC Most Probable Number (MPN) Kit for microbial water quality testing. The Aquagenx CBT simultaneously detects and quantifies E. coli (EC) and Total Coliforms (TC) in a 100 ml water sample.

The test uses a powder growth medium containing a glucose substrate (X-Gluc). When E. coli metabolises this substrate, the water sample turns blue, indicating the presence of E. coli. The medium also contains a fluorogenic galactoside substrate (MU-Gal), which fluoresces under ultraviolet (UV) light when total coliforms are present. MPN results are determined using the Aquagenx colour-coded MPN table, which is integrated into the Akvo Caddisfly application. DWS used the Akvo Caddisfly application in conjunction with the Akvo Flow data collection tool to capture water quality results digitally. For the purposes of this survey, only E. coli results were recorded and analysed.

The CBT method was selected due to its suitability for Fiji's geographic context. The test is easy to use, portable, compatible with digital data collection tools, and does not require laboratory infrastructure. Given the remoteness and challenging terrain of many rural and maritime locations, conducting laboratory-based microbial analysis for all samples was not feasible. Enumerators and DWS staff were trained in sample collection, test procedures, incubation, and result interpretation. Multiple practice tests were conducted prior to full rollout to ensure consistent application of the methodology and build confidence among field teams.

3.4 Laboratory Validation of Water Quality Results

Following the pilot survey conducted in Serua Province, a lessons-learned workshop highlighted the need to validate CBT results against laboratory-based testing methods to ensure data reliability and suitability for qualitative analysis. As a result, a comparative testing exercise was undertaken.

Ten drinking water samples were collected on two separate days and tested across two accredited laboratories namely University of the South Pacific and Water Authority's National Water Quality Laboratory and a total of 20 samples were analysed per laboratory. All laboratories employed the Membrane Filtration (MF) method for E. coli analysis however the dilution factor varied. In parallel, DWS conducted MF testing and CBT analysis on the same samples to allow direct comparison of results.

The comparative testing results from all laboratories were compiled and analysed to assess consistency between CBT and laboratory-based methods. The findings are presented in Appendix 1 and confirm the appropriateness of the CBT method for field-based water quality monitoring in Fiji's rural context.

3.5 Data Collection and Storage Tools

The data collection, storage, and analysis components of the survey were supported by the Akvo Foundation, which specialises in Android-based data collection tools and cloud-based data management systems. Survey questionnaires were digitised and deployed on Android devices, enabling enumerators to collect data efficiently in the field. Completed surveys were submitted directly to the Akvo Flow Dashboard, providing a secure, centralised platform for data storage.

The DWS team undertook systematic data cleaning and verification processes to ensure data accuracy, completeness, and reliability prior to analysis. Data analysis was subsequently conducted by the Akvo Foundation technical teams based in Indonesia and India using Akvo Lumen, a dedicated data analysis and visualisation platform. In parallel, Akvo Foundation provided hands-on training to DWS staff and enumerators on the use of the digital survey tools and data analysis functionalities, strengthening in-country technical capacity. Selected DWS staff were trained to independently conduct data analysis using Akvo Lumen.

During the pilot phase, Akvo Foundation developed two real-time monitoring dashboards to support early-stage data tracking and quality assurance. These dashboards included date-based filtering options to allow monitoring of data submissions over time. Real-time monitoring enabled DWS to gain immediate insights into survey progress, identify data gaps or inconsistencies, and make timely operational adjustments where required. This approach strengthened overall implementation efficiency and ensured that the data collection process remained aligned with survey objectives.

3.6 Survey Composition and Roll out

The National Rural Water Point Mapping Survey and WASH in Schools Survey were implemented through a coordinated field operation led by the Department of Water and Sewerage (DWS). The survey was carried out over an extended period, from January 2022 to November 2022, reflecting the scale of coverage and the logistical complexity of reaching rural, remote, and maritime locations across Fiji.

The survey team comprised eight DWS technical staff and ten enumerators engaged on a short-term basis for a period of approximately two months during the intensive data collection phase. The DWS technical staff provided overall technical oversight and quality assurance, while enumerators supported household, community, and school-level data collection under close supervision.

Each DWS technical staff member was assigned responsibility as a supervisor for a designated province. In this role, they were responsible for coordinating field activities, supervising enumerators, liaising with provincial administrations and sector offices, and ensuring adherence to the approved survey methodology. Detailed provincial work plans were developed in advance, outlining target villages, settlements, and schools, timelines, team deployment, and travel schedules. Logistical arrangements including transport, accommodation, resources, and coordination with local authorities were planned and executed to support efficient survey implementation and minimise disruptions in the field.

The survey achieved nationwide coverage, encompassing approximately 1,600 registered rural villages and settlements and 978 schools across 14 provinces and Rotuma, and spanning all four divisions of Fiji. While efforts were made to survey every registered settlement, some settlements were found to be administratively or physically integrated with nearby villages or other settlements within the same constituency. In such cases, data collection was conducted at the combined location to avoid duplication while ensuring service-level information was captured.

Notably, this survey marked the first time that comprehensive WASH baseline data was systematically collected for villages and schools in Rotuma. The inclusion of Rotuma represents a significant milestone in strengthening national WASH data coverage and supports the Government's commitment to equitable service delivery and the principle of leaving no one behind.

Throughout the rollout, close coordination with provincial offices, health centres, and education authorities enabled access to communities and schools and supported effective communication with local stakeholders. Despite challenges related to remoteness, weather conditions, and accessibility, the structured team composition, strong supervisory arrangements, and detailed planning enabled the successful completion of the survey across all targeted locations.

The initial list of registered villages was obtained from the Ministry of iTaukei Affairs. Settlement lists were provided by the Ministry of Rural and Maritime Development, as well as by the respective Provincial Administrator offices and Roko Tui. The list of schools was extracted from the Ministry of Education's online FMIS records and subsequently verified with the relevant Divisional Education Offices.

3.7 Pilot Survey – Serua Province

As part of survey preparation and quality assurance, the DWS conducted a pilot survey in Serua Province in November 2021. The pilot covered selected villages, settlements, and schools and was designed to test the clarity, relevance, and sequencing of survey questions, as well as to assess the type of responses expected from respondents. In addition, the pilot phase was used to gauge survey duration and field logistics, enabling realistic planning for the nationwide rollout and efficient deployment of survey teams.

Following completion of the pilot survey, a lessons-learned workshop was convened with key WASH sector stakeholders. During this workshop, preliminary findings were reviewed, data quality was assessed, and feedback was provided on the structure and content of the survey instruments. The survey questionnaires were subsequently scrutinised and refined based on these findings to improve clarity, consistency, and data reliability. Final survey forms were then approved for full implementation.

A detailed work plan was developed outlining the villages, settlements, and schools to be visited, team composition, timelines, and logistical arrangements. Based on this plan, the full survey rollout commenced in January 2022 across the 14 provinces, with dedicated field teams assigned to specific provinces to ensure systematic and coordinated implementation.

During the survey rollout, several challenges were encountered, including limitations in existing data, availability of nominated contact persons, communication constraints, and difficulties accessing remote and hard-to-reach locations. Despite these challenges, the survey teams successfully reached and mapped all feasible locations identified in the work plan, demonstrating the effectiveness of advance planning, local coordination, and team deployment strategies.

To further strengthen transparency and sector-wide understanding of the survey exercise, DWS organised a WASH stakeholder workshop to brief partners on the scope and type of WASH data collected, the analytical approaches being applied, and the expected outputs of the final survey report. This engagement ensured that stakeholders were informed of how the data would be used to support planning, decision-making, and investment prioritisation, and reinforced the role of the survey in strengthening Fiji's national WASH information system.

4.0 Survey Objectives and Outcomes

4.1 Objectives

The survey objectives were to:

- Establish a national baseline of WASH data for rural communities and schools.
- Map rural water supply, sanitation, and hygiene infrastructure
- Generate accurate water and sanitation coverage data for rural planning.
- Support evidence-based policy development and project implementation.
- Strengthen SDG 6 and national development reporting; and
- Assess drinking water quality through E. coli contamination risk analysis.

4.2 Outcomes

Key outcomes include:

- Centralised digital baseline dashboards for rural and school WASH data.
- Verified datasets for national planning and SDG 6 reporting.
- Improved understanding of service gaps and regional disparities; and

5.0 Survey Findings - Rural Village and Settlements

Rural communities in Fiji are characterised by two distinct but closely linked settlement typologies: registered Itaukei villages and unregistered rural settlements. Understanding these social, administrative, and spatial differences is essential for interpreting WASH service arrangements, ownership, operation and maintenance responsibilities, and governance structures observed through the National Rural Water Point Mapping Survey.Registered Itaukei villages are formally recognised by the Government of Fiji and are administered through the Ministry of iTaukei Affairs (MITA) and the Ministry of Rural and Maritime Development (MRMD). Each registered village is located within a Tikina (district), which in turn is registered under a Province. Villages therefore receive administrative oversight and development support through their respective Provincial Office and iTaukei Affairs Office. Social organisation within a registered village is traditionally structured around the Yavusa (tribe), which is composed of one or more Mataqali (clans), and further subdivided into Tokatoka (extended family units). In some cases, a village may be formed through the consolidation of multiple Mataqali and Tokatoka into a recognised Yavusa. These customary structures also determine land ownership, decision-making authority, and leadership arrangements within the village.

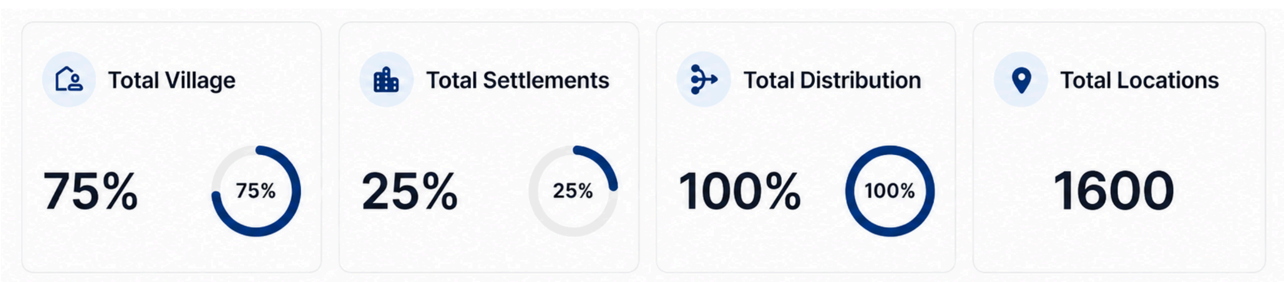
Village spatial layouts often reflect these traditional divisions, with housing clusters arranged according to Tokatoka or Mataqali boundaries. However, in practice, settlement patterns vary, and in some villages, houses are constructed more flexibly within the recognised village boundary. In addition to members of the recognised Yavusa, villages may also accommodate extended family members or individuals from other Yavusa who have been granted permission to reside in the village through traditional protocols and approvals. Registered villages are predominantly occupied by the iTaukei population and operate under strong customary governance systems. Village-level decision-making is typically led by the Turaga ni Koro (village headman), supported by village committees, including water committees where they exist. These governance arrangements strongly influence the management of communal infrastructure, including rural water supply systems, sanitation facilities, and shared assets.

Rural settlements, while often geographically and socially linked to nearby villages, differ significantly in terms of registration status, governance, and settlement patterns. Most rural settlements are not formally registered under MITA or MRMD. Historically, movement from village centres to surrounding settlement areas has occurred to allow households easier access to agricultural land, farms, employment opportunities, transport routes, and social services. Settlement housing patterns are typically more dispersed than those in registered villages, with dwellings scattered across land parcels within the same constituency or landholding area. Unlike villages, settlements do not generally follow customary Tokatoka or Mataqali-based spatial arrangements. Rural settlements are typically administered through the Office of the District Officer rather than through Provincial or iTaukei Affairs Offices. Settlement populations are more demographically diverse and commonly include both iTaukei and Indo-Fijian households. Governance structures in settlements are less formalised, and community-level management committees, including water committees, may be absent or operate on an informal basis.

These structural and administrative differences between registered villages and rural settlements have direct implications for WASH service delivery, infrastructure ownership, and sustainability. In registered villages, communal decision-making structures can support collective management of water systems; however, they may also face challenges related to shared responsibility, limited technical capacity, and reliance on voluntary maintenance arrangements. In rural settlements, dispersed housing patterns, mixed land tenure arrangements, and the absence of formal community governance mechanisms often complicate the planning, operation, and maintenance of water supply and sanitation systems. Settlements may rely on individually managed systems, informal connections, or shared infrastructure without clear accountability mechanisms. Recognising these contextual differences is critical for effective rural WASH planning, policy formulation, and investment prioritisation. Interventions must be tailored to reflect local governance structures, land tenure arrangements, and community capacities to ensure the long-term sustainability and equitable delivery of WASH services across Fiji’s diverse rural settings.

5.1 Survey Locations

Figure 1: Total Percentage of Locations Surveyed



A total of 1600 rural locations were visited and surveyed, 25 % of the surveyed rural locations were classified as settlements while the remaining 75 % were identified as registered villages.

Table1: Percentage of Locations surveyed in Divisions

Division	Villages	Settlements	Total percent	Number of Locations
Central	79.0	21.0	100	424
Eastern	94.5	5.5	100	253
Northern	74.8	25.2	100	409
Western	62.3	37.7	100	514

At the divisional level, the Western Division accounted for the largest number of surveyed locations, with 514 sites comprising 62.3% villages and 37.7% settlements. This was followed by the Central Division with 424 locations, of which 79% were villages and 21% were settlements. The Northern Division recorded 409 surveyed locations, consisting of 74.8% villages and 25.2% settlements. The Eastern Division had the lowest number of surveyed locations, with 253 sites, representing 94.5% villages and 5.5% settlements of the total surveyed locations.

Table2: Percentage of Locations surveyed in Respective Provinces

Province	Villages	Settlements	Total percent	Number of Locations
Ba	57.9	42.1	100	190
Bua	73.7	26.3	100	76
Cakaudrove	77.6	22.4	100	183
Kadavu	92.8	7.2	100	83
Lau	100.0	0.0	100	72
Lomaiviti	91.4	8.6	100	81
Macuata	72.0	28.0	100	150
Nadroga	54.3	45.7	100	127
Naitasiri	90.1	9.9	100	101
Namosi	96.3	3.7	100	27
Navosa	64.1	35.9	100	78
Ra	76.5	23.5	100	119
Rewa	69.2	30.8	100	78
Rotuma	94.1	5.9	100	17
Serua	41.1	58.9	100	56
Tailevu	87.0	13.0	100	162
Total	75.0	25.0	100	1,600

Further variation is evident when the survey results are disaggregated at the provincial level, reflecting differences in settlement patterns and population distribution across the country. Ba Province recorded the highest number of surveyed locations, with a total of 190 sites, comprising 57.9% villages and 42.1% settlements. This was followed closely by Cakaudrove Province, which accounted for 183 locations, of which 77.6% were villages and 22.4% were settlements. Tailevu Province ranked next with

162 surveyed locations, predominantly villages (87%), while settlements accounted for the remaining 13%.

Macuata Province recorded 150 locations, with villages representing 72% and settlements 28%. Nadroga Province reported 127 surveyed locations, showing a more balanced distribution between villages (54.3%) and settlements (45.7%). Lau Province accounted for 119 locations, with 76.5% villages and 23.5% settlements. Naitasiri Province recorded 101 locations, largely villages (90.1%), with settlements comprising 9.9%. Kadavu Province reported 83 locations, of which 92.8% were villages and 7.2% were settlements. Lomaiviti Province recorded 81 locations, with villages accounting for 91.4% and settlements 8.6%.

Rewa Province accounted for 78 surveyed locations, with villages comprising 69.2% and settlements 30.8% same as Navosa Province with 64.1% villages and 35.9 % settlements. Bua Province recorded 76 locations, consisting of 73.7% villages and 26.3% settlements. Serua Province recorded 56 locations, notable for having a higher proportion of settlements (58.9%) compared to villages (41.1%).

Namosi Province recorded the smallest number of surveyed locations among the mainland provinces, with 27 sites, of which 96.3% were villages and 3.7% were settlements. Rotuma, assessed separately due to its geographical isolation, recorded 17 locations, with villages accounting for 94.1% and settlements 5.9%.

Overall, the provincial distribution highlights significant diversity in settlement typologies across Fiji, emphasizing the importance of province-specific planning and targeted WASH interventions to address local context and service delivery challenges.

5.2 Population Demographics

The table below provides a detailed breakdown of the geographic coverage of the survey, including the specific locations visited and the corresponding number of individuals reached through the data collection process. It outlines the scope and scale of engagement across villages and settlements, demonstrating the extent of participation achieved.

This information highlights the extent of community involvement in the survey and reflects the overall outreach and representation of the data collected. By presenting both location specific coverage and the number of beneficiaries engaged, the table offers a clear understanding of the survey's reach and its contribution toward establishing a comprehensive rural WASH baseline.

Table 3: Household and Population

Division and Province	Population	Number of villages and settlements	Number of households
Central	203,558	424	35,098
Naitasiri	26,413	101	5,488
Namosi	8,001	27	1,743
Rewa	49,904	78	11,671
Serua	43,510	56	3,470
Tailevu	75,730	162	12,726
Eastern	37,779	253	9,587

Kadavu	11,795	83	2,918
Lau	9,412	72	2,747
Lomaiviti	14,606	81	3,419
Rotuma	1,966	17	503
Northern	143,696	409	33,722
Bua	16,271	76	3,306
Cakaudrove	50,880	183	11,095
Macuata	76,545	150	19,321
Western	286,407	514	76,498
Ba	193,017	190	55,112
Nadroga	40,705	127	9,391
Navosa	18,902	78	4,047
Ra	33,783	119	7,948
Grand Total	671,440	1600	154,905

In total, 1,600 villages and settlements were visited across 14 provinces and Rotuma. The combined population of these surveyed rural areas is estimated at 671,440 people, residing in a total of 154,905 households.

The average household size across surveyed villages and settlements is approximately four persons per household. Gender and children below 5 data were also collected however was not available for all the villages and settlements. A total of 1188 villages and settlements were able to provide population breakdown while 412 locations did not.

Settlements exhibit distinct characteristics across the surveyed areas. Some settlements originated as extensions of nearby Itaukei villages, with households relocating to adjacent locations while maintaining close social and administrative ties. Other settlements comprise clusters of households established within a defined area, independent of a parent village.

These settlements are occupied by both Itaukei and Indo-Fijian communities. Settlements that are directly linked to villages fall under the authority of the same Turaga ni Koro, while those not formally associated with a village are administered under the jurisdiction of the respective District Advisory Councils.

Population data for settlements also varied in availability and structure. In some cases, population figures were reported at the individual settlement level, while in others, population data were aggregated across multiple settlements, as provided by the District Advisory Councils.

This was a village-based survey, and all data were collected at the village level. Most of the information was obtained from reports provided by the Turaga ni Koro. In cases where the Turaga ni Koro or a member of the village water committee was unavailable, data were collected from the village nurse.

5.3 Water Supply

The survey identified two major streams of water supply systems that are the supply systems by the Water Authority of Fiji and the Rural Water Schemes. While the WAF supply is connected into households through metered supply while the Rural water schemes consist of several different types of water supply including.

- Systems with raw water connected through reservoirs then reticulated to household standpipes or inside the dwellings.
- Raw water connected directly from Dam to household standpipes or inside dwellings
- Boreholes that are shared,
- Individual Boreholes
- Rainwater harvesting system both (Individual/public) and
- Desalination

The types of water supply systems observed vary significantly across provinces and tikina, reflecting differences in local hydrology, geography, and resource availability. Surface water supply systems are commonly used in areas with abundant surface water resources, including rivers, creeks, streams, and surface springs.

Boreholes are more prevalent in areas where surface water is limited or where groundwater conditions are favourable. These boreholes may serve individual households or be shared and collectively managed by community members.

Rainwater harvesting systems are mostly used in areas experiencing limited access to both surface and groundwater resources, particularly in maritime and remote island communities. In addition, some households maintain rainwater harvesting tanks as a supplementary water source to ensure continuity of supply during emergencies such as droughts or floods, which may disrupt existing water systems. Rainwater harvesting facilities were observed to be used for both private household consumption and shared community use, highlighting their role as a critical coping mechanism in water-scarce settings.

Table 4: Different Water Supply Systems

Water Scheme Type	No. locations	Percent of total
WAF Urban Water Supply	436	26%
Rural Water Scheme	961	57%
MRD Borehole Scheme	62	4%
Rainwater Harvesting System	141	8%
EPS - Ecological Purification System	33	2%
Privately owned/supply system	48	3%
Total	1,681	100%

The total count of 1,681 water points does not correspond directly with the total number of surveyed locations 1,600, as some locations were served by more than one water supply system. In such cases, data were collected separately for each system, resulting in repeated entries for those locations. Out of the 1681 locations 1623 were primary drinking water sources.

Of 1681 water points, 26% were supplied by the Water Authority of Fiji (WAF), while the remaining 74% were identified as rural water supply schemes. The rural water schemes predominantly comprise gravity-fed systems, with approximately 57% of water points connected to surface catchments, with or without storage reservoirs, and reticulated to village standpipes or individual household connections. Boreholes serve as the primary source of drinking water for approximately 4% of the population.

Rainwater harvesting constitutes the sole source of drinking water for about 8% of the population, especially in water-scarce and maritime communities. In addition, a small proportion of the population, approximately 3% relies on privately owned water supply systems, which operate independently of communal or government-managed schemes.

Ecological Purification Systems (EPS) were also identified as the primary drinking water source for several communities. While EPS are integrated into rural water supply schemes, they function primarily as water treatment systems and may also be classified as part of the treatment infrastructure supporting rural water supplies.

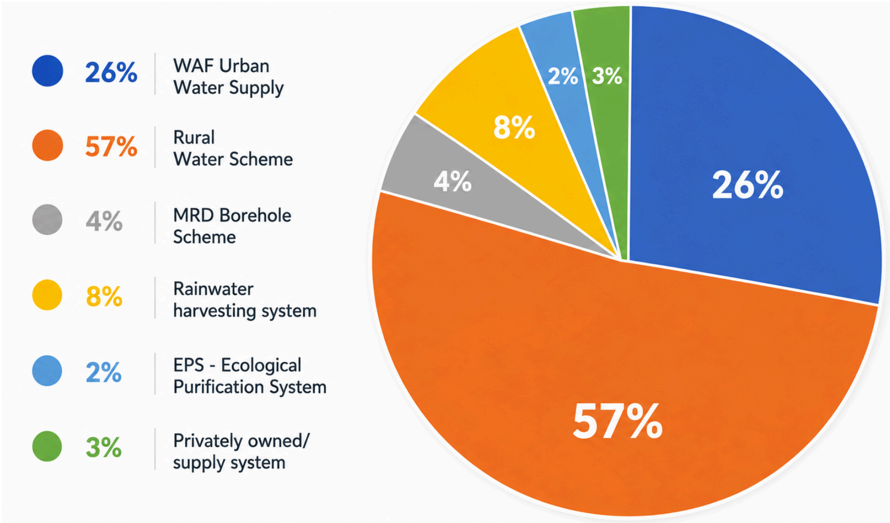


Figure 2: Proportions of Different Water Supply

Desalination Plants do exist on fours Islands of Fiji, Kia, Kavewa, Vanuavatu and Viwa. Viwa has 2 desalination plants located in the village of Najia and Naibalebale however none of them were used as the primary drinking water source at the time of the survey. Below pie chart shows the percentage of the different water supply systems excluding the WAF supply.

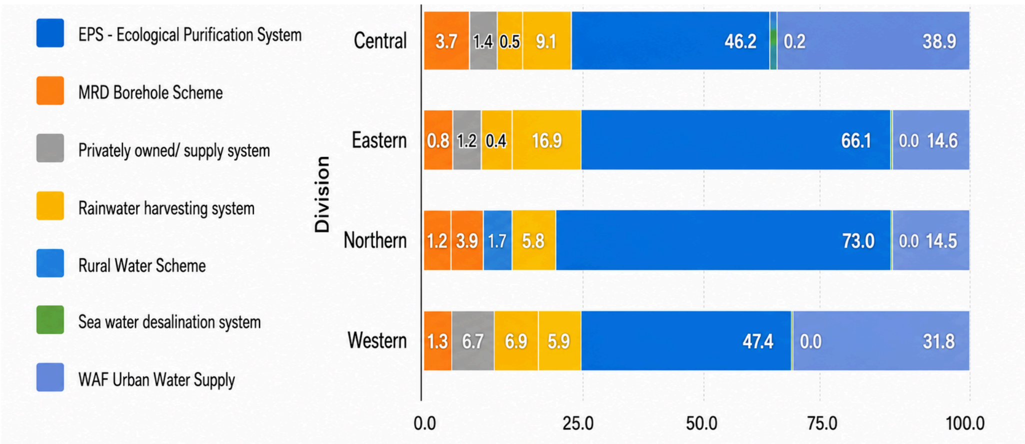


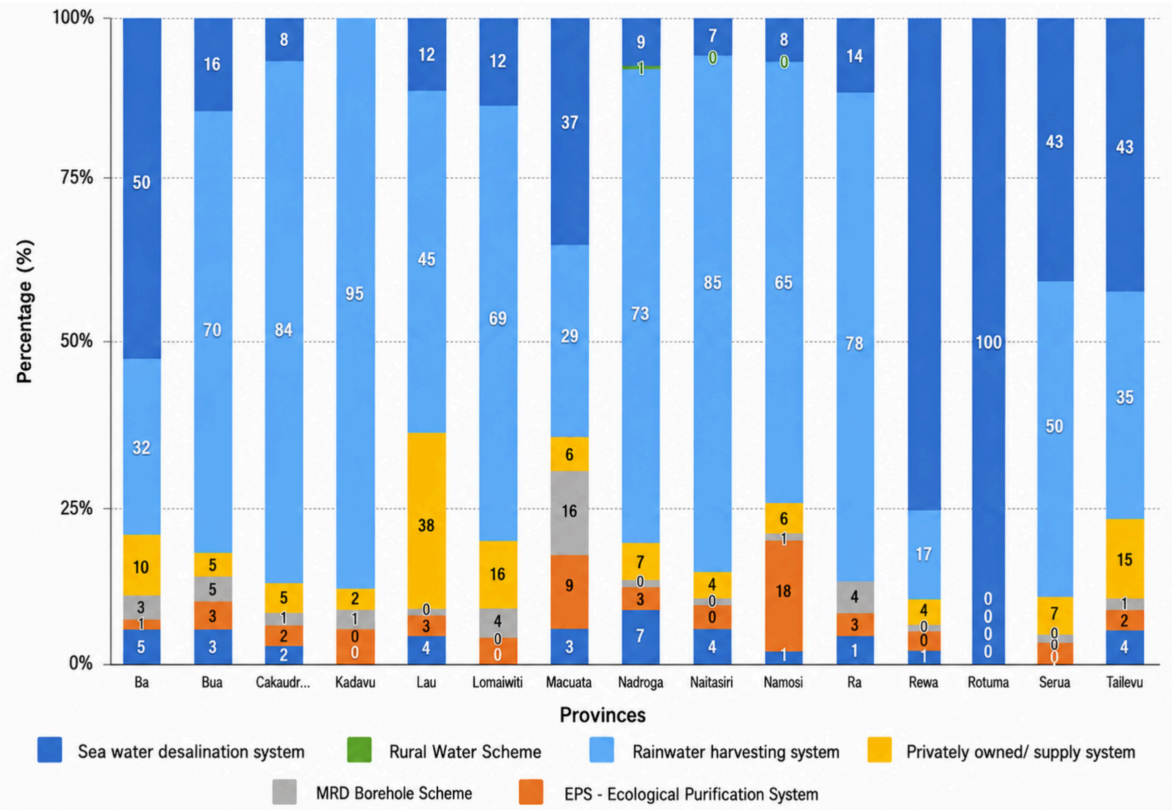
Figure 3: Primary Drinking Water Sources in Each Division

The graph above illustrates the distribution of primary drinking water supply systems across Fiji's four divisions. Overall, Rural Water Schemes are the dominant source of drinking water in all divisions, particularly in the Eastern and Northern Divisions, where they account for the largest share of supply systems. This reflects the predominantly rural and village-based nature of these divisions and the continued reliance on government- or community-managed rural schemes.

Rainwater harvesting systems also play a notable role, especially in the Eastern Division, highlighting the importance of rainwater as a primary source in island and maritime areas where surface and groundwater resources are limited. Ecological Purification Systems (EPS) are present across all divisions, with the highest proportion observed in the Central and Western Divisions, indicating a greater uptake of alternative or improved treatment systems in these areas.

Borehole schemes and privately owned or privately supplied systems represent a smaller proportion of drinking water sources overall and are more evident in the Western Division, likely reflecting peri-urban growth, private developments, and groundwater availability. Collectively, the graph underscores strong regional variation in drinking water supply systems across Fiji, shaped by geography, settlement patterns, and infrastructure coverage, with rural and decentralized systems remaining central to water supply outside WAF-serviced urban and peri-urban areas.

Figure 4: Primary Source of Water Points according to type of Facility in each Province



The graph presents the primary sources of water points by type of facility across provinces in Fiji and shows significant variation in water supply systems depending on geography, infrastructure coverage, and settlement patterns. Overall, Rural Water Schemes are the predominant source of water points in most provinces, particularly in Kadavu, Cakaudrove, Namosi, Naitasiri, Ra, and Navosa, where they account for the majority of facilities. This reflects the strong reliance on decentralised, community- or government-managed systems in rural and remote areas.

WAF urban water supply systems dominate in more urbanised and peri-urban provinces, most notably in Rewa and Rotuma, where they account for all or nearly all water points, and are also significant in Ba and Nadroga. This pattern aligns with WAF's mandate to serve urban and peri-urban areas, while rural provinces remain largely outside its coverage. MRD borehole schemes and privately owned or privately supplied systems contribute smaller shares overall but are more evident in provinces such as Nadroga, Navosa, and Ba, indicating the use of groundwater and private supply solutions in specific local contexts.

Rainwater harvesting systems play an important complementary role, particularly in maritime and island provinces such as Lau and Lomaiviti, where surface and groundwater resources are limited and rainfall provides a viable primary source. Ecological Purification Systems (EPS) and seawater desalination systems are present only in small proportions across the provinces, suggesting limited but targeted use of alternative or improved treatment technologies. Collectively, the graph highlights the uneven distribution of water supply systems across Fiji and underscores the continued dependence on rural water schemes and rainwater harvesting in areas not covered by WAF services.

To effectively plan, develop, or implement any rural water supply scheme, it is essential to have a clear understanding of the water sources on which these systems depend. As part of this survey, the source of water for each rural water scheme was systematically recorded, focusing in particular on the 57% of schemes identified as rural water schemes. The findings indicate that the majority of these schemes rely on natural surface sources, predominantly creeks, springs, and streams. In contrast, only a small proportion of schemes were found to utilize alternative sources such as rivers, wells, or other water sources.1.3 % of rural water schemes reported no source information in this survey. The table below shows the percentage of each type of water source in different divisions.

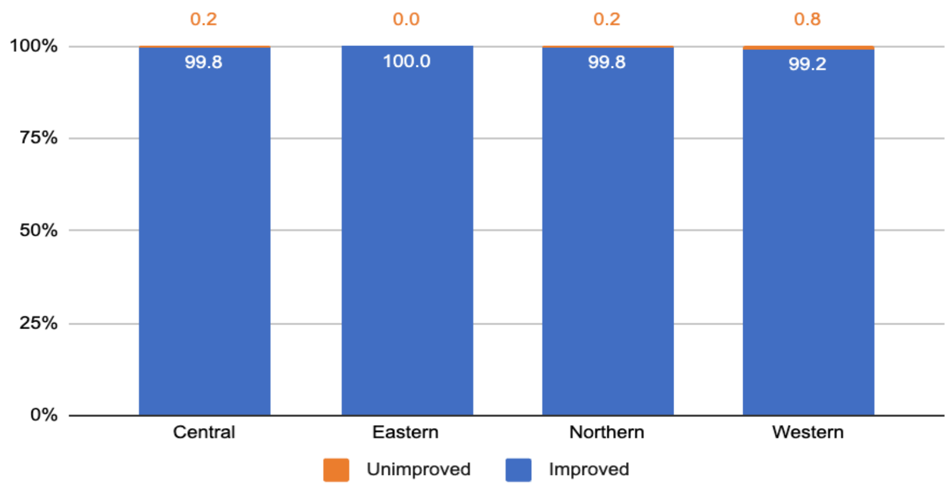
Table 5: Water Sources for Rural Water Schemes

Characteristics	Creek	River	Spring	Stream	Well	Other
Central	49	2	20.7	27.8	0.5	0
Eastern	28.6	0	56.5	13.1	0.6	0.6
Northern	37.6	4.6	38.9	18.2	0.3	0
Western	29.7	2.4	43.4	21.7	2	0.4

5.4 Improved Water Sources

Improved water sources are those that, by the nature of their construction and proper management, are protected from external contamination, particularly faecal contamination. Examples include piped water systems, protected springs, protected wells, boreholes, and rainwater harvesting systems while unimproved sources that are not adequately protected from contamination and therefore pose a higher risk to water quality and public health. These include unprotected springs, unprotected dug wells, and direct abstraction from surface water sources such as rivers, streams, creeks, and ponds.

Figure 5: Improved and Unimproved Water Sources



Analysing the data division wise, out of 429 water points surveyed in the Central Division, 99.8% were classified as improved, with only 0.2% identified as unimproved. This indicates an almost universal coverage of improved water sources, reflecting strong infrastructure development and source protection measures across the division. The minimal presence of unimproved sources suggests that remaining gaps are highly localized and could be addressed through targeted interventions. The Eastern Division recorded 100% improved water sources across all 254 water points surveyed. No unimproved sources were identified. This result highlights comprehensive coverage of protected and improved water supplies, despite the geographic challenges typically associated with island and maritime communities. In the Northern Division, 99.8% of the 415 surveyed water points were improved, with only 0.2% unimproved. Like the Central Division, the findings demonstrate a very high level of improved water source coverage, with only marginal instances of unimproved sources that may require follow-up for upgrading or protection. The Western Division recorded the lowest proportion of improved water sources among the four divisions, although coverage remains high overall. Of the 525 water points surveyed, 99.2% were improved and 0.8% unimproved. While still strong, this comparatively higher share of unimproved sources suggests greater variability in water source protection linked to dispersed rural settlements and reliance on surface water sources in some areas. Below is the graph with percentages of Improved and unimproved water sources in different divisions.

Table 6: Percentage of Improved and Unimproved Drinking Water Sources in Provinces

Province	Improved	Unimproved	Total Percent	Number of water points
Ba	100	0	100	193
Bua	98.7	1.3	100	76
Cakaudrove	100	0	100	184

Kadavu	100	0	100	83
Lau	100	0	100	73
Lomaiviti	100	0	100	81
Macuata	100	0	100	155
Nadroga	100	0	100	127
Naitasiri	99	1	100	105
Namosi	100	0	100	27
Navosa	97.4	2.6	100	78
Ra	98.4	1.6	100	127
Rewa	100	0	100	79
Rotuma	100	0	100	17
Serua	100	0	100	56
Tailevu	100	0	100	162

Several provinces achieved complete coverage of improved water sources, indicating strong alignment with SDG 6.1 requirements at the source level. Provinces with 100% improved water sources are Ba, Cakaudrove, Kadavu, Lau, Lomaiviti, Macuata, Nadroga, Namosi, Rewa, Rotuma, Serua and Tailevu. Provinces with minor presence of unimproved sources are Bua Province which recorded 98.7% improved and 1.3% unimproved water points out of 76 surveyed. Naitasiri Province reported 99.0% improved and 1.0% unimproved sources from 105 water points. Ra Province showed 98.4% improved and 1.6% unimproved water points across 127 sites. Navosa Province had the highest proportion of unimproved sources, with 97.4% improved and 2.6% unimproved out of 78 water points. These provinces, while still demonstrating high overall coverage of improved sources, indicate localized reliance on unimproved water sources such as unprotected springs or surface water intakes particularly in more remote or rugged areas.

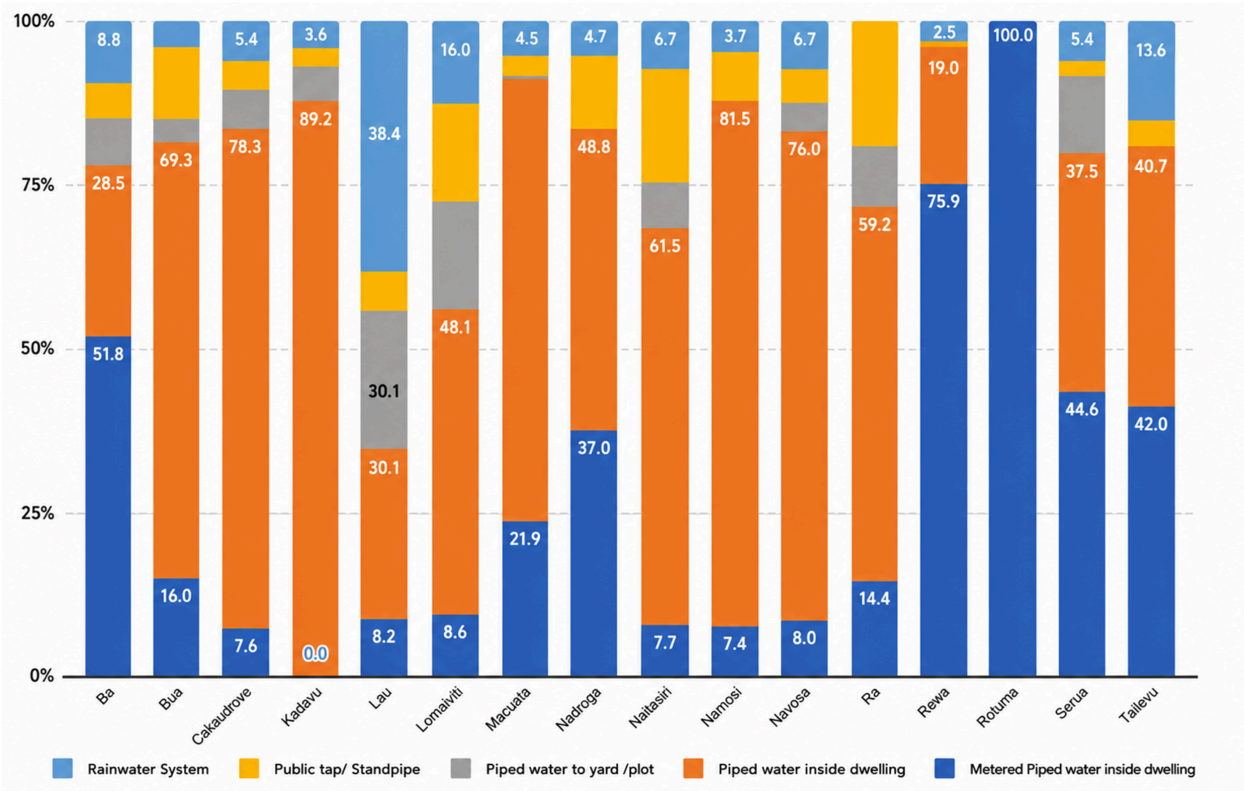
5.5 Improved Sources and Accessibility

The distribution of improved water sources by level of accessibility shows clear provincial differences in how households physically access improved drinking water, even where overall “improved” coverage is high. In most provinces, piped water inside the dwelling (metered or non-metered) is the dominant service level, indicating relatively high accessibility and convenience. Provinces such as Cakaudrove, Kadavu, Macuata, Namosi, and Navosa are strongly characterized by non-metered piped water inside dwellings, often accounting for well over two-thirds of improved sources. This suggests widespread household connections through rural reticulation schemes, even where systems may not yet be fully metered. In contrast, metered household connections are most prominent in Rewa and Rotuma, where they account for nearly all improved sources, reflecting stronger utility-based systems and higher service standards typically associated with urban or peri-urban settings.

A second group of provinces demonstrates a more mixed accessibility profile, combining household connections with yard/plot connections and public standpipes. Lau and Lomaiviti show relatively high reliance on rainwater harvesting systems, reflecting geographic isolation, dispersed settlements, and limited feasibility of centralized piped networks across islands. Naitasiri, Ra, and parts of Ba also show notable shares of public taps and standpipes, indicating that while sources are improved, water access often requires households to leave the dwelling, placing these services lower on the JMP service ladder in terms of accessibility and convenience. Yard or plot connections, while improved, still represent a transitional service level between basic and higher-quality household access.

Overall, the data highlight that classification as “improved” masks important disparities in service level and user experience. While most provinces have achieved high coverage of improved sources, on-premises access remains uneven, particularly in rural and island provinces where rainwater systems and communal access points remain essential. These patterns have important implications for SDG 6.1: improving water accessibility will require not only protecting sources but also upgrading service levels moving from public or yard access toward reliable, on-premises household connections, alongside metering and system strengthening where feasible.

Figure 6: Shows the type of Improved Water Sources/Accessibility



5.6 Storage

Storage infrastructure in the rural communities of Fiji varies widely, reflecting differences in geography, settlement patterns, and access to formal water supply systems. Many rural communities are served by centralised storage facilities, commonly referred to as reservoirs, which collect and store water from surface or spring sources before it is distributed through reticulated networks to communal standpipes or directly to individual households. These reservoirs play a critical role in regulating supply, improving reliability, and providing short-term buffering during periods of low rainfall or high demand.

In addition to central reservoirs, water storage tanks are commonly used across rural areas, either as community-level storage or at the household level. Some communities rely on shared storage tanks where water is collected and accessed by multiple households, while others have individual household tanks connected to rural water schemes or alternative sources or standalone tanks used to fill through water carting services. Rainwater harvesting is also widespread, particularly in communities without access to WAF supplies or formal rural water schemes. In many cases, households maintain rainwater harvesting systems as their primary drinking water source, while in others RWH systems are retained as a supplementary or emergency supply, providing resilience during droughts, system breakdowns, or extreme weather events. Together, these varied storage options highlight the importance of decentralised and adaptive water storage solutions in sustaining water access for Fiji's rural and remote communities.

Across the divisions, the distribution of water storage tanks, reservoirs, and rainwater harvesting tanks shows clear contrasts driven by population size, settlement patterns, and geography. The Western Division has the largest concentration of storage infrastructure, with 8,245 storage tanks, 384 reservoirs, and 5,356 rainwater harvesting tanks, reflecting both its high population and extensive rural coverage. This is followed by the Northern Division, which has a notably high number of storage tanks (6,073) and rainwater harvesting tanks (5,976), indicating strong reliance on decentralized storage systems, particularly in Macuata. The Central Division shows a more balanced mix, with 614 storage tanks, 275 reservoirs, and 3,241 rainwater harvesting tanks, consistent with the presence of both reticulated systems and supplementary household-level storage. In contrast, the Eastern Division, despite having fewer people, relies heavily on rainwater harvesting (1,591 tanks) and reservoirs (264) relative to its population, highlighting the logistical challenges of providing piped supplies across dispersed island communities.

At the provincial level, distinct patterns emerge in the type of storage infrastructure used. Macuata Province dominates in both storage tanks (5,702) and rainwater harvesting tanks (4,250), accounting for a substantial share of national totals and underscoring dependence on household and community storage systems. Ba Province also records very high numbers of storage tanks (7,176), while Lau Province has an exceptionally high reliance on rainwater harvesting (1,097 tanks) relative to its small population, reflecting limited surface and groundwater resources. Provinces such as Naitasiri, Namosi, and Serua show a higher proportion of reservoirs compared to storage tanks, consistent with upland catchment-based systems. Overall, the provincial distribution illustrates the diversity of water supply strategies across Fiji, with rainwater harvesting and storage tanks playing a critical role in outer islands and low-lying areas, while reservoir-based systems remain more prominent in inland and larger island provinces.

Table 7: Number of Storage Tanks Reservoirs and RWH Tanks in Divisions and Provinces

Division and Province	Population	Number of villages and settlements	Number of households	Number of water storage tanks	Number of reservoirs	Number of rainwater harvesting tanks
Central	203,558	424	35,098	614	275	3,241
Naitasiri	26,413	101	5,488	38	76	968
Namosi	8,001	27	1,743	7	23	91
Rewa	49,904	78	11,671	194	30	370
Serua	43,510	56	3,470	94	35	220
Tailevu	75,730	162	12,726	281	111	1,592
Eastern	37,779	253	9,587	171	264	1,591

Kadavu	11,795	83	2,918	40	97	176
Lau	9,412	72	2,747	79	76	1,097
Lomaiviti	14,606	81	3,419	26	88	230
Rotuma	1,966	17	503	26	3	88
Northern	143,696	409	33,722	6,073	378	5,976
Bua	16,271	76	3,306	162	68	348
Cakaudrove	50,880	183	11,095	209	180	1,378
Macuata	76,545	150	19,321	5,702	130	4,250
Western	286,407	514	76,498	8,245	384	5,356
Ba	193,017	190	55,112	7,176	124	2,020
Nadroga	40,705	127	9,391	719	89	1,823
Navosa	18,902	78	4,047	63	69	939
Ra	33,783	119	7,948	287	102	574
Grand Total	671,440	1600	154,905	15,103	1,301	16,164

5.7 Communities Sharing Water Points with Institutions

The data indicate that a substantial proportion of community water points in rural Fiji are shared with public institutions such as health centres, schools, and government stations, highlighting a strong interdependence between domestic and institutional water use. While such sharing arrangements may reflect collaboration and efficient use of limited infrastructure, they also place additional pressure on water supply systems that are often already constrained. Shared use typically increases demand on water points, accelerates infrastructure wear and tear, and heightens competition for water during dry periods, emergencies, or system failures, thereby raising concerns around reliability, equity, and long-term sustainability. The table below shows the percentage and number of communities sharing water points with institutions.

Table 8: Number and Percentage of Shared Water points

Division/Province	Percent share water points with other institution	Number of water points
Division		
Central	16.3	429
Eastern	35.8	254
Northern	21.0	415
Western	21.9	525
Ba	19.7	193
Bua	22.4	76
Cakaudrove	22.8	184
Kadavu	37.3	83
Lau	30.1	73
Lomaiviti	29.6	81

Macuata	18.1	155
Nadroga	11.8	127
Naitasiri	23.8	105
Namosi	37.0	27
Navosa	17.9	78
Ra	37.8	127
Rewa	7.6	79
Rotuma	82.4	17
Serua	7.1	56
Tailevu	15.4	162

At the divisional level, the Eastern Division shows the highest reliance on shared water points (35.8%), reflecting geographic isolation, smaller population bases, and the high cost of establishing separate institutional systems, and making it particularly vulnerable to droughts and cyclones. The Northern and Western Divisions display moderate levels of sharing (21.0% and 21.9% respectively), indicating mixed conditions where some institutions have dedicated supplies while others depend on community systems. At the provincial level, exceptionally high sharing is evident in Rotuma (82.4%) and in provinces such as Ra, Kadavu, Namosi, Lau, and Lomaiviti. In contrast, provinces such as Rewa, Serua, and Nadroga show low levels of sharing, likely reflecting better infrastructure, higher urbanisation, and greater access to reticulated or institutional water supply systems.

5.8 Water Quality

On a routine basis, comprehensive and inclusive laboratory-based water quality testing was undertaken to assess the safety of drinking water supplies. In the context of Fiji, except for borehole sources which are more commonly associated with elevated mineral and chemical constituents, the predominant water quality concern across most drinking water sources is microbial contamination. As a result, routine analysis primarily focuses on total coliforms, faecal coliforms, and *Escherichia coli* (E. coli**)** as key indicators of faecal contamination. Physical water quality parameters, such as pH, turbidity, and conductivity, can be readily assessed in the field using portable handheld meters, while rapid test strips are commonly used for preliminary screening of selected chemical parameters.

Given the scale and geographic spread of the survey, it was not feasible to conduct a full suite of laboratory tests in the field. Comprehensive microbiological testing would have required the simultaneous availability of trained laboratory personnel, specialised equipment, controlled incubation conditions, and significant logistical resources constraints that could not be met during field operations. To address these challenges, the Department adopted the Compartment Bag Test (CBT) as a practical and reliable field-based method for enumerating *E. coli* in 100 mL water samples.

The CBT method was selected because it does not require specialised laboratory skills, is lightweight and portable, allows for simple incubation under field conditions, and is safe to use and dispose of. A detailed description of the CBT methodology is provided in Appendix**.** Although this test has been used by the Department for several years, additional validation was undertaken for this survey to ensure the reliability and comparability of field results. Accordingly, a comparative performance assessment was conducted between the CBT and the standard Membrane Filtration (MF) method at the Department of Water and Sewerage Water and Wastewater Laboratory, as well as at two accredited laboratories, the Water Authority of Fiji and the University of the South Pacific. This validation exercise confirmed that the CBT results generated in the field were consistent with laboratory-based analyses, providing confidence in the use of CBT as an appropriate tool for large-scale field water quality assessments.

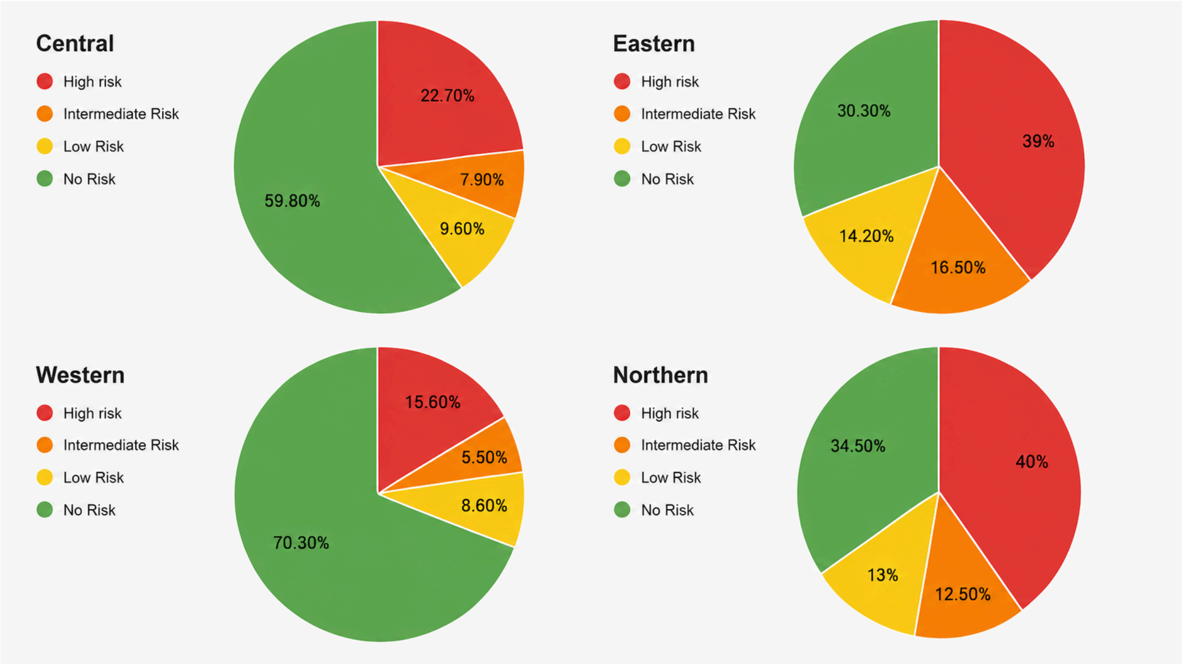
A total of 1681 locations were visited for water sample collection and analysis however there was no water available at one of the locations at the time of sampling thus a total of 1680 locations water samples were tested and the results captured. The Compartment Bag Test (CBT) results indicate significant spatial variation in microbial water quality (E. coli Level) risk across Fiji. While a considerable proportion of villages fall within the No Risk category, a substantial number remain exposed to High and Intermediate risk levels, highlighting ongoing public health concerns and inequities in water safety. Across divisions and provinces, the data shows that risk is not evenly distributed, with some areas consistently recording elevated contamination levels. This underscores the need for risk-based prioritisation rather than uniform interventions. The table below indicates the water quality risk levels at various locations in Fiji.

Table 9: E.Coli Risk level at Various Locations

Risk Level	Number of Locations	Risk (%)
High Risk	458	27%
Intermediate Risk	163	10%
Low Risk	181	11%
No Risk	878	52%
Total	1680	100%

In Central Division 59.8% of villages recorded No Risk, reflecting comparatively greater coverage by WAF, however, 22.7% remain in the High-Risk category, indicating persistent contamination in peri-urban, informal and rural communities. With 428 villages tested, the Central Division has a robust evidence base, strengthening confidence in these trends. The Eastern Division shows heightened vulnerability, with 39% High Risk and only 30.3% No Risk. The relatively lower No Risk proportion suggests systemic challenges in ensuring safe drinking water across island communities. The Northern Division records the highest proportion of High-Risk villages (40%), with only 34.5% No Risk. With 415 villages assessed, this division represents a major priority area for water quality improvement. The Western Division performs comparatively well, with 70.3% No Risk and the lowest High-Risk proportion (15.6%). Nonetheless, pockets of risk remain.

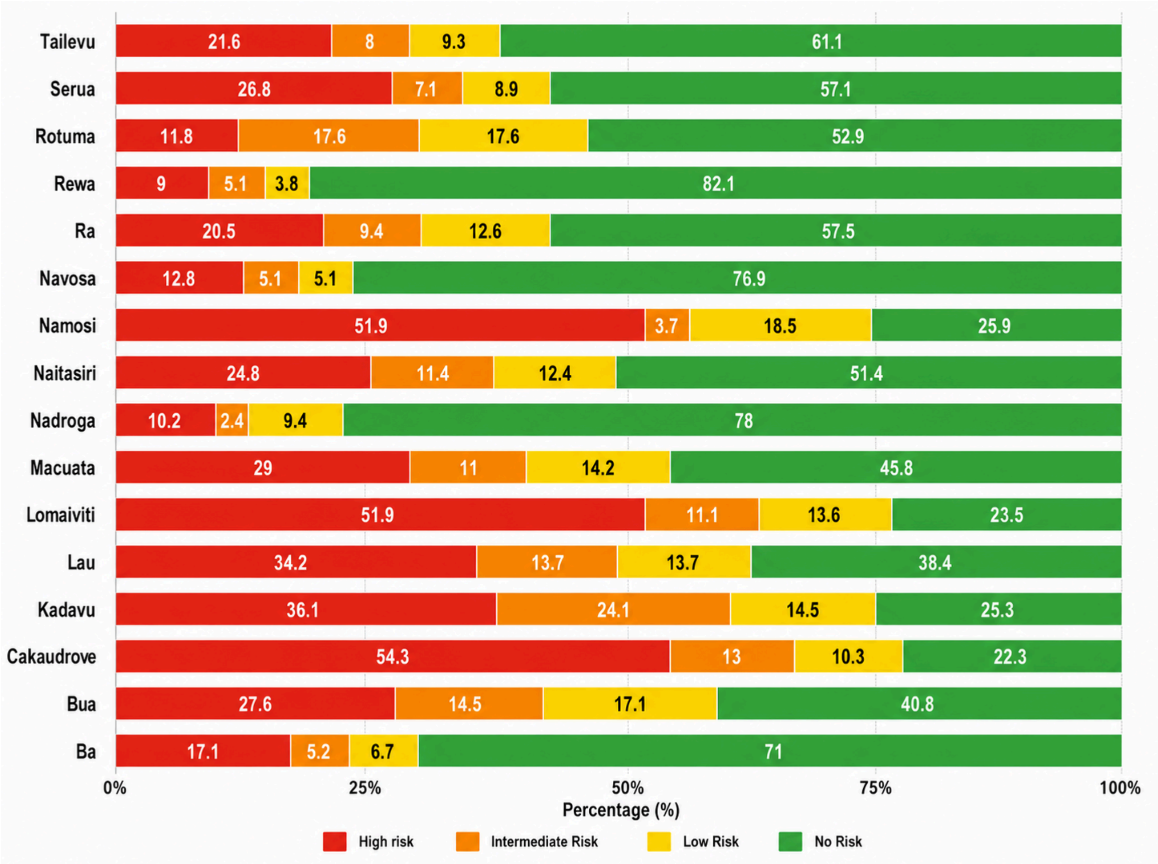
Figure 7: E. coli Risk level in each Division



Several provinces recorded high proportions of High-Risk results Cakaudrove (54.3%), Lomaiviti (51.9%), and Namosi (51.9%) have more than half of villages classified as High Risk. Kadavu (36.1%), Lau (34.2%), and Bua (27.6%) also show elevated contamination levels. These provinces are predominantly rural, island-based, or mountainous, often reliant on untreated surface water or rainwater harvesting.

Provinces with Relatively Low Risk are Rewa (82.1% No Risk), Nadroga (78%), Navosa (76.9%), and Ba (71%) show strong water quality performance. These provinces benefit from better access to protected sources, groundwater, or managed systems mostly served through WAF water supply. However, even in these provinces, High Risk villages persist, underscoring the need for targeted interventions rather than complacency. Provinces such as Kadavu, Rotuma, and Bua show relatively high Intermediate Risk percentages, suggesting systems that are close to failure and vulnerable to climate variability, flooding, or poor maintenance. Low Risk levels remain moderate across most provinces, reinforcing the importance of preventive actions before deterioration into High Risk. The presence of high, intermediate and even low risk CBT results indicates ongoing exposure to faecal contamination with direct implications for diarrhoeal disease burden, child health and nutrition and community confidence in water supplies The findings suggest that infrastructure alone is insufficient, water quality outcomes are also influenced by operation and maintenance practices, catchment protection, household water handling and storage and climate extremes such as floods, drought etc.

Figure 8: E. coli risk level in each Province



5.9 Water Treatment

Water treatment practices in Fiji vary significantly between urban and rural settings. Communities connected to the WAF network are generally the only ones that consistently receive centrally treated water that meets national drinking water quality standards. These systems typically include full treatment processes such as coagulation, filtration, and disinfection, supported by routine monitoring and quality assurance mechanisms. As a result, populations served by WAF benefit from a higher and more reliable level of water safety.

In contrast, the majority of rural communities rely on decentralized and small-scale water supply systems, where treatment is limited or absent. In many rural schemes, raw water from springs, streams, or creeks is supplied directly to communities with minimal intervention. Where treatment does exist, it is often in the form of simple technologies such as slow sand filtration, small, packaged filtration units, or household-level options including bucket or point-of-use filters. While these systems can improve the physical quality of water, particularly by reducing turbidity, there is currently limited evidence to confirm that they consistently provide water that is 100 percent safe for drinking. In addition, the performance of these systems is highly dependent on proper design, operation, and maintenance, which can be challenging in remote settings due to limited technical capacity and financial resources.

To address water quality risks in rural areas, DWS introduced the Ecological Purification System (EPS) as an alternative, low-cost treatment option tailored for village-level application. EPS units were first installed between 2015 and 2016, with a total of 56 systems constructed during this initial phase.

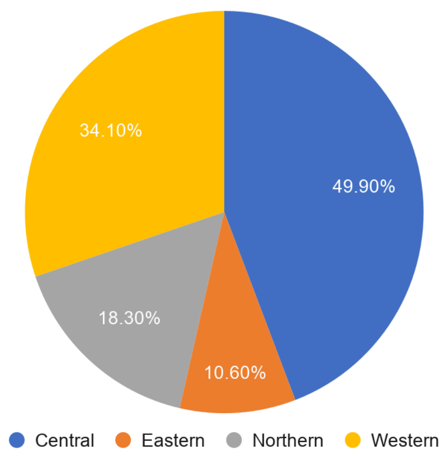
Subsequently, responsibility for EPS implementation and budgeting was transferred to WAF, which expanded the programme, bringing the total number of installed systems to 126 by the end of 2022.

The EPS is a biologically based water treatment system typically constructed using a rota tank. It functions primarily as a roughing and filtration system designed to reduce turbidity and improve overall water clarity. The treatment process relies on natural bacterial activity that develops on the surface of the sand layer in the EPS tank, where beneficial microorganisms help suppress or consume harmful pathogens. Water then percolates through successive sand layers before entering a storage tank, from which it is distributed to communities, usually through communal standpipes.

The primary objective of the EPS is to provide rural communities with safer and cleaner drinking water using a simple, low-energy, and locally manageable treatment approach. EPS units are commonly installed as standalone systems after an existing reservoir and are strategically located within the central area of a village to ensure accessibility for households. While EPS offers a promising and context-appropriate solution for rural water treatment in Fiji, ongoing monitoring, water quality testing, and performance evaluation are essential to ensure that these systems consistently meet drinking water safety requirements and deliver their intended public health benefits.

Of the 1,681 water supply systems assessed during the survey, 1623 locations primary drinking water sources were analysed. Of these 1,127 locations representing approximately 70 percent were found to be supplied with untreated drinking water. Only 496 locations had access to treated water. The distribution of treated water supply across Fiji shows significant variation between divisions, reflecting differences in urbanisation, infrastructure development, and access to centralized water treatment systems.

Figure 9: Percentage of Treated Water in Each Division



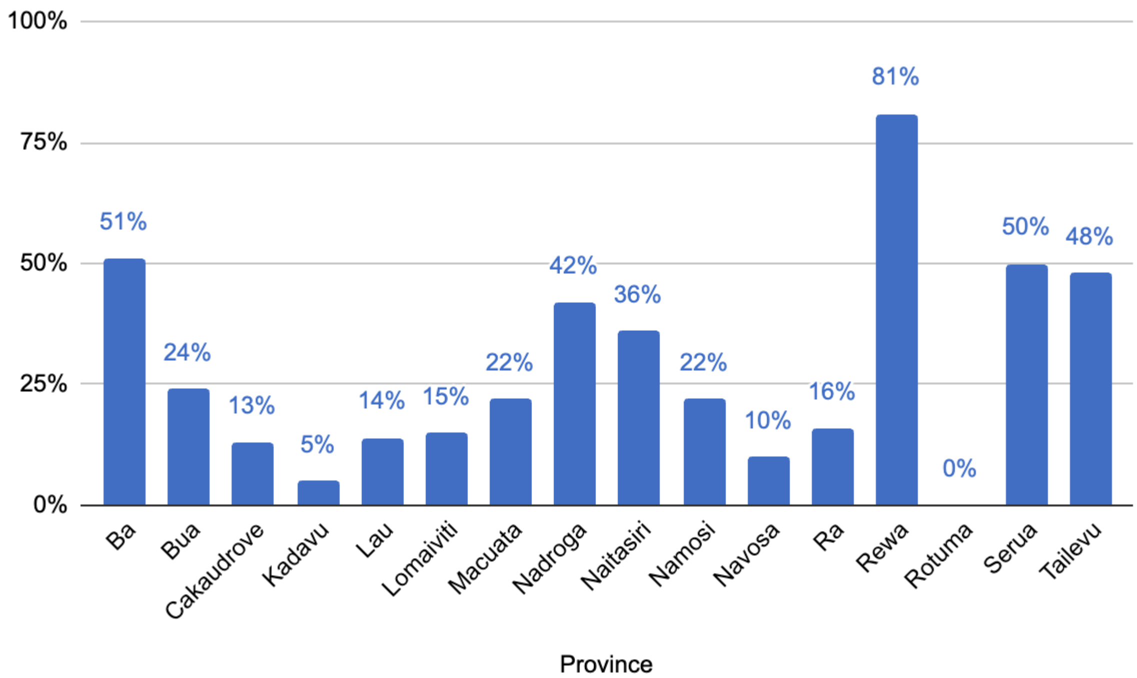
The Central Division accounts for the highest proportion of treated water at 49.9%, representing nearly half of all treated water coverage nationally. This reflects the concentration of urban centres, major population hubs, and extensive WAF infrastructure within the division. Communities in this division are more likely to be connected to centralized treatment plants and reticulated supply systems, resulting in higher access to treated and regulated drinking water.

The Western Division contributes 34.1% of treated water, making it the second highest among the divisions. This relatively high share is attributed to major towns, tourism-driven infrastructure investments, and comparatively better-developed water supply systems. However, despite this strong contribution, significant rural and peri-urban areas within the Western Division still rely on untreated or partially treated water sources.

In contrast, the Northern Division accounts for only 18.3% of treated water, indicating more limited coverage of centralized treatment systems. This highlights ongoing challenges related to geographic dispersion, reliance on rural water schemes, and limited treatment infrastructure. Many communities in the Northern Division continue to depend on surface water sources such as streams and springs, often supplied with little or no treatment.

The Eastern Division records the lowest proportion of treated water at 10.6%. This reflects the predominantly rural and maritime nature of the division, characterized by scattered island communities, small populations, and logistical constraints that make the extension of conventional water treatment systems difficult. As a result, households in the Eastern Division rely on untreated sources, rainwater harvesting, or small-scale treatment solutions

Figure 10: Percent of Treated Water in Different Provinces



The provincial distribution of treated water in Fiji reveals substantial inequalities in access to water treatment services, reflecting differences in population density, infrastructure coverage, geographic isolation, and reliance on rural water schemes. Provinces with high treated water coverage is Rewa with 81%, the highest proportion of treated water among all provinces. This reflects its proximity to major urban centers, extensive coverage by the WAF, and access to centralized treatment plants. As a largely urbanized province, Rewa benefits from well-established water supply infrastructure and regular water quality monitoring. Ba (51%), Serua (50%), and Tailevu (48%) also show relatively high levels of treated water coverage. These provinces include major towns and peri-urban areas where WAF systems are more prevalent. Despite moderate to high overall coverage, rural settlements in these provinces still rely on untreated or minimally treated sources. Provinces with moderate coverage are Nadroga (42%) and Naitasiri (36%) fall within the mid-range for treated water access. While these provinces include areas connected to centralized treatment systems, large inland and rural populations continue to rely on rivers, streams, or spring sources supplied through rural water schemes with limited treatment. Bua

(24%), Macuata (22%), and Namosi (22%) demonstrate low to moderate treated water coverage. These provinces are characterized by dispersed rural communities and limited extension of conventional treatment infrastructure. Water supply in these areas is often dominated by untreated surface water sources. Ra (16%), Lomaiviti (15%), Lau (14%), Cakaudrove (13%), and Navosa (10%) record low proportions of treated water. These provinces are predominantly rural or maritime, with logistical and geographic challenges that constrain infrastructure development. Communities in these areas typically rely on raw water sources, harvesting rainwater, or small-scale treatment options.

Kadavu (5%) and Rotuma (0%) have the lowest treated water coverage nationwide. Their island locations, small and dispersed populations, and high transport and operational costs make the provision of centralized water treatment particularly challenging. As a result, most households in these provinces depend on untreated or minimally treated water sources. Rotuma has a unique situation where all the communities have reticulated borehole water by WAF however has no forms of water treatment for now.

5.10 Relationship Between Water Quality Risk and Payment for Water

The scatter plot below illustrates a moderate positive relationship between water quality risk and the proportion of communities that do not pay for water, with an R^2 value of 0.4943. This indicates that provinces with a higher percentage of CBT tests showing intermediate or high risk also tend to have a higher proportion of communities that do not pay for water services. The payment of water services here indicate the payment done as water bill to the people connected to WAF and payment of levy “Soli” for the communities that manage the water systems at community level.

Provinces such as Cakaudrove, Kadavu, Lomaiviti, Lau, and Namosi are clustered in the upper-right quadrant of the graph, indicating both high-water quality risk levels (above 50%) and very high non-payment rates (around 80–95%). These provinces are predominantly rural or maritime, where water supplies are largely untreated, and systems are community managed. Conversely, provinces such as Rewa, Ba, and Tailevu show lower proportions of intermediate and high-risk CBT results and correspondingly lower non-payment rates. Rewa, in particular, stands out with relatively low risk levels and the lowest proportion of communities not paying for water, reflecting strong coverage by WAF-managed, treated water systems.

Figure 11: Relationship between water quality and payment of water

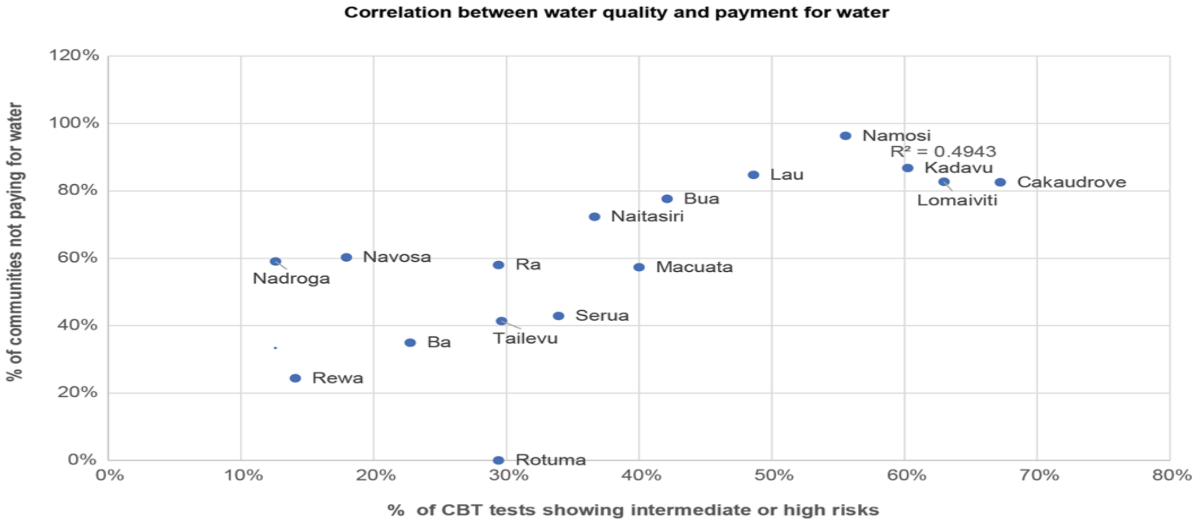


Table 10: Percentage of Levy Paid for Different Water Supply Systems

Water Systems	1-20 FJD	20-50 FJD	50-100 FJD	Above 100 FJD	No Payment /Levy	Total %
EPS -Ecological Purification System	42	0	0	0	58	100
MRD Borehole Scheme	47	8	8	0	43	100
Privately owned/supply system	16	12	12	0	71	100
Rainwater Harvesting System	15	0	0	0	85	100
Rural Water Scheme	24	2	2	0	74	100
WAF Urban Water Supply	74	21	2	0	3	100

5.11 Seasonal Variability

The survey findings indicate that communities' primary drinking water sources are affected during both the dry and wet seasons. At the divisional level, 58.5% of water sources are impacted during the dry season, increasing to 63.2% during the wet season. In the Eastern Division, 59.8% of communities reported impacts on their drinking water sources during the dry season, with a similar proportion (60.2%) affected during the wet season. The Northern Division reported that 53.7% of drinking water sources are affected in the dry season, rising substantially to 65.5% during the wet season. In the

Western Division, 41.9% of water sources are affected during the dry season, increasing to 55.6% during the wet season.

Table 11: Percentage of Communities affected in Wet and Dry Season

Division	Percent affected during dry season	Percent affected during wet season	Number of Locations
Central	58.5	63.2	429
Eastern	59.8	60.2	254
Northern	53.7	65.5	415
Western	41.9	55.6	525

5.12 Water Tariffs

In Fiji, water tariff systems reflect the difference between urban utility-managed services and community-managed rural systems. In urban and peri-urban areas, water services are provided by the Water Authority of Fiji (WAF), where households, schools, and businesses receive a monthly water bill based on metered consumption. The tariff structure is designed to cover the costs of water treatment, infrastructure maintenance, operations, and service delivery. Customers pay for the volume of water used, and in some cases, government subsidies help ease the burden for low-income households.

In rural communities, however, the situation is quite different. Many villages rely on Rural Water Supply Schemes, which are often gravity-fed systems drawing from springs, rivers, or boreholes. These systems are typically supported initially by government capital investment, but long-term operation and maintenance largely depend on the community itself. Instead of receiving a formal water bill like WAF customers, households are expected to contribute through a village water levy “soli” , a small monthly fee collected locally to cover repairs, fuel for pumps, replacement of pipes, and other maintenance needs.

The challenge is that levy collection in rural communities is not always consistent. In some villages, contributions may be irregular or paused during financial hardship, which can leave the water committee without sufficient funds to repair breakdowns promptly. When systems fail and there are no savings to cover repairs, communities may experience prolonged water disruptions. This is why encouraging regular and transparent levy collection is essential as stipulated in the Rural Water and Sanitation Policy.

Strengthening levy systems under rural water schemes is ultimately about building self-sufficiency. When communities actively contribute to and manage their water funds, they develop ownership of the system and are better positioned to ensure sustainability. While government support remains important for technical oversight and major capital works, routine maintenance and minor repairs are more sustainable when financed locally. Encouraging a culture of regular levy payment, proper record keeping, and accountability within village water committees can significantly improve the long-term reliability of rural water supply systems in Fiji. Table below illustrates the data collected from this survey to capture the range of tariff that is paid by both communities where they are connected to WAF and ones that have rural water schemes.

Table 12: Tariff Payment by Number of Locations

Tariff per month	No Locations	% of Total	% of Tariff payers
$FJD 1-20	491	29%	76%
$FJD 20-50	148	9%	23%
$FJD 50-100	11	1%	2%
Total	**650**	**39%**	**100%**

The tariff data indicates that out of the total surveyed locations, 650 communities (39%) reported collecting a monthly water tariff or paying WAF bill, suggesting that the majority of locations have no structured payment mechanism in place. Among those that do collect tariffs, the overwhelming majority fall within the FJD $1–20 range, accounting for 491 locations (29% of total locations and 76% of tariff-paying communities). This demonstrates that rural water tariff systems are generally set at very low and affordable levels, reflecting community income constraints and the intention to encourage broad participation. A smaller proportion, 148 locations (9% of total and 23% of tariff payers), charge between FJD $20–50 per month, while only 11 locations (1% of total; 2% of tariff payers) charge between FJD $50–100, indicating that higher tariff structures are rare.

The dominance of low-tier tariffs suggests that while affordability is being prioritised, revenue generation for operation and maintenance may be limited. With only 39% of locations implementing any form of tariff collection, financial sustainability remains a concern for long-term system functionality. The small proportion of communities charging above FJD $20 may indicate either higher service levels (e.g., pumped systems with electricity costs) or stronger governance and cost-recovery mechanisms. Overall, the data highlights a critical balance between affordability and sustainability, suggesting the need to strengthen tariff enforcement, financial management capacity, and community awareness to ensure that rural water systems can generate sufficient funds for maintenance while remaining socially equitable.

Table 13: Tariff Payment based on the Type of Water Supply System

Supplier	Pay tariff	Don’t pay tariff	Total
WAF Urban Water Supply	401	35	436
Rural Water Scheme	191	770	961

MRD Borehole Scheme	29	33	62
Rainwater harvesting system	19	122	141
EPS - Ecological Purification System	9	24	33
Privately owned/supply system	10	38	48
Total	**659**	**1022**	**1681**

The tariff data reveals a clear pattern in water supply systems across Fiji in terms of payment compliance and access. Urban water supply managed by the WAF shows the highest proportion of users paying tariffs, with 401 out of 436 customers (92%) contributing financially. This reflects the formalized billing and collection systems typical of urban areas, where water supply is reliable and users are accustomed to regular payments.

In contrast, the rural water scheme shows the opposite trend: only 191 out of 960 users (20%) pay tariffs, highlighting challenges in fee collection, limited enforcement mechanisms, and possibly the community perception that water should be free. Less common systems like the MRD Borehole Scheme and EPS show moderate payment rates, while rainwater harvesting and privately owned supplies see low payment rates, likely because these systems are more decentralized and self-managed.

Overall, the data suggests that centralized, urban-managed water systems achieve higher tariff collection rates, while decentralized, community-based, or self-supply systems struggle with financial sustainability. This pattern underlines the importance of tailored financial models: urban systems can sustain themselves through tariffs, whereas rural and self-managed systems may require alternative approaches, such as community levy schemes, government subsidies, or blended financing to ensure long-term sustainability. Strengthening community engagement and education around the value of paying for water could improve revenue collection in rural and decentralized systems.

5.13 Maintenance of Water Supply Systems

The effective operation and maintenance of water supply systems is essential to ensure continuity of service and long-term sustainability. Without regular maintenance, even well-designed systems are vulnerable to rapid deterioration, leading to service interruptions, reduced water quality, and increased repair costs over time.

Findings from the survey indicate that the majority of routine maintenance for Rural Water Schemes is undertaken directly by communities themselves. Households and community members, often through village Water Committees, are responsible for carrying out basic operation and maintenance activities such as clearing intakes, repairing minor leaks, cleaning storage tanks, and managing distribution lines. This reflects a strong level of community ownership and commitment to keeping systems functional.

Support from the Water Authority of Fiji (WAF) or the Department of Water and Sewerage (DWS) is typically sought when major repairs, technical faults, or system upgrades are required, particularly in cases involving structural damage, replacement of major components, or rehabilitation of intakes and reservoirs. However, response times can vary depending on location, resource availability, and competing priorities.

Within villages, Water Committees play a central role in organising maintenance activities, coordinating community labour, collecting user contributions where applicable, and liaising with government agencies. Strengthening the technical and managerial capacity of these committees is therefore critical to improving system reliability and sustainability.

For communities connected to WAF-managed supply, responsibilities are clearly defined as responsible for the operation and maintenance of infrastructure up to and including the individual household water meter. Any repairs or maintenance required beyond the meter such as internal plumbing, household storage tanks, and fixtures remain the responsibility of the individual household. Clear communication of these roles is important to avoid confusion and ensure timely resolution of faults.

5.14 Status and Remedial Requested for Water Supply

The Waterpoint survey included information on the status and the needs to remedy deficiencies and further improve the water supply and sanitation system in the villages and settlements. This information was obtained from the interview of the contact person in each location and was recorded in the survey as an open-ended transcript. For the analysis of the database this information was classified according to the main aspects recorded to allow the present status and highlighted development needs to be classified under the main categories.

A total of 140 schemes reported that they had no issues with their water supply and 68 said that the water supply was sustainable, making a total of 208, or 13% of the 1600 schemes. A summary of the responses according to the main water supply provider is shown in table. Overall, 13% of the schemes reported no issues and a sustainable supply. The WAF urban water schemes were the highest at 24% with Rural water schemes 9%. None of the rainwater harvesting or seawater water desalination schemes were reported sustainable or had no issues.

Table 14 Sustainable Water System based on the Main Water Supply

Main Water Supply	No Issues	Sustainable WS	Total	Total schemes	% of all schemes
Rural Water Scheme	46	35	81	930	9%
WAF Urban Water Scheme	79	30	109	446	24%
MRD Borehole Scheme	6	3	9	45	20%
Privately owned	5	0	5	39	13%
Rainwater harvesting	0	0	0	118	0%
Sea water desalination system	0	0	0	3	0%
Total	140	68		1600	13%

Table 15 Requests for Repair and Upgrade of Water Supply

Division / Province	No. of villages & settle-ments	Popula-tion	House-holds	Status			Request for Repair and Upgrade									
				No WS Issues	WS is sustain-able	Intermittent water supply	Request EPS	Request Purifica-tion system	Need Storage Tanks	Upgrade/ Repair WS system	Develop new water source	Connect to WAF System	Bore holes	Reservoir/ dam repair & upgrade	HH Rain-water tanks	Desal plants
Central	**424**	**203,558**	**35,098**	**40**		**169**	**57**	**25**	**39**	**66**	**41**	**14**	**6**	**53**	**44**	
Naitasiri	101	26,413	5,488	9		16	25	6	13	22	9	3	1	19	11	
Namosi	27	8,001	1,743	2		9	12	4	2	2	10	5		4	2	
Rewa	78	49,904	11,671	11		48	4	1	6	5	1	4		3	7	
Serua	56	43,510	3,470	9		12	1	3	7	11	5	1		9	10	
Tailevu	162	75,730	12,726	9		84	15	11	11	26	16	1	5	18	14	
Eastern	**253**	**37,779**	**9,587**	**13**	**3**	**38**	**74**	**34**	**13**	**49**	**19**		**10**	**44**	**37**	**2**
Kadavu	83	11,795	2,918	1	3	8	12	26	8	18	9		1	28	9	
Lau	72	9,412	2,747	2		11	20	4	2	10	4		9	6	18	2
Lomaiviti	81	14,606	3,419			17	42		3	17	6			8	10	
Rotuma	17	1,966	503	10		2		4		4				2		
Northern	**409**	**143,696**	**33,722**	**30**	**14**	**56**	**113**	**83**	**51**	**62**	**62**	**11**	**29**	**28**	**34**	**4**
Bua	76	16,271	3,306	3		7	30	2	3	14	5	2	12	6	5	
Cakaudrove	183	50,880	11,095	13	6	25	65	42	21	30	38	3	5	12	10	
Macuata	150	76,545	19,321	14	8	24	18	39	27	18	19	6	12	10	19	4
Western	**514**	**286,407**	**76,498**	**57**	**51**	**86**	**63**	**48**	**38**	**76**	**61**	**31**	**38**	**33**	**70**	**1**
Ba	190	193,017	55,112	16	34	27	10	24	14	24	19	22	11	9	39	1
Nadroga	127	40,705	9,391	24	5	24	3	20	11	11	12	5	12	8	18	
Navosa	78	18,902	4,047	5	3	18	26	2	3	14	14	2	11	5	7	
Ra	119	33,783	7,948	12	9	17	24	2	10	27	16	2	4	11	6	
Grand Total	**1600**	**671,440**	**154,905**	**140**	**68**	**349**	**307**	**190**	**141**	**253**	**183**	**56**	**83**	**158**	**185**	**7**

The data above indicate that requests related to the improvement and upgrading of existing water supply systems are widespread across all divisions, reflecting persistent challenges with reliability, water quality, and system capacity in rural Fiji. Nationally, the most common upgrade-related requests include intermittent water supply issues (319 villages), requests for Ecological Purification Systems (EPS) (307 villages), and requests for purification systems (190 villages), highlighting that many communities are already connected to water systems but face challenges in treatment effectiveness and continuity of supply. Requests for storage tanks (141villages) and household rainwater harvesting tanks (185 villages) further indicate the need to strengthen buffering capacity to cope with dry periods, population growth, and climate-related variability. These patterns suggest that improving system resilience and water quality is a higher priority than establishing entirely new systems in many locations.

At the divisional and provincial levels, the nature of upgrade requests varies according to geography and settlement characteristics. The Northern Division records the highest number of upgrade-related requests overall, particularly for intermittent supply (56 villages), EPS (113 villages), and purification systems (83 villages), with Cakaudrove and Macuata driving much of this demand. This reflects ageing infrastructure and heavy reliance on decentralized systems requiring rehabilitation rather than replacement. The Western Division also shows significant demand for upgrades, with strong requests for storage tanks (38 villages), system upgrades and repairs (76 villages), and reservoir or dam repair and upgrades (33 villages), especially in Ba and Nadroga, where population is high. In contrast, the Eastern Division shows a higher proportion of requests for rainwater harvesting tanks, EPS, and desalination plants, particularly in Lau and Kadavu, portraying the need for technology-based upgrades tailored to small, remote, and island communities. Overall, the request patterns demonstrate that strengthening and upgrading existing water supply systems through improved treatment, increased storage, and targeted rehabilitation should be the central focus of rural water investment strategies in Fiji.

Among the issues identified through the survey, sanitation-related concerns were rarely reported by communities, with the overwhelming majority of requests focused on the upgrading and improvement of water supply systems. Even in locations where sanitation challenges may exist, communities primarily articulated needs related to water availability, reliability, and quality, while requests for sanitation facilities or upgrades were minimal. This pattern suggests that sanitation issues are often under-reported rather than absent and may not be perceived by communities as an immediate priority when compared to more visible and pressing water supply challenges.

This trend indicates a need for greater awareness and community engagement on the critical role of sanitation in public health and wellbeing. While access to water is essential, adequate sanitation is equally important in preventing waterborne diseases, protecting water sources from contamination, and improving overall health outcomes, particularly for women, children, and vulnerable groups. Strengthening hygiene and sanitation awareness programmes, alongside water supply interventions, would help communities better understand the long-term health, social, and environmental benefits of improved sanitation facilities. Integrating sanitation promotion into existing rural water initiatives would therefore be essential to achieving sustainable and holistic WASH outcomes in rural areas

5.15 Sanitation

Sanitation conditions in Fiji reflect a mix of improved and basic toilet technologies, shaped largely by water availability and reliability, particularly in rural and remote communities. The most common sanitation facility in use is the flush toilet, either as a standalone option or in combination with other toilet types such as water seal and pit toilets. Water seal toilets are also present in several communities, while pit toilets are limited and generally used as secondary or backup facilities.

In many households, more than one type of toilet is maintained. This practice is a practical adaptation to intermittent or unreliable water supply, where households with flush toilets also retain water seal or pit toilets for use during periods of water shortage. As a result, flush toilets in these settings are often operated as pour-flush systems, rather than relying on continuous piped water supply. This highlights the flexibility of household sanitation arrangements in response to local water constraints.

The continued use of pour-flush toilets portrays the close link between water supply and sanitation service levels in Fiji. While sanitation coverage is generally high and open defecation is not practiced, the functionality and sustainability of improved sanitation facilities remain vulnerable to water scarcity. These conditions emphasise the need for integrated planning of water and sanitation services, including improved water reliability, climate-resilient infrastructure, and appropriate sanitation technologies that can function effectively under low-water conditions.

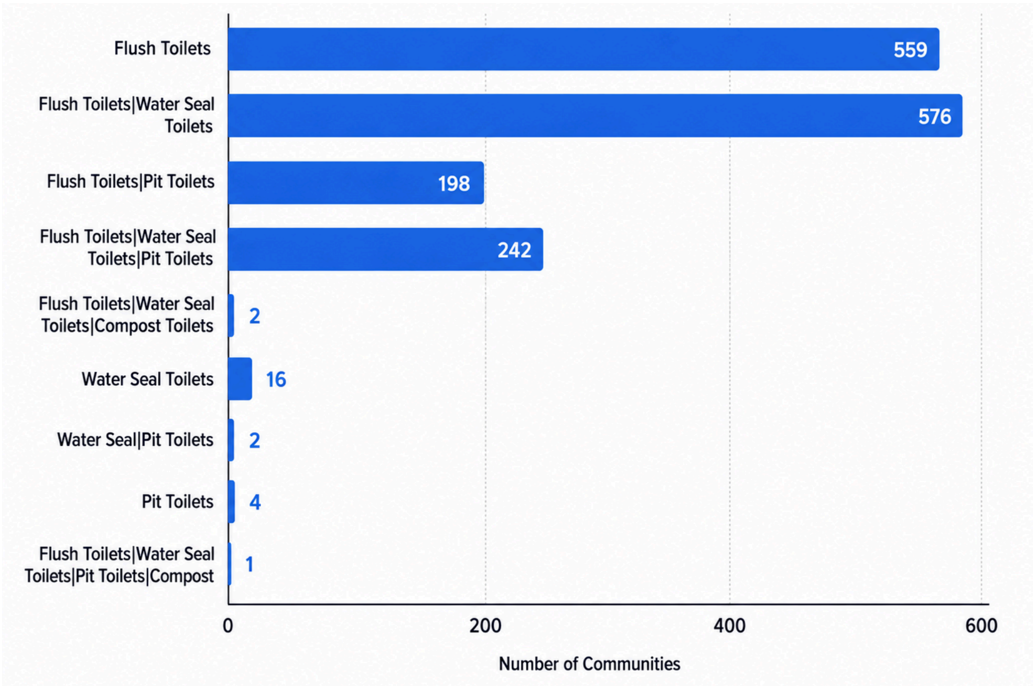
Overall, Fiji's sanitation landscape demonstrates strong progress towards improved sanitation access, while also revealing the importance of context-appropriate solutions that account for water availability, climate variability, and rural service delivery challenges.

Table 16: Types of Toilets in Households

Types of Toilets	Number of HH	Percentage of Total Sanitation Types
Flush Toilets	136179	86%
Water Seal Toilet	11979	8%
Pit Toilet	5546	4%
Compost Toilet	5	0%
No Toilets	3570	2%

Overall Flush toilets accounted for the majority of sanitation facilities, with 136,179 units representing 86% of all sanitation types recorded among the 154,905 households. Water-seal toilets comprised 11,979 units (8%), while pit toilets numbered 5,546 (4%). Compost toilets were negligible, with only five units recorded, accounting for nearly 0%. In addition, 3,570 households (2%) reported having no toilet facilities; these households typically rely on shared toilets with neighbouring households or use communal sanitation facilities. It is important to note that the total number of sanitation facilities exceeds the number of households captured, as some households reported access to more than one type of toilet facility.

Figure 12: Number of Communities with Different types of Toilets



The distribution of toilet types across villages and locations shows a strong predominance of improved sanitation facilities, with flush toilets being the most common option. A total of 559 villages/locations reported having flush toilets only, while an additional 576 locations reported a combination of flush toilets and water seal toilets, indicating widespread adoption of higher-level sanitation technologies in rural Fiji.

Mixed sanitation systems are also evident. 198 villages/locations reported using a combination of flush toilets and pit toilets, and 242 locations reported a mix of flush toilets, water seal toilets, and pit toilets. This suggests that in some communities, sanitation infrastructure has evolved incrementally, resulting in multiple toilet types being used within the same village or location also indicating that the water supply is not consistent thus communities use other types of toilets then flush due to scarce water supply.

Water seal toilets on their own were reported in 16 villages/locations, while pit toilets alone were reported in only 4 locations, indicating that unimproved or basic sanitation options are relatively limited. Very small numbers of villages reported combinations involving compost toilets or multiple sanitation technologies, highlighting that these systems are not widely adopted at present.

Overall, the data demonstrates a high reliance on improved sanitation systems, particularly flush and water seal toilets, across most villages and locations. The limited presence of pit-only and compost-based systems, along with the widespread use of mixed systems, points to ongoing transitions in sanitation infrastructure. These findings suggest progress towards improved sanitation coverage, while also relying on the need for targeted support to standardise and upgrade sanitation facilities in villages where multiple or lower-level systems remain in use.

Table 17: Number of Households with and without Toilets

Division & Province	Population	No. Households	No. Households generally use a household toilet	No. Households share toilet facilities	No. Households have no toilet
Central	203558	35098	36174	1109	1109
Naitasiri	26413	5488	5225	254	254
Namosi	8001	1743	1597	146	146
Rewa	49904	11671	13657	208	208
Serua	43510	3470	3333	137	137
Tailevu	75730	12726	12362	364	364
Eastern	37779	9587	9314	264	269
Kadavu	11795	2918	2742	167	167
Lau	9412	2747	2728	19	19
Lomaiviti	14606	3419	3341	78	78
Rotuma	1966	503	503		
Northern	143696	33722	32663	1058	1058
Bua	16271	3306	3056	250	250
Cakaudrove	50880	11095	10496	599	599
Macuata	76545	19321	19111	209	209
Western	286407	76498	73851	1139	1139
Ba	193017	55112	53092	480	480
Nadroga	40705	9391	9259	164	164
Navosa	18902	4047	3996	51	51
Ra	33783	7948	7504	444	444
Grand Total	671440	154905	152002	3570	3570
Percent of Total			**98%**	**2%**	**2%**

A range of sanitation facility types is present across rural communities in Fiji. Findings indicate that most households have access to improved sanitation, with 152,002 households representing approximately 98 % having their own toilet facilities.

Despite this high level of coverage, gaps in access remain for a small proportion of communities. A total of 3,570 households were recorded as having no toilet facilities of their own; these households rely on shared sanitation facilities, primarily community toilets, while the remaining households share toilet facilities with neighbouring or nearby households.

Encouragingly, no households were reported to be practicing open defecation, indicating progress towards improved sanitation access and positive hygiene behaviors in rural areas. However, the continued reliance on shared sanitation highlights the need for targeted interventions to ensure equitable, safe, and private sanitation access for all households.

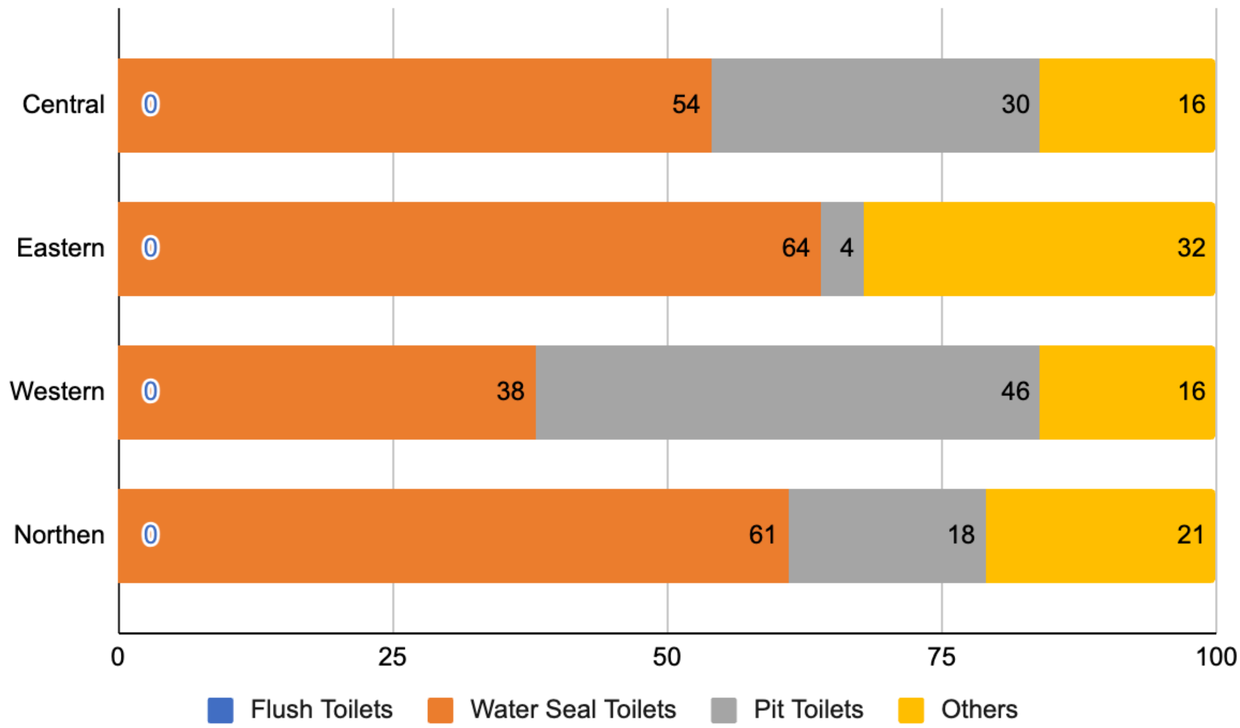
Flush toilets constitute the dominant sanitation facility, with 136,179 units accounting for 86% of all sanitation types recorded among the 154,905 households. However, despite their classification as improved sanitation, the effective and hygienic use of flush toilets is highly dependent on the availability of a reliable and consistent water supply. In many areas, particularly in peri-urban and rural settings, flush toilets are commonly used as pour-flush systems due to intermittent or inadequate water supply, which compromises their efficiency, convenience, and long-term sustainability.

Water-seal toilets represent 11,979 units (8%) and offer a transitional sanitation option, particularly where water availability is limited. Pit toilets, which account for 5,546 units (4%), remain a concern due to their environmental and public health risks, especially in flood-prone and high-water-table areas. These facilities should be progressively upgraded to water-seal toilets in the short term, while pit toilets should be phased out entirely over time. Compost toilets remain negligible, with only five units recorded, indicating minimal uptake of alternative sanitation technologies. In addition, 3,570households (2%) reported having no toilet facilities and therefore rely on shared or communal toilets, highlighting ongoing sanitation inequities.

To improve sanitation facilities across Fiji, strengthening the consistency and reliability of water supply is critical. Improved water supply will enable the efficient and year-round use of flush toilets, which are already the predominant sanitation system. Without reliable water access, the health and hygiene benefits of flush sanitation cannot be fully realised.

In parallel, basic and unimproved sanitation facilities should be systematically upgraded to improved flush-based systems, with a focus on ensuring that households have access to a single, safe, and functional sanitation facility that can be used at all times of the year. Such an approach would not only enhance public health outcomes but also support national goals for safely managed sanitation, environmental protection, and climate-resilient water and sanitation services. The table below shows the percentage of each type of toilet that needs improvement in each division.

Figure 13: Percentage of Different Types of Toilets in each Division



5.16 Faecal Sludge Containment and Removal

Survey findings indicate that, at the village level, all households reported to have flush toilet systems are associated with some form of on-site containment, including septic tanks, septic drums, or cesspits. However, this information was largely provided through community-level interviews and not verified through household-level inspections. As a result, the accuracy of reported containment types may be limited, as it is often difficult to confirm the actual condition, design, and functionality of underground sanitation structures without direct observation. Future household-level surveys and physical inspections would provide more reliable and detailed information on sanitation containment systems.

For households using water-seal toilets, the most common arrangement is a simple open dug pit beneath the toilet structure. Similar structures were also for traditional pit latrines. These systems generally lack lining and engineered containment, increasing the risk of environmental contamination, particularly in areas with high groundwater tables or permeable soils.

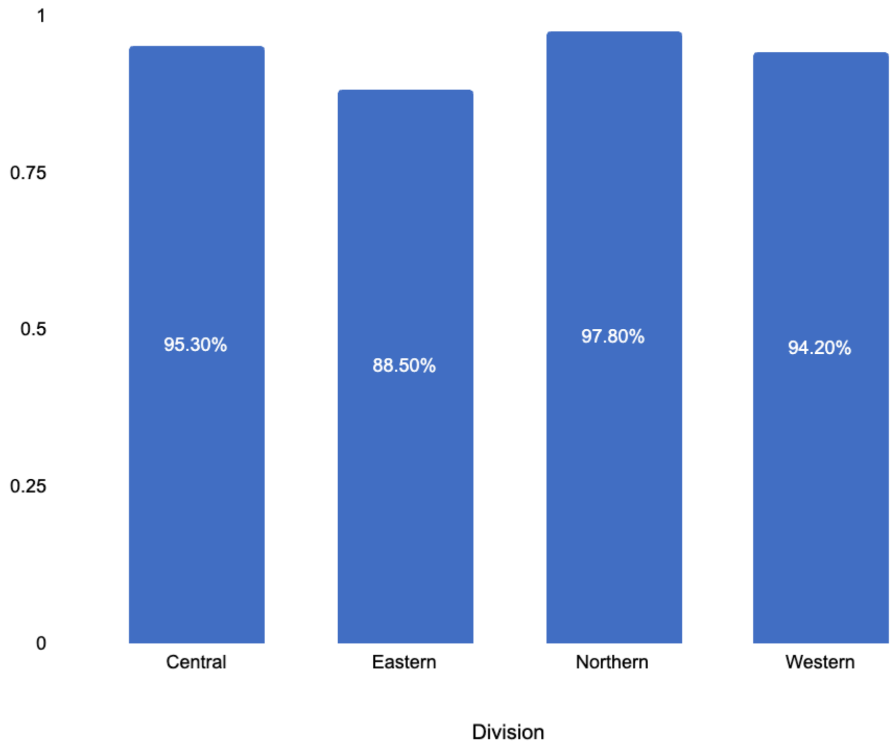
Over time, septic drums, cesspits, and pit latrines fill up and require emptying, replacement, or decommissioning. The predominant practice reported by communities is to cover a full pit and excavate a new one nearby. In cases where pits or septic drums are reused, manual bailing is sometimes undertaken by households or community members. Only a small number of communities reported constructing new septic tanks or accessing mechanical desludging (bail-out) trucks.

Given the remoteness of many rural and maritime communities, transporting sludge to centralised treatment facilities, such as those operated by WAF, is often impractical. Consequently, communities rely primarily on low-cost, locally managed, and manual methods of sanitation containment and pit management. While these practices are widely used, they pose potential public health and environmental risks, highlighting the need for improved guidance, appropriate technologies, and safer faecal sludge management options tailored to rural contexts.

5.17 Hygiene

Most villages reported the presence of handwashing facilities at household level, although availability and functionality may vary across divisions over time. Sustained access to soap and water remains a key challenge, particularly in remote and smaller communities.

Figure 14: Percent of villages with households having hand washing facility



The chart above shows high overall access to household handwashing facilities across Fiji's divisions, with coverage ranging from 89% to 98%, indicating generally strong hygiene infrastructure at the village level. The Northern Division records the highest proportion of villages with households having handwashing facilities (98%), followed by the Central (95%) and Western (94%) Divisions, suggesting relatively widespread availability and likely better water access or hygiene promotion in these areas. In contrast, the Eastern Division has the lowest coverage at 89%, which, while still high, points to persistent gaps that may be linked to geographic isolation, dispersed island communities, and challenges in maintaining consistent water supply. These disparities highlight the need for targeted support in the Eastern Division to ensure equitable access to handwashing facilities, which is critical for preventing water-borne and hygiene-related diseases.

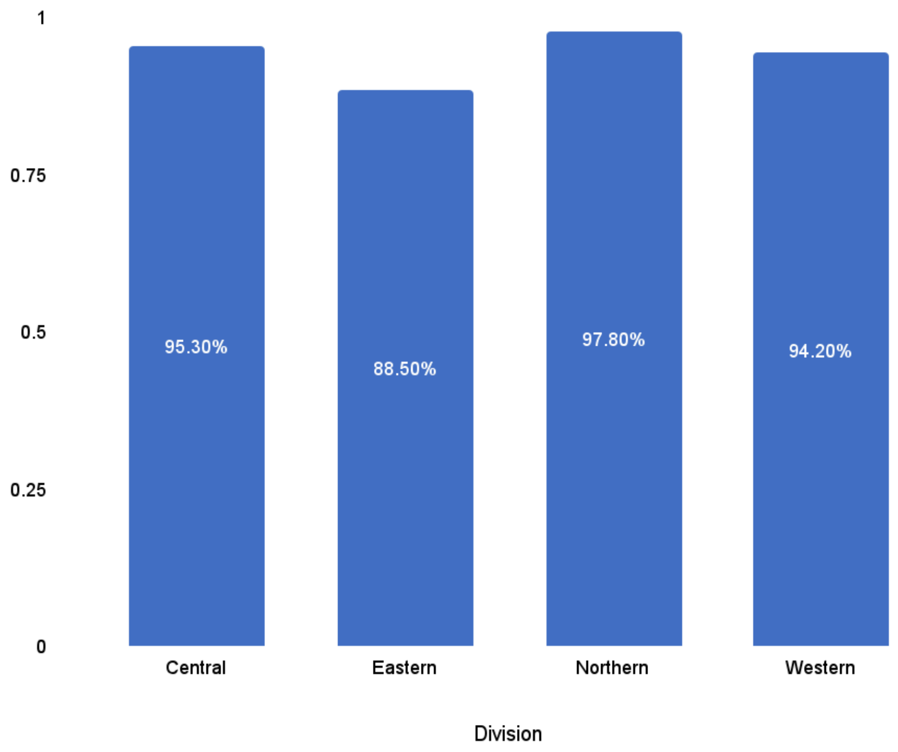
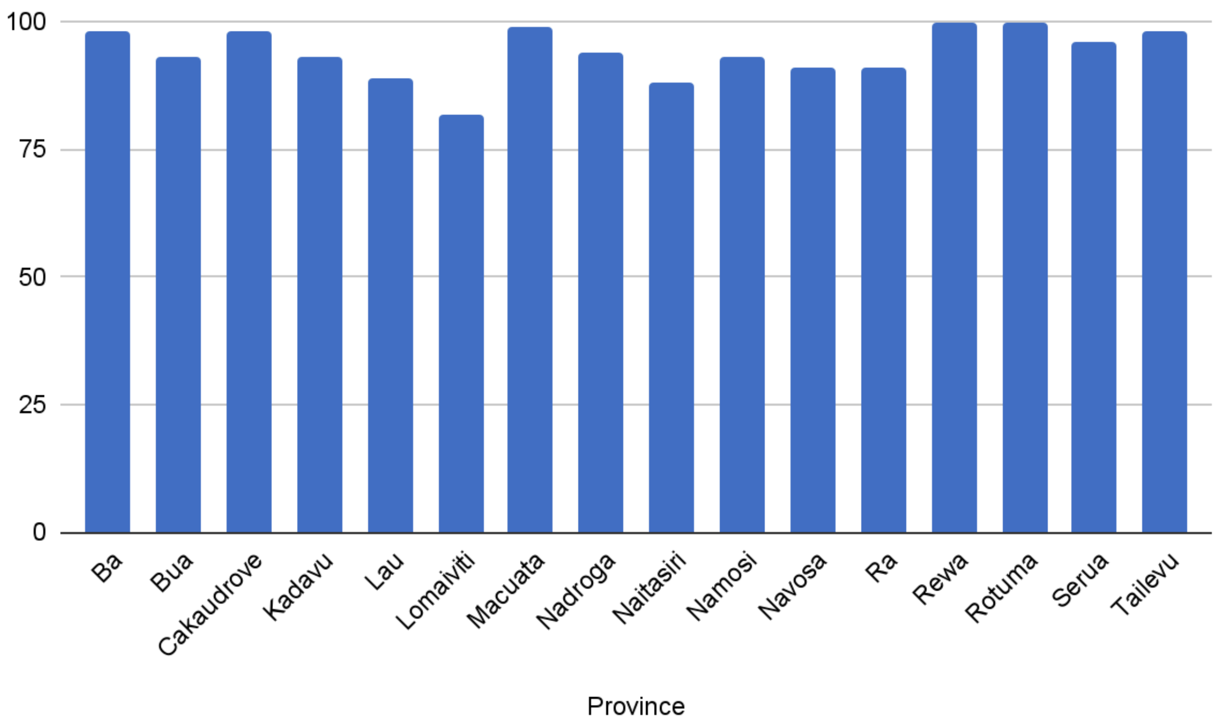


Figure 15: Percent of villages with households having hand washing facility in each province



The graph above represents the percentage of handwashing facilities in each province. Even though the percentage of handwashing facilities present in each province is well above 80%, attention still needs to be given to provisions such as Lomaiviti, Lau and Naitasiri that have the lowest percentage. To be able to have good hand-washing facility is it important to good water supply thus improving water supply becomes a priority

6.0 Survey Findings - WASH in Schools

6.1 School Coverage

In Fiji, most rural schools are located within or in close proximity to villages and settlements, and in many cases, they rely on the same water sources as the surrounding communities. These shared water resources mean that any challenges affecting village water supply, sanitation, or hygiene such as limited access, poor water quality, or system breakdowns also directly impact schools.

While the survey was initially proposed to focus on rural villages and settlements, it became evident that the same logistical effort and resources required to reach these remote communities could be efficiently used to also cover nearby rural schools during the same field visits. Including schools in the survey was therefore both practical and necessary. Capturing WASH conditions in village schools is critical to understanding how children are affected by water supply and sanitation services, as students spend long hours at school each day, even though they return home in the afternoon. Poor WASH conditions in schools can have significant implications for children’s health,attendance, dignity, and

learning outcomes.

Thus, assessing WASH services in rural schools alongside villages and settlements provides a more complete picture of community-wide WASH conditions and ensures that the needs of children and education facilities are adequately reflected in planning and decision-making

Division	Percentage	Number of Schools
Central	28.9	283
Eastern	13.3	130
Northern	23.0	225
Western	34.8	340
Total	100	978

A total of 978 schools were visited in the 4 different divisions. The numbers of schools visited may not correspond to the total number of schools in Fiji, since during the survey only rural schools were targeted.

Since the data was collected for villages and settlements were classified under the respective provinces thus due to most schools located in the vicinity of villages and Tikina’s similar classification was done for schools as mentioned in the table below.

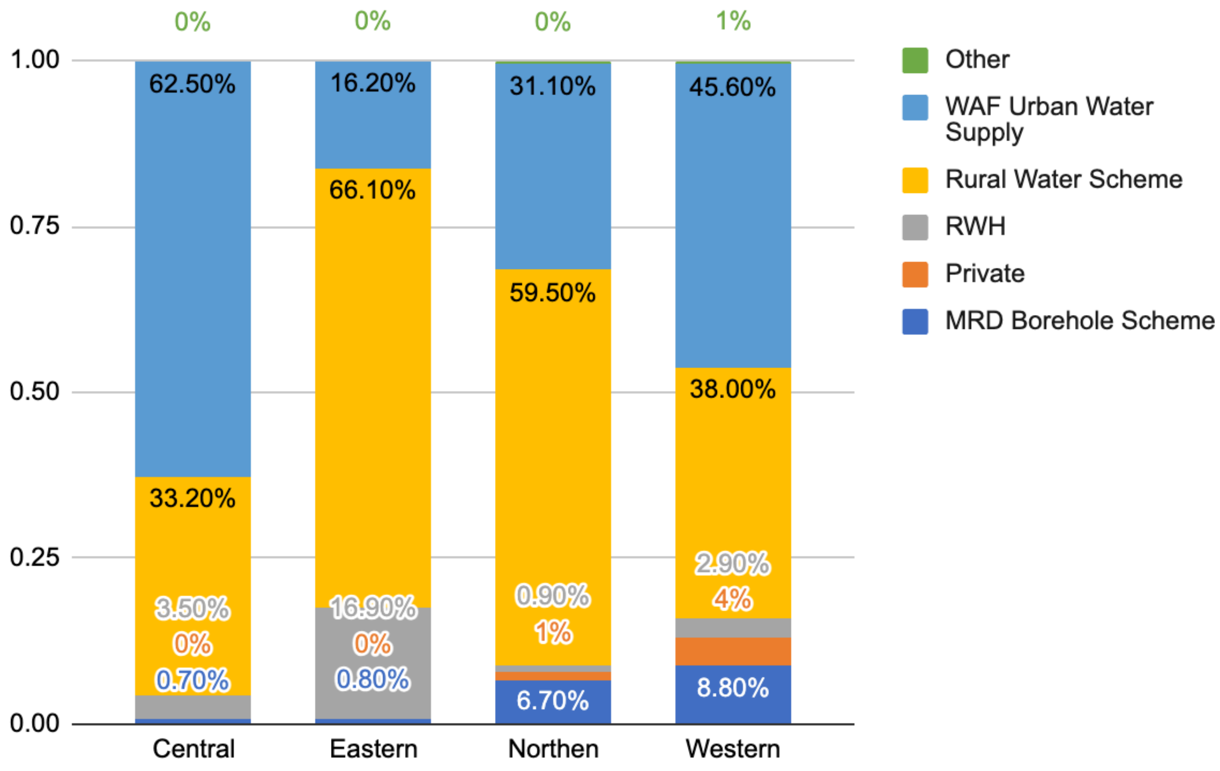
Province	Percentage	Number of Schools
Ba	17.8	174
Bua	3.7	36
Cakaudrove	9.1	89
Kadavu	3.5	34
Lau	5.0	49
Lomaiviti	4.3	42
Macuata	10.2	100
Nadroga	4.9	48
Naitasiri	8.7	85
Namosi	2.0	20
Navosa	4.1	40
Ra	8.0	78
Rewa	9.2	90
Rotuma	0.5	5
Serua	1.3	13
Tailevu	7.7	75
Total		978

6.2 Water Supply

Schools across Fiji rely on a combination of water supply systems, primarily including the Water Authority of Fiji (WAF) reticulated supply and Rural Water Schemes (RWS). In many rural settings, the Rural Water Scheme typically follows a source to reservoir to school distribution model, where water is abstracted from natural sources such as springs, rivers, or groundwater, stored in communal reservoirs, and then conveyed to schools through gravity fed or pumped systems. In addition to these arrangements, a number of schools supplement their water needs through rainwater harvesting systems and boreholes, particularly in areas where reticulated supply is limited or unreliable.

Furthermore, some school water systems are classified as private; however, these often function in a manner similar to Rural Water Schemes, as they may be or independently operated supply systems that are not formally integrated into the communities' rural water scheme. A similar overlap can also be observed within the 'other' category, where alternative or informal supply arrangements may exist but still operate using infrastructure and management approaches comparable to rural schemes. This highlights the complexity of water service delivery in schools, where formal and informal systems coexist to meet daily water demands.

Figure 16: Type of Water Supply Systems in Schools



In the Western Division of Fiji, the majority of schools are served by the WAF Urban Water Supply system, which accounts for 45.6% of the total water systems. This is followed by Rural Water Schemes (38.0%), MRD Boreholes (8.8%), private sources (4.1%), Rainwater Harvesting (2.9%), and other minor sources (0.6%). This distribution indicates that most schools in the Western Division are connected to formal piped water systems, suggesting relatively better infrastructure coverage and improved access to treated water supply compared to other divisions.

In the Northern Division, Rural Water Schemes are the dominant source of water supply for schools, accounting for 59.5% of access. WAF Urban Water Supply serves 31.1% of schools, while MRD Boreholes contribute 6.7%. A small proportion of schools rely on private sources (1.3%), Rainwater Harvesting (0.9%), and other sources (0.4%). This reliance on community-managed rural water systems suggests a higher exposure to operational, maintenance, and sustainability challenges in ensuring consistent water service delivery.

Similarly, the Eastern Division shows the highest national dependence on Rural Water Schemes, with 66.1% of schools relying on this system for their water supply. Rainwater Harvesting accounts for 16.9% of supply, followed closely by WAF Urban Water Supply at 16.2%, while MRD Boreholes contribute only 0.8%. The strong dependence on Rural Water Schemes and Rainwater Harvesting reflects the remoteness of many schools and limited access to reticulated supply systems, which has important implications for seasonal reliability and water safety.

In contrast, the Central Division records the highest reliance on WAF Urban Water Supply among all divisions, with 62.5% of schools connected to centralized treated systems. Rural Water Schemes serve 33.2% of schools, while Rainwater Harvesting and MRD Boreholes contribute 3.5% and 0.7% respectively. This indicates that schools in the Central Division benefit more from centralized water infrastructure, making them less vulnerable to system failures and climate-related variability in water availability.

Division	Creek	Rainwater	River	Spring	Stream	Well
Central	9.2	3.9	0.0	8.1	9.9	0.0
Eastern	16.2	6.9	0.0	33.8	6.9	0.8
Northern	15.1	3.1	5.3	28.9	5.3	0.4
Western	7.4	5.9	0.9	17.4	3.5	0.6

It is important to capture the sources of each rural water supply scheme to understand the variability of supply for such schemes. The data indicates that schools across Fiji continue to rely on a variety of natural water sources for their water supply systems. In the Central Division, 9.2% of schools depend on creeks, 3.9% on rainwater, 8.1% on springs, and 9.9% on streams, while none rely on rivers or wells. In the Eastern Division, reliance on natural sources is more pronounced, with 16.2% of schools using creeks, 6.9% rainwater, 33.8% springs, 6.9% streams, and 0.8% wells. This suggests that a considerable proportion of schools in these divisions access untreated or semi-treated sources such as springs and surface water.

Similarly, in the Northern Division, 15.1% of schools rely on creeks, 3.1% on rainwater, 5.3% on rivers, 28.9% on springs, 5.3% on streams, and 0.4% on wells. In contrast, the Western Division shows relatively lower dependence on natural sources, with 7.4% of schools using creeks, 5.9% rainwater, 0.9% rivers, 17.4% springs, 3.5% streams, and 0.6% wells. Overall, the findings highlight continued reliance on different sources of water, particularly in the Eastern and Northern Divisions, which may have implications for water quality, system reliability, and long-term sustainability in school water service provision.

6.3 Water Points in Schools

Characteristics	Number of water points/taps					Number of schools
	<5	5-9	10-14	15+	Total percent	
Division						
Central	13.8	19.8	19.4	47.0	100	283
Eastern	28.5	43.8	15.4	12.3	100	130
Northern	16.4	25.8	25.8	32.0	100	225
Western	25.6	18.2	17.9	38.2	100	340

The distribution of water points (taps) in schools across Fiji shows notable variation in infrastructure capacity between divisions. The number of taps present at each school also depended on the size of school and school population.

In the Central Division (283 schools), nearly half of the schools (47.0%) have 15 or more taps, indicating relatively well-developed water access infrastructure within school compounds. A further 19.8% of schools have between 5–9 taps, 19.4% have 10–14 taps, and only 13.8% have fewer than 5 taps.

In the Eastern Division (130 schools), however, the majority of schools fall within the lower tap coverage categories, with 28.5% having fewer than 5 taps and 43.8% having between 5–9 taps. Only 15.4% of schools have 10–14 taps, and a small proportion (12.3%) have 15 or more taps. This indicates comparatively limited water access infrastructure in schools across the Eastern Division, which may affect equitable access to water for drinking, sanitation, and hygiene purposes, especially during peak usage periods.

The Northern Division (225 schools) presents a more balanced distribution of taps, with 32.0% of schools having 15 or more taps, while equal proportions (25.8%) fall within both the 5–9 and 10–14 tap categories. Additionally, 16.4% of schools have fewer than 5 taps. While this suggests moderate infrastructure availability overall, a considerable number of schools may still face limitations in meeting adequate water access demands, particularly in larger school populations.

Similarly, in the Western Division (340 schools), 38.2% of schools are equipped with 15 or more taps, while 25.6% have fewer than 5 taps, 18.2% have 5–9 taps, and 17.9% have 10–14 taps. Although a significant proportion of schools demonstrate higher tap availability, the relatively large share of schools with fewer than 5 taps highlights potential disparities in water access infrastructure within the division. Overall, the findings suggest that while Central and Western Divisions show comparatively higher tap coverage, Eastern and Northern Divisions may require targeted improvements to ensure adequate and equitable water access in schools.

6.4 Availability of Water Supply

Characteristics	Always	Rarely	Sometimes	Total percent	Number of schools
Division					
Central	62.5	0.4	37.1	100	283
Eastern	42.3	0.0	57.7	100	130
Northern	57.8	0.4	41.8	100	225
Western	52.9	0.6	46.5	100	340

Central Division has the highest proportion of schools with consistent water supply (62.5%). This suggests relatively stronger infrastructure, likely due to higher urban concentration e.g. Suva Nausori Corridor, having better access to piped systems and more frequent maintenance support. However, over one-third ,37.1% still experience intermittent supply, which is significant and indicates ongoing reliability issues rather than complete absence.

Eastern Division shows the lowest percentage of schools with continuous water supply (42.3%). A majority (57.7%) report water only sometimes available. No schools reported “rarely,” suggesting systems exist but are inconsistent rather than absent. Given the geographic spread across islands and remote maritime locations, challenges likely include less access to freshwater thus dependence on rainwater harvesting, transportation constraints for repairs, and climate variability impacts This division appears most vulnerable in terms of water reliability.

Northern Division performs moderately well where 57.8% report constant availability and 41.8% report intermittent supply. The very small “rarely” category (0.4%) suggests that severe water shortages are minimal, but reliability remains a concern for nearly half the schools. This reflects mixed infrastructure conditions between urban Labasa areas and rural Vanua Levu communities.

6.5 Access to Treated Water

Division	Percent of Schools getting treated water	Number of schools
Central	65.7	283
Eastern	13.1	130
Northern	34.2	225
Western	46.2	340

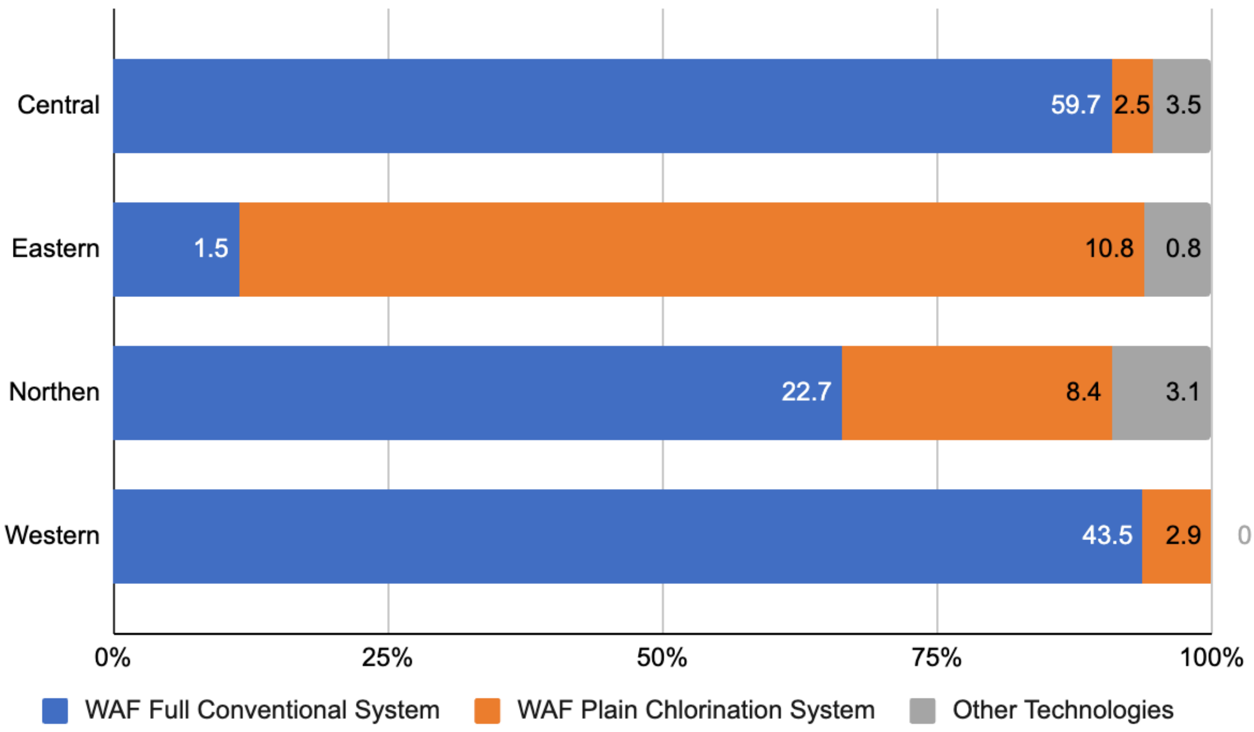
The data on access to treated water in schools across Fiji reveals significant disparities between divisions. The Central Division records the highest level of access, with 65.7% of the 283 schools receiving treated water. This suggests that a majority of schools in this division are likely connected to formal, regulated supply systems, which may enhance drinking water safety and reduce exposure to waterborne health risks among students and staff.

In contrast, the Eastern Division shows the lowest level of access to treated water, with only 13.1% of its 130 schools receiving treated water. This indicates that the vast majority of schools in this division rely on untreated or semi-treated water sources, such as springs, rainwater harvesting systems, or other rural supply arrangements. Such dependence raises concerns regarding water quality, particularly in remote locations where regular monitoring and treatment mechanisms may be limited.

The Northern Division presents a moderate situation, with 34.2% of its 225 schools having access to treated water. While this reflects some level of integration into formal or improved supply systems, it also implies that nearly two-thirds of schools continue to depend on untreated sources. This reliance may increase vulnerability to seasonal contamination and supply interruptions, especially during extreme weather events.

Similarly, in the Western Division, 46.2% of the 340 schools receive treated water, indicating better access compared to the Eastern and Northern Divisions but still leaving more than half of schools without treated supply. Overall, the findings highlight uneven access to safe drinking water across divisions, with the Eastern and Northern Divisions facing the greatest challenges in ensuring consistent provision of treated water within school environments.

Figure 17: Water treatment technologies

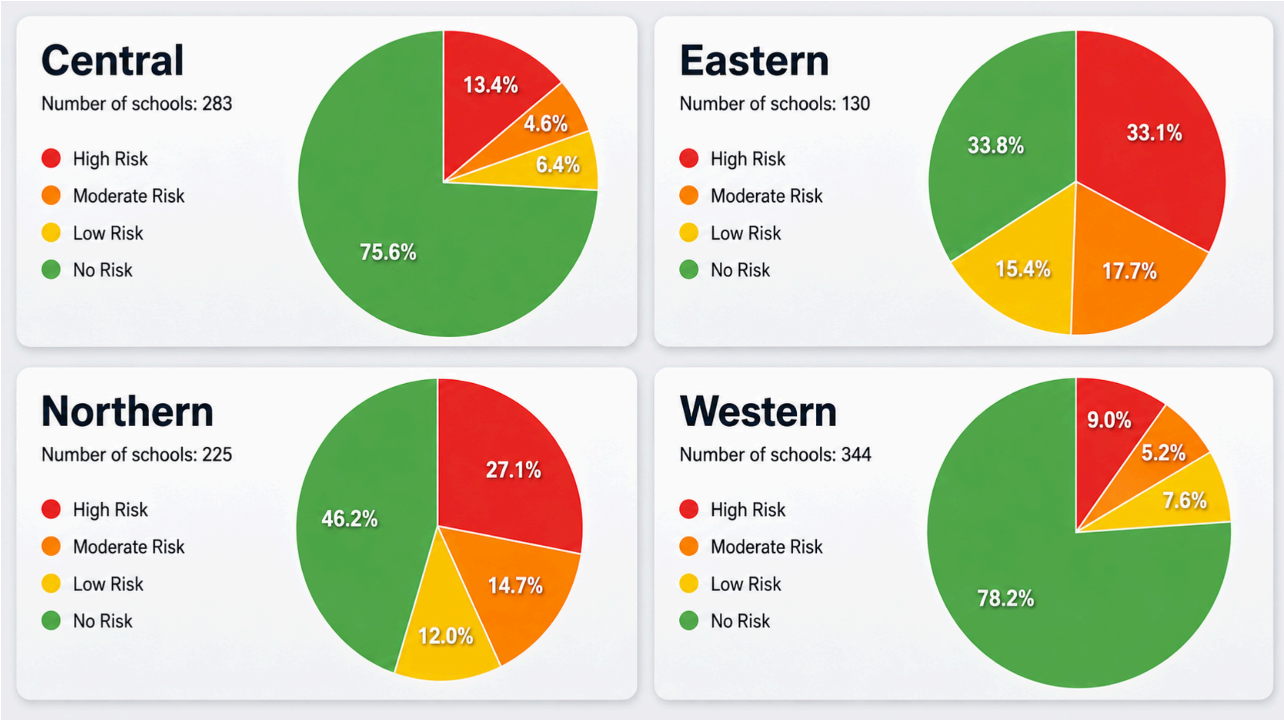


6.6 Water Quality in Schools

Overall, the Western (78.2%) and Central (75.6%) divisions had the highest proportion of schools classified as no risk of E.coli in drinking water, indicating generally better microbiological water quality compared with the other divisions. In contrast, the Eastern Division had the lowest proportion of schools with no risk (33.8%), followed by the Northern Division (46.2%).

The Eastern Division recorded the highest percentage of schools classified as high risk (33.1%), suggesting that approximately one in three schools had significant microbial contamination requiring urgent attention. This was followed by the Northern Division (27.1%), while the Central (13.4%) and Western (9.0%) divisions had considerably lower proportions of high-risk schools.

Similarly, the Eastern Division had the greatest proportion of schools in the moderate-risk (17.7%) and low-risk (15.4%) categories. The Northern Division also showed relatively high percentages of moderate-risk (14.7%) and low-risk (12.0%) schools. In comparison, the Central and Western divisions reported much lower proportions of schools in these risk categories, with moderate-risk schools accounting for only 4.6% and 5.2%, respectively.



When considering the combined proportion of schools with any level of contamination (high, moderate, and low risk), the Eastern Division had the poorest overall water quality, with 66.2% of schools falling into a risk category, followed by the Northern Division (53.8%). In contrast, only 24.4% of schools in the Central Division and 21.8% in the Western Division were classified as having some level of contamination.

These findings indicate substantial geographical disparities in microbiological water quality among schools. Schools in the Eastern and Northern divisions appear to face a greater burden of microbial contamination and may require targeted interventions, including improved water treatment, regular monitoring, and strengthened water safety management practices. Conversely, the relatively high proportion of schools with no risk in the Central and Western divisions suggests more effective water supply and management systems in these regions.

6.7 Sanitation in Schools

Most schools have improved sanitation facilities; however, challenges remain regarding toilet-to-student ratios, functionality, and maintenance. Provision of separate toilets for girls and menstrual hygiene management facilities is uneven, particularly in rural and maritime schools.

Division	Number of toilets available				
	<5	05-9	10-14	15+	Number of schools
Central	9.2	28.6	28.3	33.9	283
Eastern	33.1	50	13.1	3.8	130
Northern	16	42.2	24.4	17.3	225
Western	16.5	34.7	25.3	23.5	340

Total Schools					978

Division	Percent with flush toilet	Percent with water seal	Percent with pour flush	Percent with compost	Number of schools
Central	99.6	0	0	0	283
Eastern	97.7	0	1.5	0	130
Northern	99.6	0.9	0	0	225
Western	99.4	0	0	0.6	340

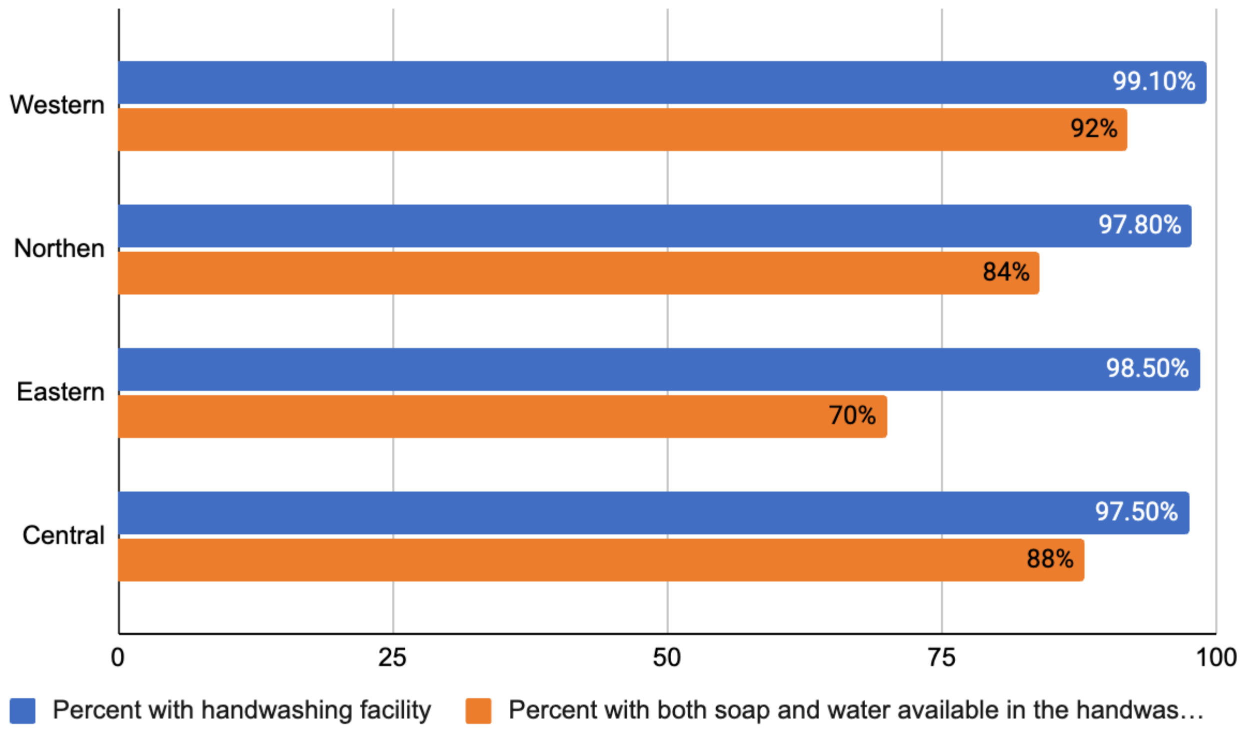
The sanitation data demonstrate clear regional differences in the availability of usable toilets across schools. Schools in the Central and Western divisions generally had better sanitation infrastructure, with higher average numbers of usable toilets and a greater availability of larger toilet facilities. This is also because there are larger schools present in the urban and peri urban areas of Central and Western Division.The Northern Division showed moderate levels of toilet availability, while schools in the Eastern Division consistently had fewer usable toilets, indicating comparatively poorer sanitation infrastructure or due to the small school size.

Across all divisions, most schools had a moderate number of usable toilets, although the distribution varied by region. Schools in the Central and Western divisions were more likely to have larger numbers of usable toilets, whereas those in the Eastern Division were more likely to have fewer available facilities. These findings highlight disparities in school sanitation infrastructure across Fiji and suggest that improvements in toilet availability are particularly needed in the Eastern Division to ensure more equitable access to adequate sanitation facilities.With the availability of good water systems the minute percentage of water seal,pour flush toilets should be upgraded to flush toilets**.**

6.8 Hand Washing Hygiene

While many schools reported the presence of handwashing facilities, consistent availability of both water and soap remains limited. Strengthening hygiene infrastructure and behaviour change interventions is essential to improving school health outcomes.

Figure 18: Hand Washing Facilities with Soap and Water



The data shows that access to handwashing facilities in schools is nearly common across all four divisions, with coverage ranging from 97.5% in Central to 99.1% in Western Division. However, when examining the availability of both soap and water, clear disparities emerge. In the Western Division, 92% of schools have soap and water available compared to 99.1% with facilities, reflecting a relatively small functionality gap. Similarly, the Central Division reports 88% availability of soap and water against 97.5% facility coverage, indicating a moderate gap. The Northern Division shows a wider disparity, with 97.8% of schools having handwashing facilities but only 84% having soap and water consistently available.

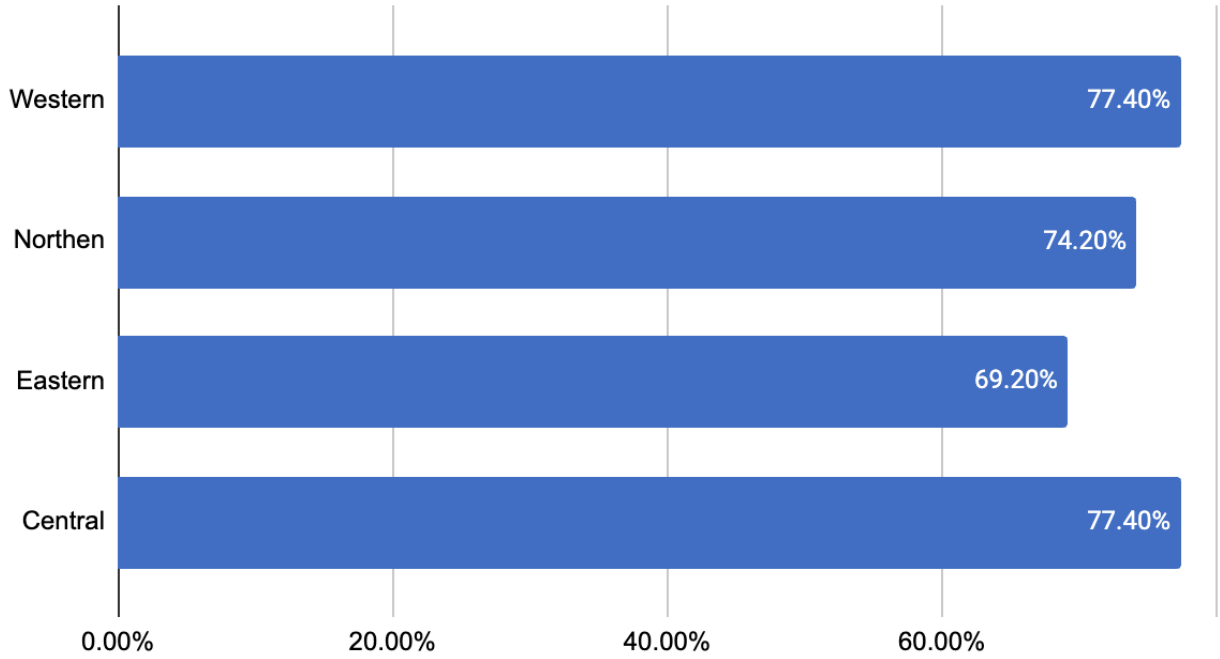
The Eastern Division records the most significant difference between infrastructure presence and functional hygiene access. Although 98.5% of schools have handwashing facilities, only 70% report having both soap and water available, representing a substantial gap. This suggests that while physical infrastructure is largely in place across all divisions, operational sustainability, particularly the consistent provision of soap and water remains uneven. The findings indicate that ensuring functionality, especially in Eastern and Northern Divisions, is critical to translating infrastructure coverage into effective hygiene practice.

6.9 Menstrual Hygiene

Although menstrual hygiene is not yet widely discussed in many school and community settings, the survey team made a deliberate effort to capture data on the availability of menstrual hygiene facilities in schools. Recognising that menstrual health management remains a sensitive and often overlooked aspect of WASH programming, the inclusion of this indicator reflects an important step toward promoting gender-responsive planning. By assessing whether schools provide appropriate facilities for girls, the survey sought to better understand how well school environments support the specific needs of female students.

Ensuring the availability of menstrual hygiene facilities is essential for creating a safe, inclusive, and dignified learning environment. Adequate facilities enable girls to manage menstruation comfortably and confidently while at school, reducing embarrassment, absenteeism, and potential health risks. By incorporating this component into the data collection process, the survey acknowledges that access to water and sanitation alone is insufficient; attention must also be given to privacy, disposal systems, and supportive infrastructure that protect girls' dignity and promote equal participation in education.

Figure 19: % Schools with Menstrual Hygiene Facilities



The data on menstrual hygiene facilities in schools shows moderate but uneven coverage across the four divisions. The Western and Central Divisions report the highest levels of provision, both at 77.4%, indicating that roughly three-quarters of schools in these divisions have menstrual hygiene facilities available. The Northern Division follows at 74.2%, reflecting slightly lower but still comparable access. In contrast, the Eastern Division records the lowest coverage at 69.2%, meaning nearly one in three schools may lack adequate menstrual hygiene facilities.

Although the majority of schools report having menstrual hygiene facilities, the data indicates that full coverage has not yet been achieved in any division. The relatively lower percentage in the Eastern Division may reflect logistical challenges, remoteness, or resource constraints affecting infrastructure development and maintenance. The findings highlight that while progress has been made, ensuring equitable access to menstrual hygiene facilities remains a priority. Addressing these gaps is essential to promote dignity, consistent school attendance, and gender-inclusive learning environments across all divisions.

7.0 Awareness Highlights during the Survey

Given the geographical dispersion of communities across Fiji, particularly in rural, inland, and outer-island areas, reaching all communities on a regular basis remains a significant logistical and resource challenge. As a result, limited access to information and engagement opportunities has contributed to low awareness and less informed decision-making at the community level, particularly in relation to water supply management, sanitation, and long-term system sustainability. Many communities have had minimal exposure to national policies, technical guidelines, and planned interventions, which in turn affects their ability to articulate needs beyond immediate water supply concerns.

In this context, the Water Point Survey served not only as a platform for collecting baseline WASH data, but also as a critical outreach opportunity to engage with hard-to-reach and previously unreached communities. Department of Water and Sewerage staff used the survey visits to deliver targeted awareness on the Rural Water and Sanitation Policy, Practical Guidelines for Water Supply Management Plans, Ecological Purification System operations and maintenance, and water conservation practices. Communities expressed strong appreciation for these engagements, with many noting that it was the first time they had received direct information on the Department's role, policies, and available support for water and sanitation. While the combined logistics enabled the team to reach a large number of communities efficiently, the survey also highlighted that village-level awareness remains limited and requires more frequent, structured, and sustained engagement to strengthen community understanding, ownership, and informed participation in rural water and sanitation initiatives.

8.0 Survey Challenges

Although data collection is often perceived as a straightforward exercise, in practice it involves a range of operational, logistical, and contextual challenges, particularly within Fiji's geographically dispersed and diverse landscape. During the implementation of this survey, the Department of Water and Sewerage (DWS) team and enumerators encountered several constraints that affected the pace and efficiency of data collection. Despite these difficulties, field teams demonstrated strong commitment and adaptability, enabling most challenges to be managed and survey activities to be completed. Some of the most significant challenges were

Physical location and accessibility of villages and settlements was a challenge ,many rural communities are situated in remote inland areas, across mountainous terrain, or on outer islands where road access is limited or non-existent. In such cases, enumerators were required to walk for several hours, cross rivers, or rely on boats and other informal transport arrangements to reach a single village. These conditions substantially increased travel time and fatigue reduced the number of communities that could be visited in a day and placed additional demands on field logistics and planning.

Arranging transport and field logistics to reach maritime and outer-island communities proved to be a significant operational challenge. Travel to these locations is highly dependent on boat availability, weather conditions, and limited shipping schedules, resulting in high costs, delays, and in some cases the rescheduling or shortening of field visits. These constraints affected the sequencing of data collection and increased the overall resources required to complete the survey.

In several instances, Turaga ni Koro (village headmen) or designated community focal persons were not available at the time of the survey team's visit. This limited the ability to access complete historical information on water systems, management arrangements, and past interventions, and occasionally required reliance on alternative informants whose knowledge of system details varied.

The absence of a comprehensive and regularly updated national contact database for Turaga ni Koro and other community leaders further complicated coordination and advance planning. Without reliable contact information, it was difficult to confirm availability, schedule interviews, and mobilise communities ahead of field visits, contributing to inefficiencies and lost time in some locations.

Additionally, some District Advisory Councillors provided aggregated or combined data for multiple settlements within their jurisdictions rather than settlement-level information. While this was often done to save time, it limited the ability to capture disaggregated data for each individual settlement, thereby reducing the granularity and analytical value of the dataset.

Internal delays in the recruitment, contracting, and mobilisation of enumerators also affected the early stages of implementation. These delays compressed data collection timelines and increased pressure on field teams once deployment commenced, with potential implications for workload management and sequencing of survey activities.

It was also observed that the Turaga Ni Koro's do not have proper data or records of the village household and population and not all Turaga Ni Koro's attempted to individually count while being interviewed.

9.0 Recommendation

The data collected through this survey establishes an important national baseline for rural water supply and sanitation in Fiji. However, additional targeted surveys are required to generate more detailed and precise information across each component of WASH, including water quality, service reliability, sanitation technologies, hygiene practices, and system management. Future sample-based or statistically representative surveys would also enable a more robust estimation of national and sub-national SDG 6 coverage and allow progress to be tracked over time.

All Provincial Offices should maintain comprehensive and regularly updated contact lists for Turaga in Koro, Water Committee members, and other designated community focal persons. Improved availability of accurate contact information will strengthen coordination, enable timely community engagement, and support more efficient planning and implementation of monitoring, rehabilitation, and upgrade activities.

Access to water that is currently limited to standpipes or external taps should progressively be upgraded to provide household-level connections where feasible. In-house taps significantly improve convenience, reduce time spent collecting water, and support better hygiene practices, particularly for women, children, the elderly, and persons with disabilities.

All households should be encouraged to install rainwater harvesting systems to supplement existing water supplies. Rainwater can be used for multiple domestic purposes, thereby reducing pressure on primary water sources and improving resilience during dry periods, droughts, and system breakdowns.

Water safety must be prioritised alongside improvements in physical access. Simple, cost-effective, and locally appropriate treatment options such as Ecological Purification Systems (EPS) and plain chlorination should be promoted and scaled up. While accessibility of water has improved in many communities, water quality remains a critical challenge and requires sustained attention.

Sanitation facilities in rural areas, particularly water-seal and pit latrines, should be progressively upgraded to pour-flush or flush systems with cisterns where water availability allows. Improved sanitation technologies reduce exposure to pathogens and contribute to better health outcomes and environmental protection.

Communities with flush toilet systems must be supported to achieve consistent and reliable water supply. Without dependable water availability, such sanitation facilities cannot function effectively, undermining their intended public health benefits.

Implementing agencies should adopt an integrated WASH approach that places equal emphasis on water supply, sanitation, and safe disposal of wastewater and faecal sludge. Investments in water infrastructure alone are insufficient if sanitation and waste management systems remain inadequate.

Sewerage containment remains a significant concern in rural communities. Although many households report having septic tanks, there is limited information on their design standards, construction quality, treatment effectiveness, and environmental impacts. Further assessment is required to determine whether existing systems adequately treat sewage or pose risks through seepage and contamination of soil and groundwater.

EPS is currently not widely recognised by communities as a primary drinking water source and is often used only when households feel comfortable doing so. Given that EPS produces treated water, stronger awareness and behaviour change initiatives are needed to encourage its use for drinking and cooking to reduce the incidence of waterborne diseases.

Most upgrade requests from communities focus on improving water supply systems such as system rehabilitation, additional storage tanks, and installation of EPS while few requests relate to sanitation improvements. Awareness-raising and planning processes should emphasise that water and sanitation are equally important and must be addressed together.

The majority of community requests relate to upgrading existing systems rather than constructing new ones. The Government of Fiji should therefore establish a "quick-fix" or rapid-response mechanism to address common and low-cost system failures (e.g., leaks, broken intakes, damaged tanks, blocked pipes) before prioritising new system construction.

Levy or user-fee systems for Rural Water Schemes should be made compulsory, with contribution levels determined by communities based on system type, size, and usage. Sustainable financing mechanisms are essential to support routine operation and maintenance.

As most communities currently undertake their own maintenance, systematic capacity building is required for Water Committees and community members on relevant policies, standards, operation and maintenance procedures, and basic financial management. A whole-of-community approach should be adopted rather than limiting training to committee members only.

There is a strong need to develop a National Rural Water Supply and Sanitation Master Plan to provide a long-term roadmap for new investments, rehabilitation, service level improvements, and progressive expansion of safely managed services.

The Water Authority of Fiji (WAF) should progressively extend its service coverage to communities located near major conventional water treatment plants and explore the expansion of plain chlorination systems where full reticulation is not immediately feasible.

Certain locations, such as Rotuma, report 100 percent access to the Water Authority of Fiji (WAF) water supply systems; however, despite universal coverage, the water provided is not currently treated. This highlights an important distinction between physical access and water safety. While households are connected to a formal supply network, the absence of treatment exposes communities to ongoing risks of microbial contamination and waterborne diseases. Targeted investment is therefore required to introduce appropriate and reliable treatment solutions in these contexts. The installation of solar-powered chlorine dosing pumps offers a practical and sustainable option for remote and off-grid locations such as Rotuma, where electricity supply may be limited or unreliable. Solar dosing systems can provide continuous disinfection with minimal operational costs, reduce dependence on fuel or grid power, and ensure consistent delivery of safe drinking water.

Prioritising such investments would enable areas with high access but untreated supplies to rapidly progress up the service ladder from basic or limited services towards safely managed drinking water, delivering significant public health benefits while maximising the value of existing infrastructure.

10. Conclusion

The National Rural Water Point Mapping Survey and WASH in Schools Survey provide the most comprehensive national baseline of rural and school WASH conditions in Fiji to date. The findings highlight significant progress in infrastructure coverage while also identifying persistent gaps in water quality, service reliability, sanitation management, and hygiene facilities.

The evidence generated through this survey provides a strong foundation for policy reform, strategic planning, and targeted investments to improve equitable access to safe and sustainable WASH services. Continued collaboration among government agencies, communities, and development partners will be essential to addressing identified gaps and achieving national and global WASH targets.

11. Appendix

Annex 1

Membrane Filtration Method (MF) Analysis for E.coli at Different Lab in Fiji

Labs			University of the South Pacific	Water Authority of Fiji	Department of Water and Sewerage	
No	**Sample Location**	**Date**	**E. coli (MPN)**	**E. coli (MF method)**	**E. coli (MF method)**	**E. coli CBT Bag Test (MPN)**
1	Sawani Village	12/10/2022	<1	0	0	0
2	Navatuvula Village		<1	0	0	0
3	Viria Village		600	63	60	>100
4	Naqali Village		155	70	80	>100
5	Navolau Village		<1	1	20	13.6
6	Nacokaika Village		86	10	20	48.3
7	Sarawati College		<1	0	0	0
8	Nakini College		22	5	5	4.7
9	Naganivatu Village		<1	3	5	9.6
10	Delaidamanu Village		300	13	25	48.3
11	Verata Village	19/10/2022	<1	0	0	0
12	Visa Village		<1	1	0	0
13	Nadaro Village		9	3	2	2.1
14	Natobuniqio Village		74	240	280	>100
15	Vugalei District School		470	285	295	>100
16	Tai Primary School		725	0	15	48.3
17	Nadali Village		4	0	0	0
18	Toga District School		<1	0	0	0
19	Navatuniyabe Village		<1	0	0	0
20	Vunisei Village		<1	0	0	0

Annex 2

Aquagenx® CBT EC+TC (Compartment Bag Test)

Most Probable Number (MPN) Kit

Instructions for Use: 1:10 Dilution for Surface and Recreational Waters

Overview

The Aquagenx CBT EC+TC MPN Kit simultaneously detects and quantifies E. coli (EC) and Total Coliform (TC) bacteria in a 100 mL sample. It uses a proprietary powder growth medium with a glucose substrate called X-Gluc. When E. coli metabolizes this substrate in Aquagenx's growth medium, the color of the water turns blue, indicating the presence of E. coli. The growth medium also contains a fluorogenic galactoside substrate called MUGal. If total coliforms are present, they metabolize this fluorogenic substrate and the sample fluoresces blue under UV light (365 nm). Most Probable Number (MPN) test results are obtained by easy color match using the Aquagenx color-coded MPN Table. The total coliform group of bacteria includes E. coli, which is a fecal coliform as well as a thermotolerant coliform. Not all total coliforms are E. coli.

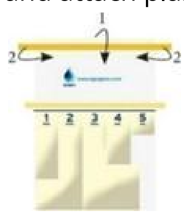
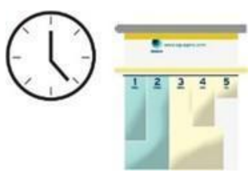
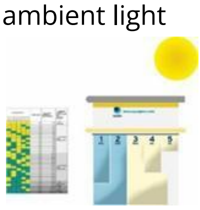
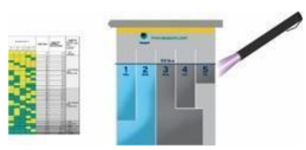
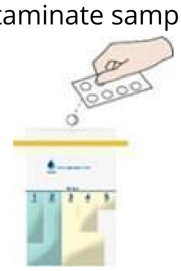
Dilutions Guidance and Wastewater Dilutions: https://www.aquagenx.com/dilutions-cbt-ectc/ Product documents: https://www.aquagenx.com/product-documents/

Shelf Life and Storage of Growth Medium

Aquagenx® EC+TC powder growth medium is stable up to three years after date of manufacture at 25° Celsius. Expiration date and lot number are printed on back of medium packet.

Store at 4-25° Celsius in a dry environment. Growth medium can be stored in a refrigerator. Cold chain for Aquagenx EC+TC growth medium is not required.

Summary of Test Procedures for CBT EC+TC MPN Kit 1:10 Dilution

Collect 10 mL sample and add 90 mL sterile water 	Add powder growth medium 	Pour sample into compartment bag 	Roll down Whirl-Pak seal and attach plastic clip 
Incubate 20-48 hours 	Score EC test results in ambient light 	Score TC test results under UV light in dark environment 	Decontaminate sample 

How to Interpret Color-Change Test Results

Color of compartment in Compartment Bag	Yellow/Yellow Brown in ambient light and does not fluoresce blue under UV light	Yellow/Yellow Brown that ...	Blue/Blue Green in ambient light	Blue/Blue Green that...
		fluoresces blue under UV light		fluoresces blue under UV light

Pour sample with dissolved medium from Thio-Bag into Aquagenx Compartment Bag

Label Compartment Bag or attach barcode asset tag to Compartment Bag. Tear off perforated seam at top of bag.

Rub top of bag and sides of bag together to open so sample can run into each compartment.

Use white tabs at top of Compartment Bag to pull bag open. Do not touch inside of bag with bare fingers or hands.

Slowly pour sample into bag while gently tilting and squeezing bag to distribute sample among five compartments.

Fill evenly to the top of the fill line across all five compartments.

Seal Compartment Bag shut

Roll down Whirl-Pak seal at top of Compartment Bag and fasten shut.

Attach plastic seal clip across Compartment Bag to prevent water from leaking out of compartments. Place U-shape part of clip across width of bag along the fill line and below the compartment openings. Place rod-shaped part of the clip on the opposite side of Compartment Bag and snap into U-shape to lock in place.

Incubation Period and Temperatures

During the incubation period, CBTs can develop an odor. To help control odor, place CBTs in another sealed plastic bag or container during the incubation period.

Ambient temperature incubation works at any temperature between 25°- 37°C for detection of E. coli and/or total coliforms.

Because the CBT works at variable temperatures, constant temperature control in an incubator is not required. However, at cooler temperatures, constant temperature incubation is recommended, if available.

Note: over 40°C, some total coliforms will be inhibited, and the results may not be accurate for total coliform analysis.

For regulatory compliance purposes, samples must be incubated at 35-37°C for 20-24 hours to detect and quantify E. coli and total coliforms.

The CBT also can be used to detect and quantify thermotolerant (fecal) coliforms instead of total coliforms if the CBT samples are incubated at a temperature of 44.5°C (between 44-45°C) throughout an incubation period of 20-24 hours. Strict temperature control is required for this procedure.

Recommended Incubation Periods at Ambient Temperature Conditions:

35-37°C:	Incubate 20 hours
31-34°C:	Incubate 24-30 hours
25-30°C:	Incubate 40-48 hours

Below 25 C: Incubate in a portable incubator at 35-37°C for 24 hours or put in or near another heat source for up to 48 hours, depending on the temperature.

Over 40°C: Some total coliforms will be inhibited, and the results may not be accurate for total coliforms.

See "Incubation Period Guidance": https://www.aquagenx.com/product-documentation/

Score MPN test results

Hold the Compartment Bag next to Aquagenx MPN Table on page 4 to score test results.

E. coli – view in ambient light: o Yellow/yellow-brown compartment is negative for E. coli (absence). o Blue/blue-green compartment is positive for E. coli (presence). Positive compartments include any trace of blue/blue-green, such as one or more specks of blue/blue-green, or blue/blue-green sediment at bottom of a compartment.

Total Coliform - shine UV light (365 nm) on Compartment Bag in dark environment: o Compartments that fluoresce blue are positive for total coliforms. These include any compartments that are yellow/yellow-brown in ambient light that fluoresce blue under UV light.

o Compartments that are blue/blue-green in ambient light (positive for E. coli) are by definition also positive for total coliforms.

Match color sequence of all five compartments to one of 32 color-coded rows in MPN Table to obtain MPN test results for E. coli and total coliforms.

Record test results.

Decontaminate sample

Add 4 mL of liquid bleach (NaOCl) or sufficient chlorine tablets (calcium hypochlorite or sodium dichloroisocyanurate) to the compartment bag to provide about 200 milligrams of free chlorine.

After 30 minutes, pour contents into a sink, toilet or hole in the ground and safely dispose of the empty compartment bag.

Retain a plastic seal clip for reuse.

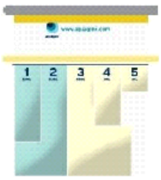
Aquagenx® CBT Most Probable Number (MPN) Table Adapted for 1:10 Dilution

Align the Compartment Bag so compartment #1 is on the left and compartment #5 is on the right. Match the color sequence of all five compartments to one of the 32 color-coded rows. Each compartment is scored according to the following criteria (also see color chart on page 1):

Yellow compartment with and without UV light exposure is negative for E. coli and total coliforms

Yellow compartment with blue fluorescence under UV light is positive for total coliforms

Blue compartment in ambient light is positive for E. coli and by definition also is positive for total coliforms



	Compartment Number					MPN/100mL	Upper 95% Confidence Level/100mL	U.S. EPA Recreational Water Health Risk Category Based on MPN and Upper 95% Confidence Level
Row	1	2	3	4	5			
Number:	10mL	30mL	56mL	3mL	1mL			
1	Yellow	Yellow	Yellow	Yellow	Yellow	0	28.70	Low Risk/Safe
2	Yellow	Yellow	Yellow	Blue	Yellow	10	51.40	Low Risk/ Probably Safe
3	Yellow	Yellow	Yellow	Yellow	Blue	10	47.40	
4	Blue	Yellow	Yellow	Yellow	Yellow	11	51.60	
5	Yellow	Blue	Yellow	Yellow	Yellow	12	56.40	
6	Yellow	Yellow	Blue	Yellow	Yellow	15	78.10	
7	Yellow	Yellow	Yellow	Blue	Blue	20	63.20	
8	Blue	Yellow	Yellow	Blue	Yellow	21	68.50	
9	Blue	Yellow	Yellow	Yellow	Blue	21	66.40	
10	Yellow	Blue	Yellow	Blue	Yellow	24	78.10	
11	Yellow	Blue	Yellow	Yellow	Blue	24	81.20	
12	Blue	Blue	Yellow	Yellow	Yellow	26	85.10	
13	Blue	Yellow	Yellow	Blue	Blue	32	83.80	
14	Yellow	Blue	Yellow	Blue	Blue	37	97.00	
15	Yellow	Yellow	Blue	Yellow	Blue	31	113.60	
16	Yellow	Yellow	Blue	Blue	Yellow	32	118.20	
17	Blue	Yellow	Blue	Yellow	Yellow	34	125.30	
18	Blue	Blue	Yellow	Yellow	Blue	39	104.30	
19	Blue	Blue	Yellow	Blue	Yellow	40	109.40	
20	Yellow	Blue	Blue	Yellow	Yellow	47	227.50	Low Risk/Possibly Safe
21	Yellow	Yellow	Blue	Blue	Blue	52	147.30	
22	Blue	Blue	Yellow	Blue	Blue	54	129.30	
23	Blue	Yellow	Blue	Yellow	Blue	56	171.40	
24	Blue	Yellow	Blue	Blue	Yellow	58	168.70	
25	Blue	Yellow	Blue	Blue	Blue	84	211.90	
26	Yellow	Blue	Blue	Yellow	Blue	91	370.40	Intermediate Risk/Possibly Safe
27	Yellow	Blue	Blue	Blue	Yellow	96	376.80	
28	Blue	Blue	Blue	Yellow	Yellow	136	830.60	High Risk/Probably Unsafe
29	Yellow	Blue	Blue	Blue	Blue	171	563.50	
30	Blue	Blue	Blue	Yellow	Blue	326	1455.50	Very High Risk/Unsafe
31	Blue	Blue	Blue	Blue	Yellow	483	3519.10	
32	Blue	Blue	Blue	Blue	Blue	>1000	94351.00	Very Unsafe