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Climate Resilience Pathways:

Water Security and WASH in Asia Pacific

Scaling up Government Support for Sustainable and Climate Resilient Rural Water and Sanitation in Fiji

TUESDAY 29TH APRIL – 11.00AM TO 1.00PM

unicef

DWS DEPARTMENT OF WATER AND SEWERAGE

suez Consulting

FIJI RWSS MASTER PLAN AND INVESTMENT PLAN

How to operationalise and institutionalise a government-led programme and build national and local capacity ?

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Water Security and WASH in Asia Pacific

Scaling up Government Support for Sustainable and Climate-resilient Water Supply and Sanitation

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Agenda and Introduction

- Introduction
- National Water Point Mapping Survey
- Perspectives on planning and investment
  - Water Supply Management Plans
  - Drinking Water Supply and Safety Plans
- The way forward… and discussion points

Today we will focus on the scale of the challenge and implementation capacity

Links to other presentations

- Localising water safety planning practices for climate-resilient water security in the Pacific
  - In Fiji there are over 1,600 villages and settlements. How can WSP be implemented at scale within a reasonable timeframe?
- Decentralisation and rural water service delivery in Pacific Island Countries
  - In Fiji rural development is organised through the iTaukei and Rural Development agencies. How should a dedicated RWSS programme align with this framework?
- Bridging the financing gap including blended financing approaches
  - In Fiji there is very low cost recovery in rural areas. How do we balance service standards, investment needs, and tariffs (or subsidies) with available finance?

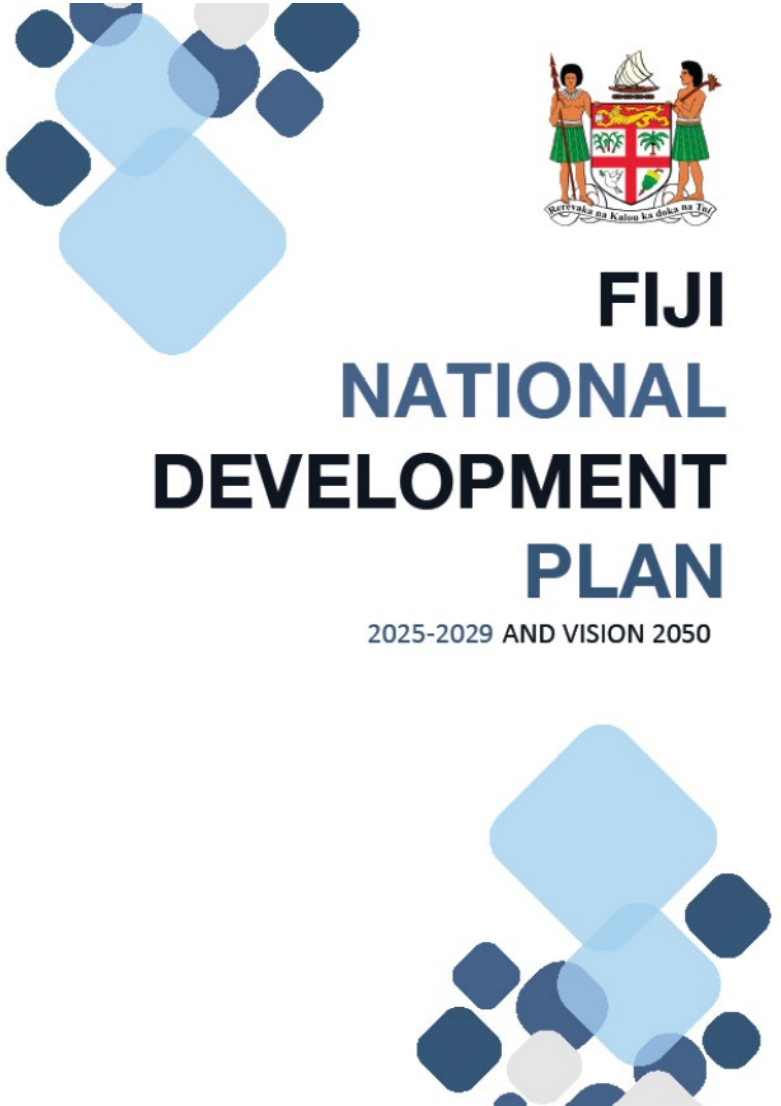
Project Rationale – there is advocacy from above

The need for a RWSS Master Plan is identified in all key national policy documents, strategies, and plans, e.g.

- Fiji National Development Plan (2025 – 2030 and vision 2050)
- Fiji Water Sector Strategy 2050

These policy documents focus on WAF for urban water supply and sewerage but support the RWSS Master Plan being developed for rural

There is a policy recommendation tabled to move the rural programme from WAF to establish dedicated RWSS Units to help implement the RWSS Master Plan



Project Rationale – there is an existing policy framework

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The RWSS Master Plan will build on:

- Rural Water and Sanitation Policy (2021)
  - Roles and responsibilities
  - Requirements for planning, funding and implementation
- Draft Water and Sewerage Services Bill (2021)
  - DWS will be the water regulator setting and monitoring services standards, approving plans, and monitoring funding
  - Water Committees are responsible for O&M
- Existing planning and investment protocols to implement projects
  - Water Supply Management Plan (under DWS)
  - Drinking Water Safety and Security Plans (under MoHMS)

MINISTRY OF INFRASTRUCTURE AND METEOROLOGICAL SERVICES

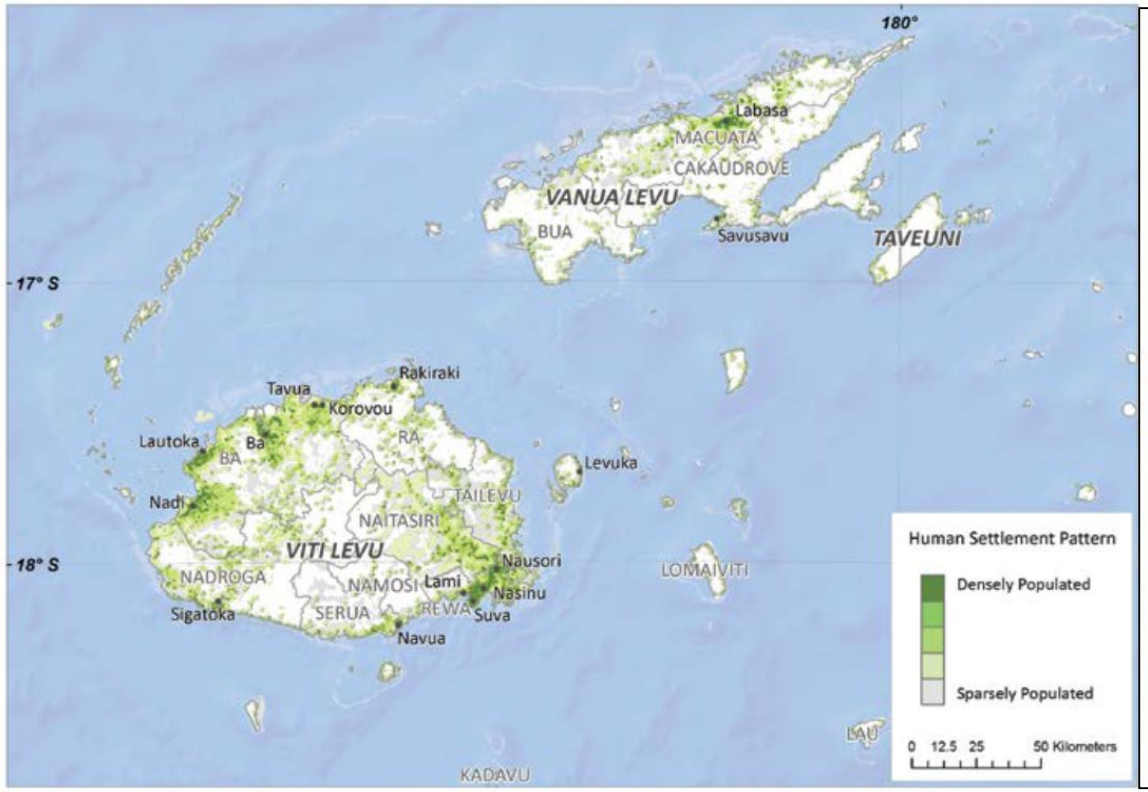
DEPARTMENT OF WATER AND SEWERAGE

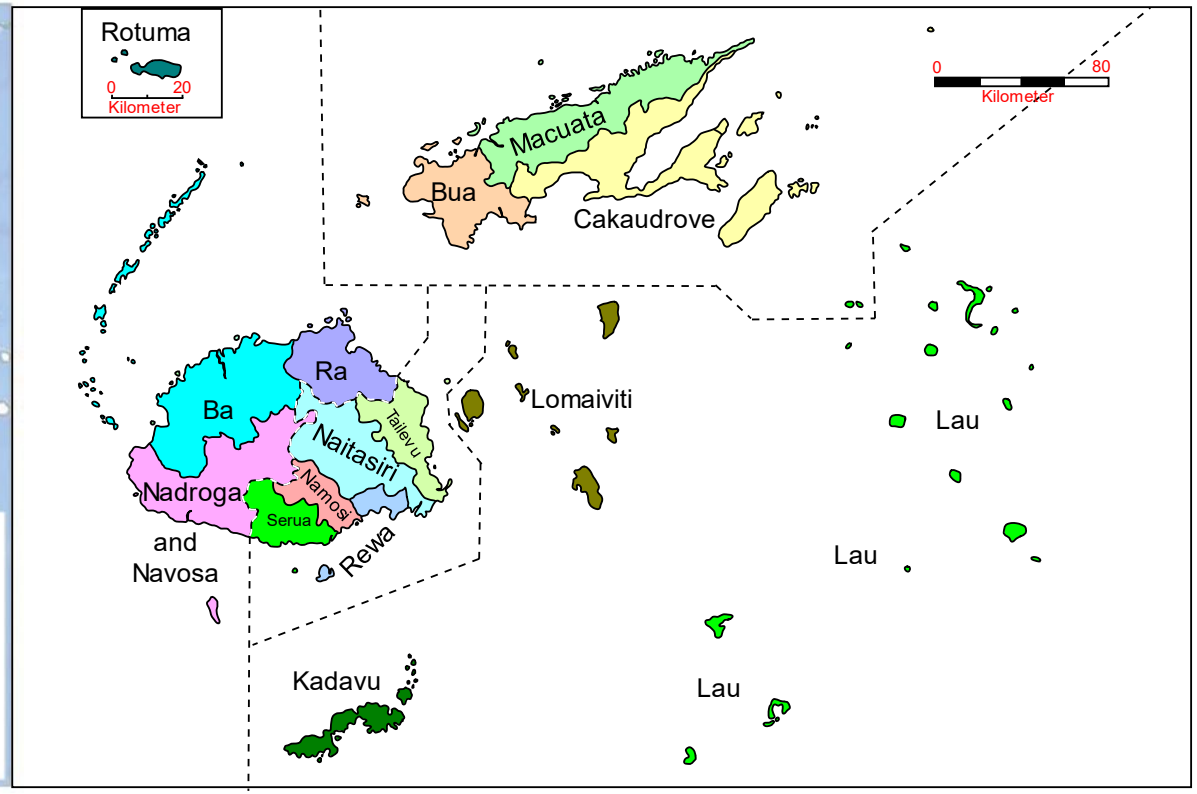
RURAL WATER AND SANITATION POLICY

JULY 2021

Access to WASH services is uneven

- Fiji's population is approximately 884,887 (2017 Census) with 44.1% rural
- Urban populations concentrated in the coastal areas on Vitu Levu (Western and Central Divisions) and around Labasa on Vanua Levu (Northern Division) and are serviced by WAF
- The Northern and Eastern Divisions have lower total populations but the highest proportion of rural dwellers, often with limited access to formal water supply and sanitation services





There are over 1,600 villages and settlements

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**

Source: Water Point Mapping Survey

If (for example) each division covers every community once every five years this means:

- Central - 85 per year
- Eastern - 51 per year
- Northern - 82 per year
- Western - 103 per year
- Total - 320 per year

This is challenging in terms of implementation capacity

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Questions?

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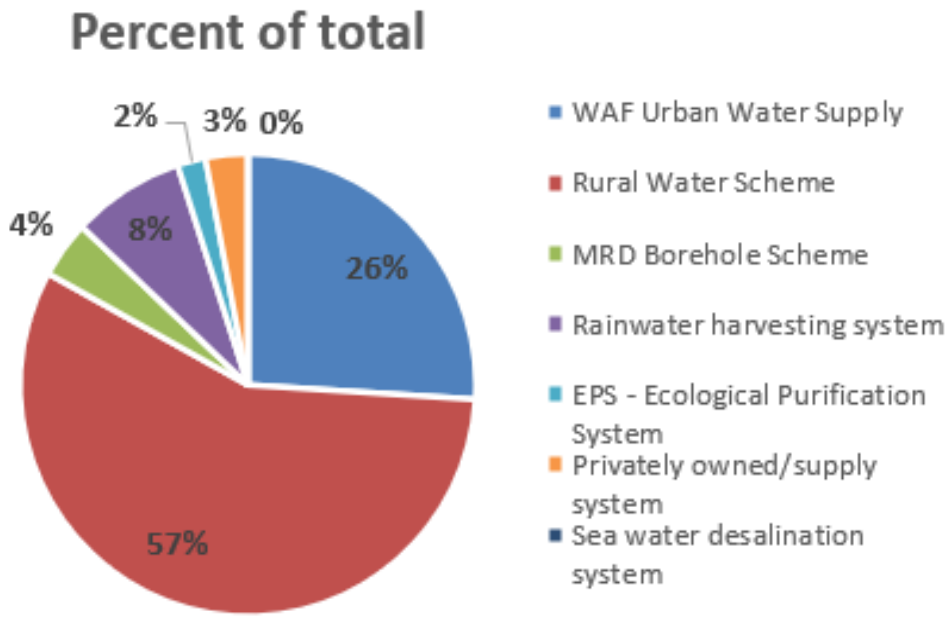
National Water Point Mapping Survey

Types of rural water supply systems

Water Scheme Type	No. locations
WAF Urban Water Supply	436
Rural Water Scheme	960
MRD Borehole Scheme	62
Rainwater harvesting system	141
EPS - Ecological Purification System	33
Privately owned/supply system	48
Sea water desalination system	1
Total	**1,681**

Source: Water Point Mapping Survey

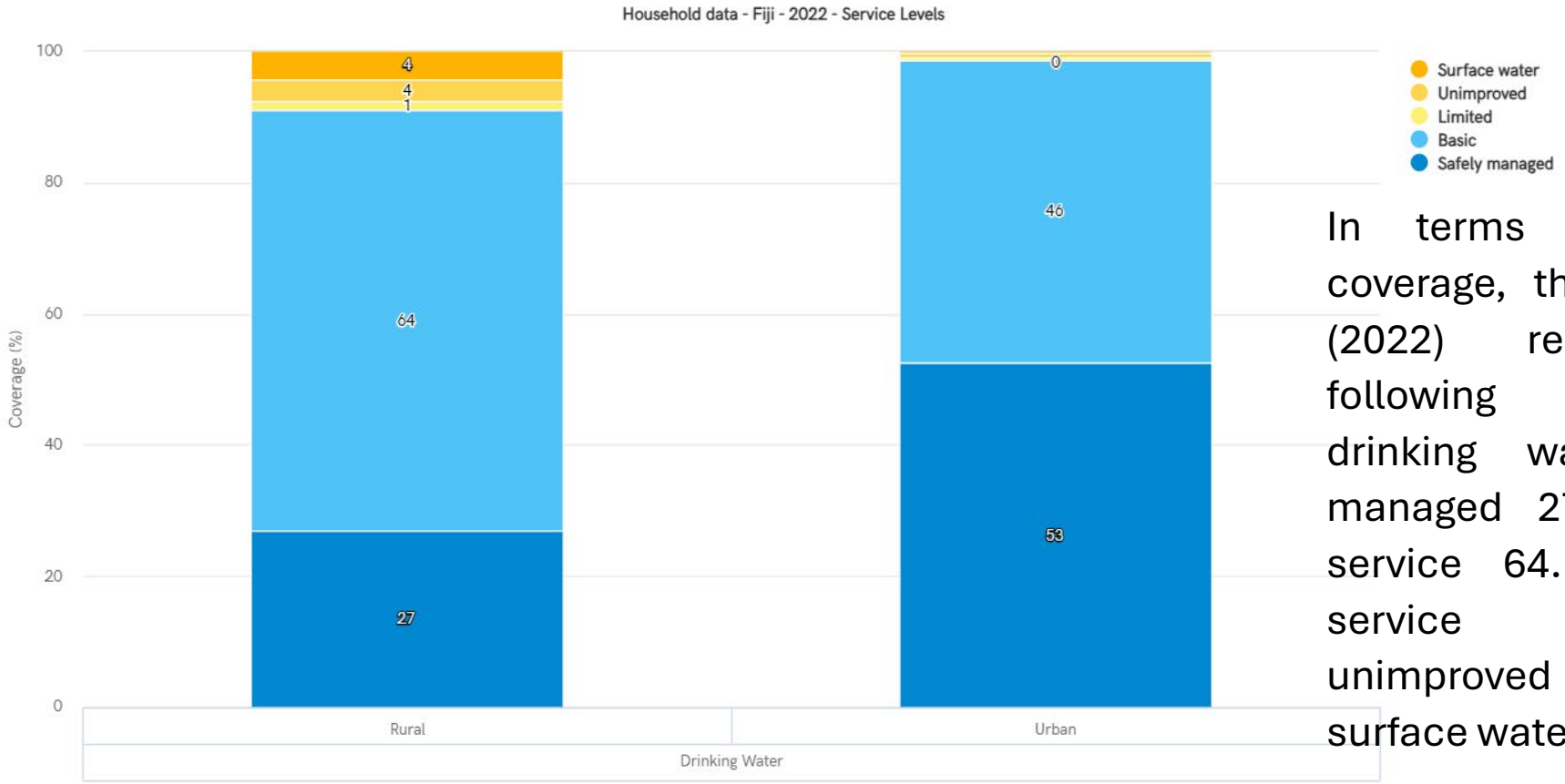


Other options being considered

- Packaged treatment plant
- Borehole with solar power
- Desalination plant (upgraded)

- Rural water supply schemes with a surface water source are the standard
- Expansion of WAF urban water supply into peri-urban areas also needs to be considered

Rural Water Supply – JMP data

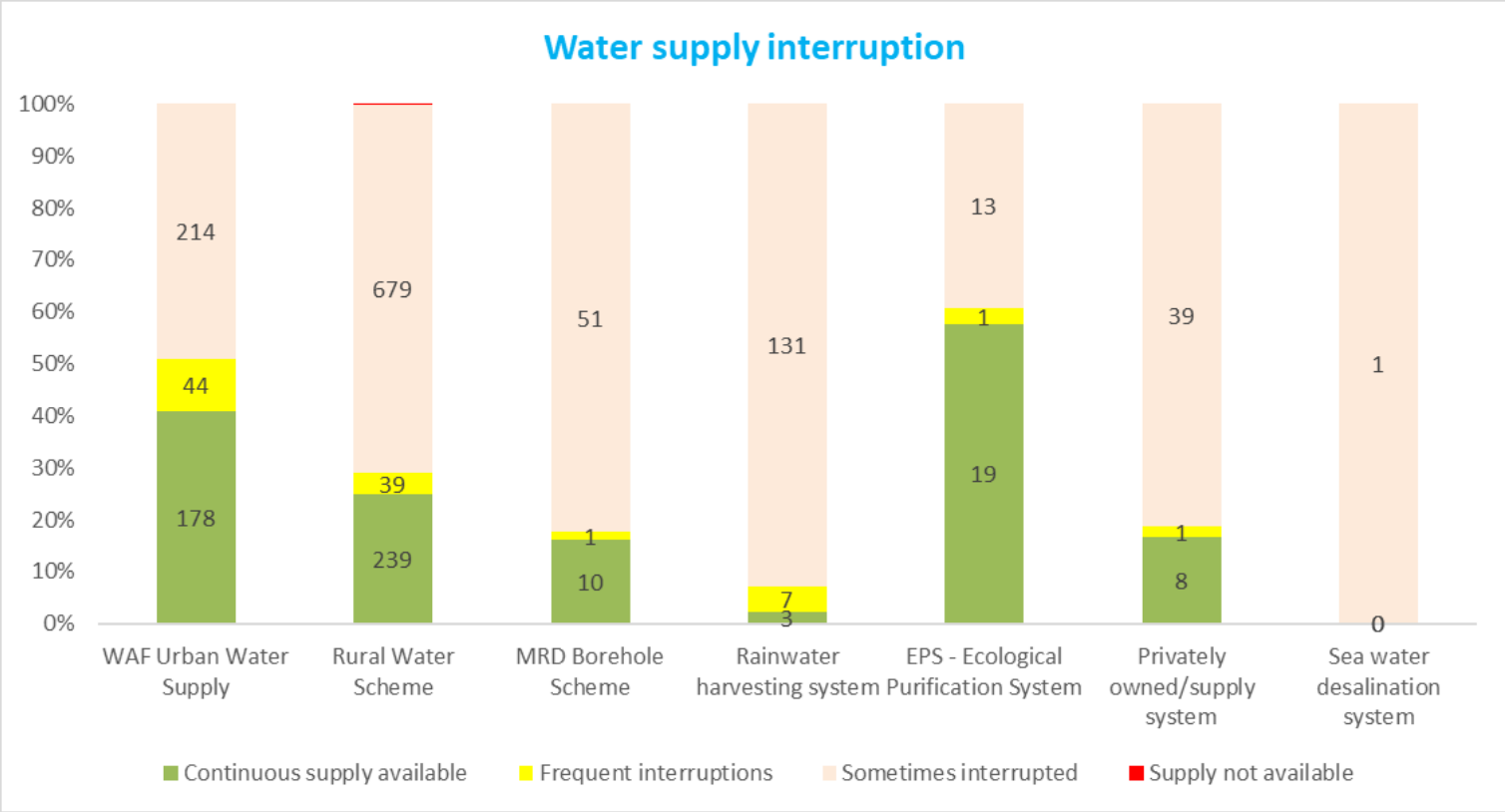


In terms of service coverage, the JMP data (2022) reports the following for rural drinking water: safely managed 27.0%, basic service 64.1%, limited service 1.3%, unimproved 3.5% and surface water 4.2%

Safely managed drinking water service is an improved source that is: accessible on premises, available when needed, and free from contamination

Note: Many "rural water schemes" provide untreated piped raw water through household connections for domestic needs, and treated water is collected at a nearby EPS for drinking – providing a household connection from the EPS may not be practical and it is arguable that the service meets the criteria for "safely managed"

Interrupted supply
Problems with “available when needed”



- Interruptions suggest either a problem with the source or a problem with the distribution
- 61% of schemes report having their water supply affected in the dry season
- 50% of schemes report having their water supply affected in the wet season

Treatment
Problems with “free from contamination”

Treatment Type	No. Of Locations
WAF Plain Chlorination System	54
WAF full Conventional Plant|WAF Plain Chlorination System	3
WAF full Conventional Plant|Nano Filtration System	1
WAF full Conventional Plant	351
Sand Filtration	8
Ecological Purification System	83
Bucket filtration	1
Total	**501**

Source: Water Point Mapping Survey

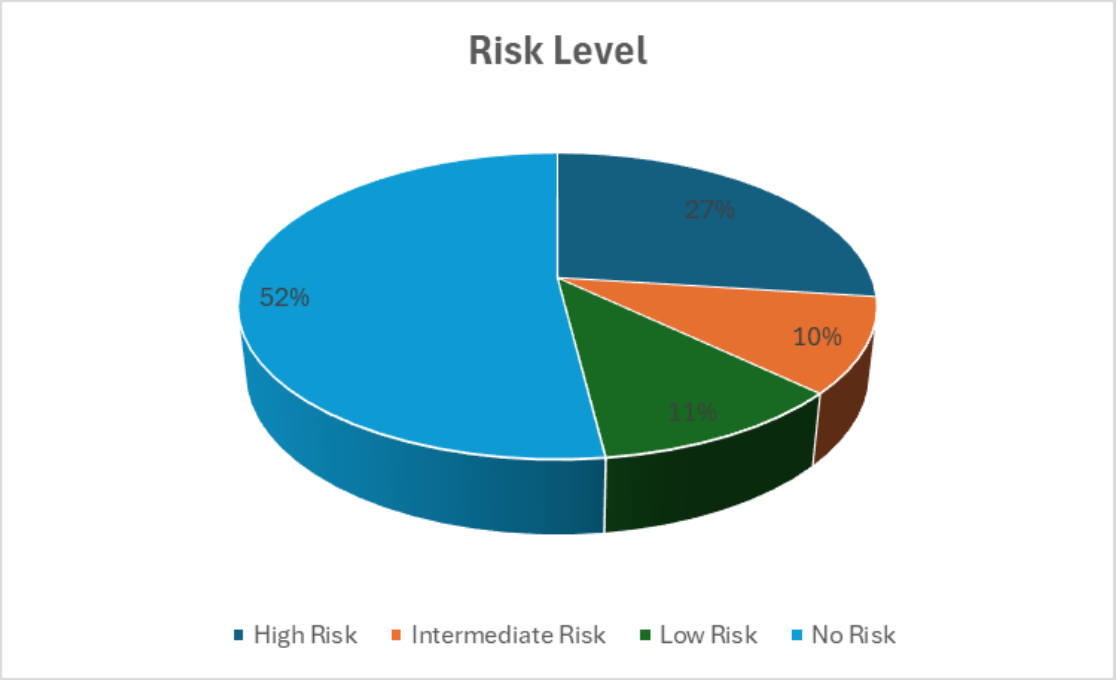
- Only 30% of schemes report having a treatment system
- 94% of WAF urban water supply is treated
- 83 EPS were reported which are associated with rural water supply schemes of which there are 960

The CBT water quality risk assessment indicates high levels of risk

Risk Level	No. Locations
High Risk	458
Intermediate Risk	163
Low Risk	181
No Risk	878
Total	**1680**

Source: Water Point Mapping Survey

Note: one scheme was not reported



- 27% of the locations were assessed as high risk while 52% had no risk
- WAF Urban Water Supply achieved 91% no risk
- Rural Water Schemes had 39% assessed as high risk

Only 13% of schemes are reported to have “no issues” or to be “sustainable”

Main Water Supply Provider	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%**

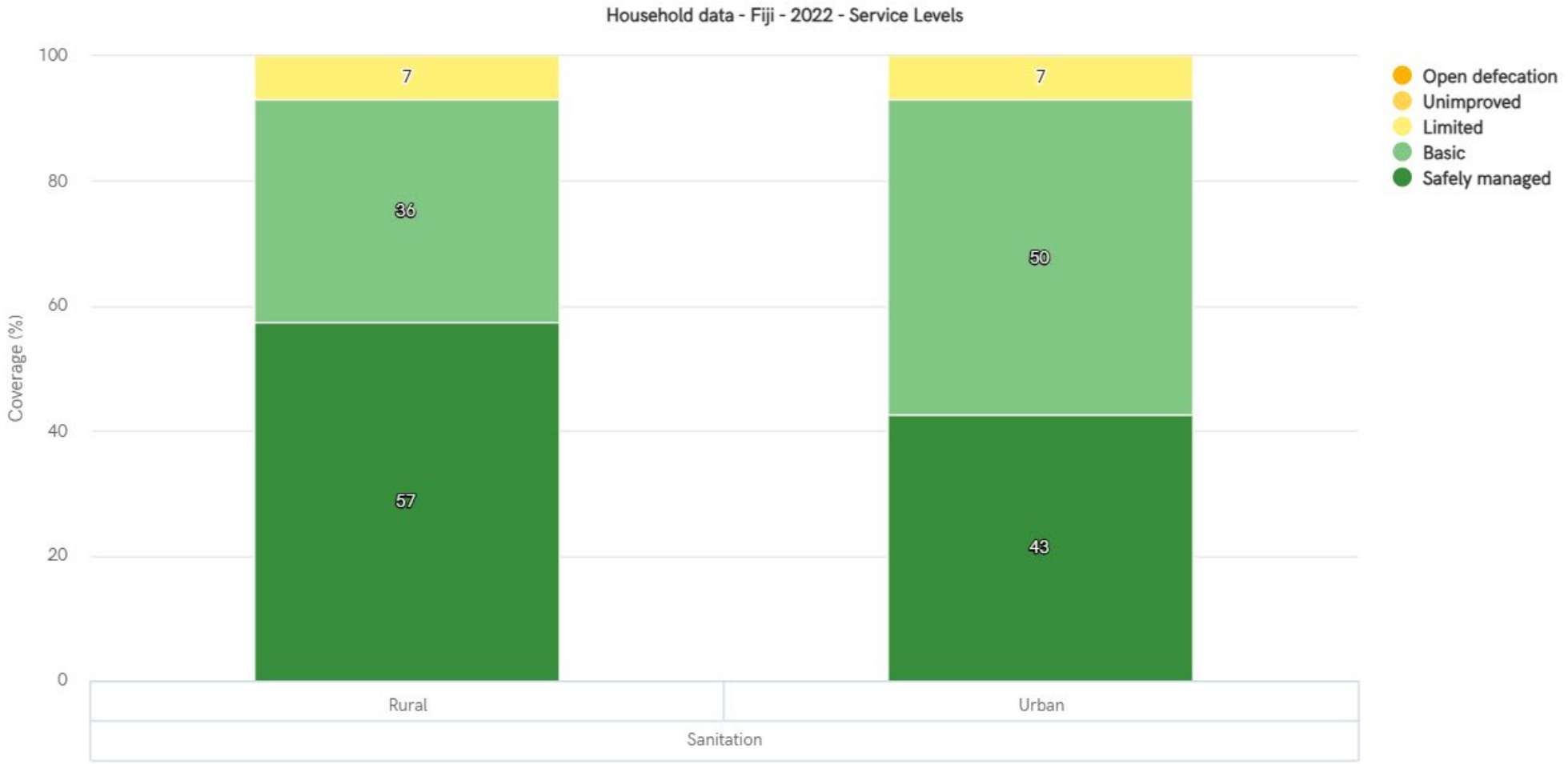
Source: Water Point Mapping Survey

- Only 13% of schemes were reported to have no issues or be sustainable
- WAF urban water schemes were the highest at 24% with Rural water schemes only 9%
- None of the rainwater harvesting or seawater water desalinisation schemes were reported as sustainable or had no issues

Summary of water supply services

- Although not all households have piped water onto their premises access is not the only concern
- There are reported issues relating to availability and contamination
- Implementation of EPS treatment is important but more needs to be done…
  - There is a need for both new infrastructure and rehabilitation as well as improved day to day O&M and asset management
  - Provision of water quality treatment technologies e.g. EPS is important but will not solve all the problems

Rural Sanitation – JMP data



- In terms of service coverage, the JMP data (2022) reports the following for rural sanitation: safely managed 57.3%, basic service 35.7%, limited service 7.0%, unimproved 0.0% and open defecation 0.0%
- Safely managed sanitation is an improved sanitation facility that is not shared with other households, and the excreta is treated and disposed of (either on-site or off-site)

Types of rural toilet

Toilet Type in Village	No. of Villages/ Settlements
Flush toilet	559
Flush toilet|Water Seal toilets	576
Flush toilet|Pit toilets	198
Flush toilet|Water Seal toilets|Pit toilets	242
Flush toilet|Water Seal toilets|Compost toilets	2
Water Seal toilets	16
Water Seal toilets|Pit toilets	2
Pit toilets	4
Flush toilet|Water Seal toilets|Pit toilets|Compost toilets	1
Total Villages	**1600**

Source: Water Point Mapping Survey

Note: in the survey flush toilet refers to a cistern flush toilet while water seal toilet refers to a pedestal toilet without a water connection… many households install a cistern flush toilet but do not use it to flush

- The preferred option (94%) is for a cistern flush toilet – however, many households use the toilet as a pour flush toilet
- In terms of the back-end disposal system, 69% were recorded as having a septic tank and 31% as a drum – however, it is not known whether the septic tanks are functional

Disposal of septage

Faecal Sludge Disposal Method and Situation	No. locations	% of Total
Build a New Septic	125	8%
Collected by Bail Out trucks and disposed at the Wastewater Treatment Plants	123	8%
Collected by Bail Out trucks and disposed elsewhere	46	3%
Cover the pit with soil and dig new pit	763	49%
Pit hasn't filled up till now, so have not thought about it option	16	1%
Reuse septic after manual bail out and disposal	152	10%
Septic Tank hasn't filled up so haven't thought about it	346	22%
Total	**1571**	100%

Source: Water Point Mapping Survey

- Only 11% of locations reported emptying with vacuum trucks of which 8% were reported co-treated at WAF WWTPs

Summary of sanitation services

- Almost all households have access to a cistern flush toilet
- The major concern is with the back-end septic system – there is a need for community level surveys to identify non-functional septic systems
- In addition, there is very low coverage for emptying, transport and treatment of faecal sludge
- There is a strong case for public investment in septic tanks and faecal sludge management due to public and environmental health concerns as well as damage to sensitive coastal eco-systems e.g. coral reefs
- Greywater recycling for toilet flushing should also be promoted in water scarce areas

Site of WAF WWTPs on Viti Levu & proposed FSTPs

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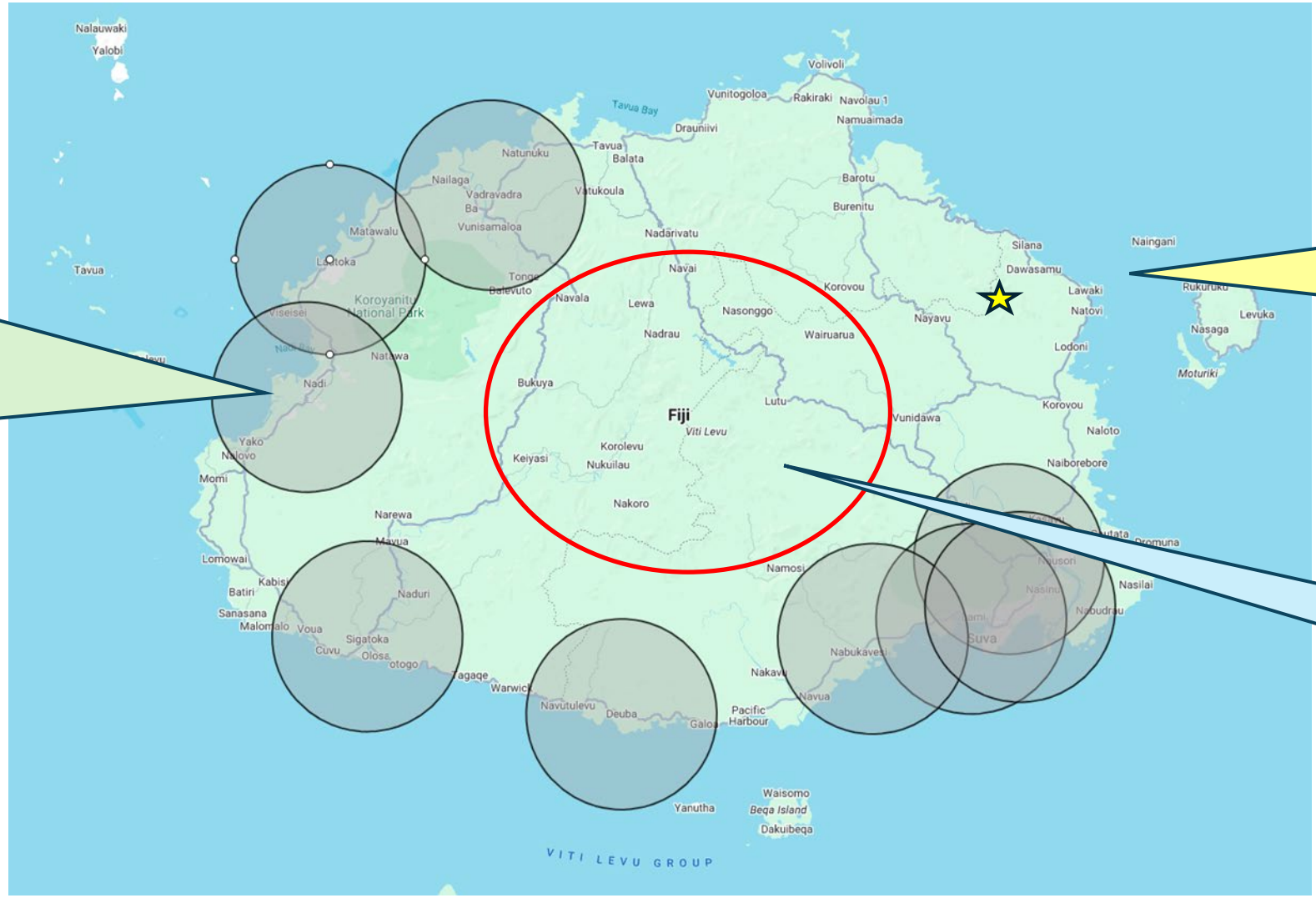

FSTP

Co-treatment at WAF WWTPs is possible for coastal communities e.g. within 15km radius

A FSTP is an option for areas outside the range of WAF WWTPs

Solutions are needed for inland communities

Site of WAF WWTP on Vanua Levu & proposed FSTPs

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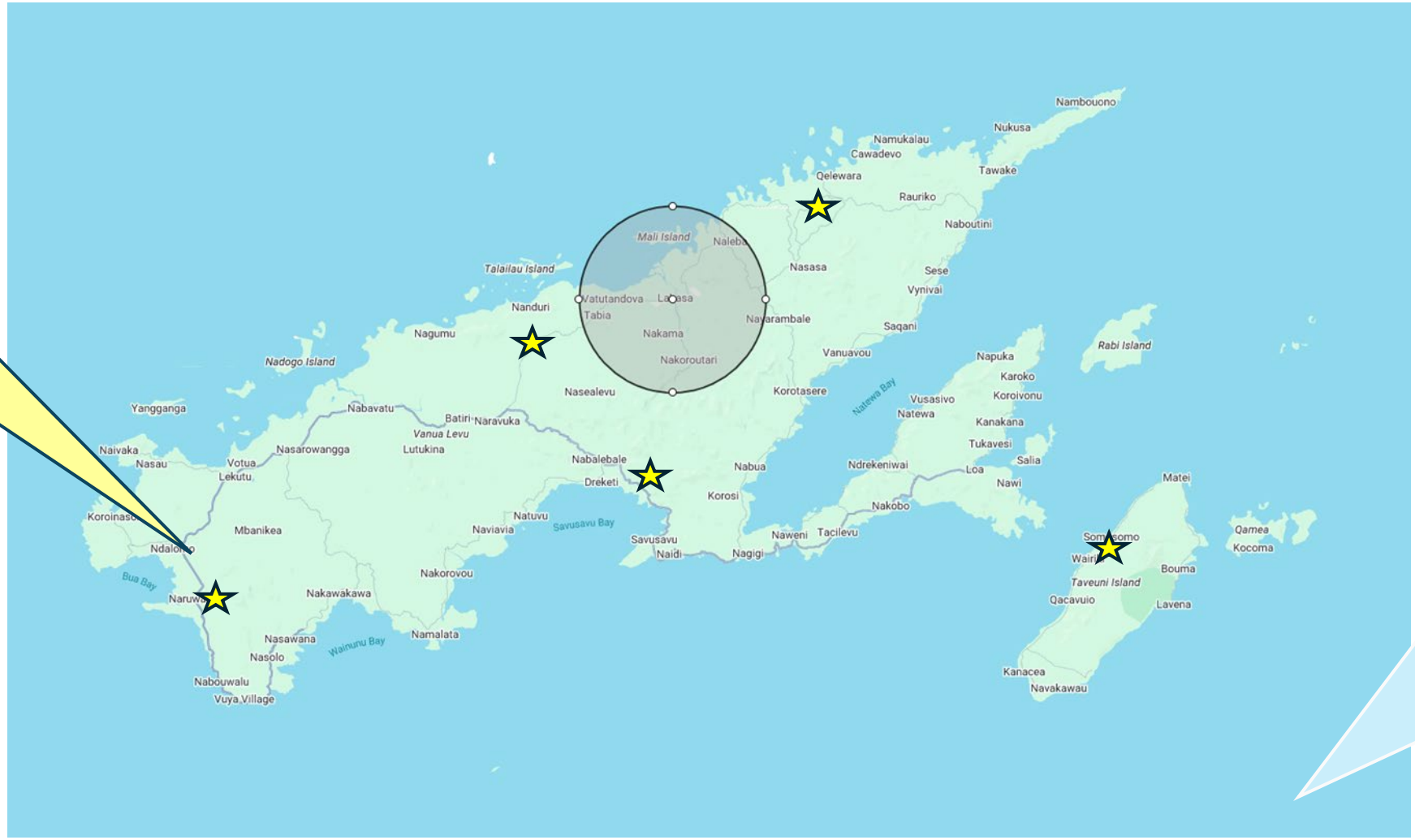
FSTP

FSTPs are an option for areas outside the range of WAF WWTPs



For remote maritime communities e.g. islands in Eastern Division Mobile Treatment Units are an option

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Open mic – please feel free to ask any questions

Discussion points:

1. Should there be public investment in on-site rural sanitation e.g. upgraded septic tank and soakaway?
2. What survey methodologies or data / information can improve our understanding of rural sanitation investment needs?

Perspectives on planning and investment

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Water Supply Management Plans

Water Supply Management Plans

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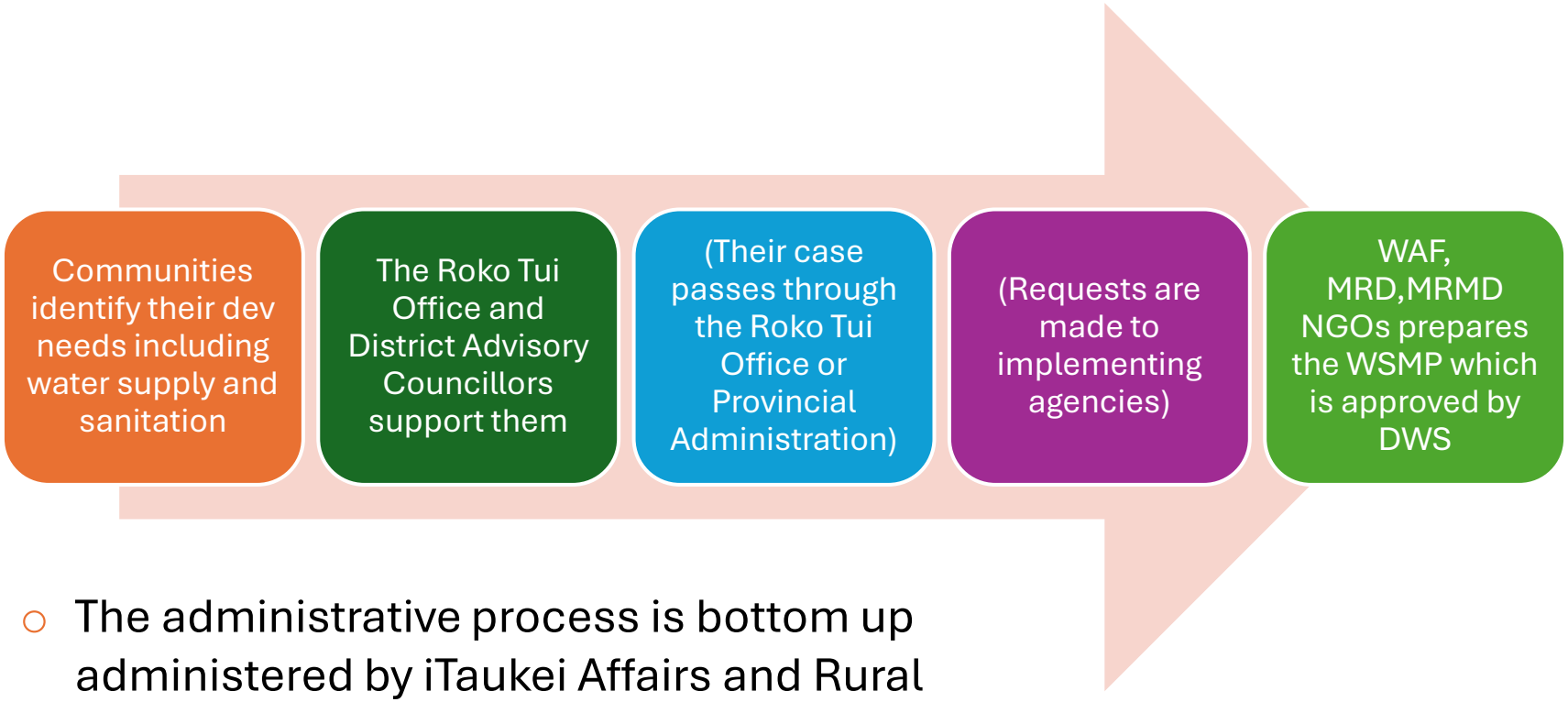


The Water Supply Management Plan is the main government instrument for planning and investment

- The administrative process is bottom up administered by iTaukei Affairs and Rural Development, with technical planning and implementation with WAF, and planning approval with DWS, after which funds are released
- Formal approach to prioritise projects is missing
- Wider context of Integrated Village Development Plans and Governance for Resilience

"Decentralisation and rural water service delivery in Pacific Island Countries"

What are the main sources of fund flow from MoF?

In 2022 the total budget allocation for RWSS was approx. FJ$20.0m

- ~ FJ$ 9.4m to WAF as the main implementation partner for new infrastructure and rehabilitation projects (but implementation is declining since 2022)
- DWS supports project inspection, EPS installation & small repairs, and water quality monitoring, plus policy development and R&D (vetting new technologies)
- ~ FJ$ 2.1m to MRMD to fund new schemes, rainwater harvesting tanks and sanitation (although focus in on the Governance for Resilience programme)
- FJ$ 2.7m to Mineral Resources department to develop boreholes (increased to FJ$ 5.7m in 2024 including reticulation systems)
- NGOs also fund new schemes e.g. Rotary Pacific, Habitat for Humanity, etc
- MoHMS is funded for DWSSP e.g. in 2024 FJ$ 435,000

However, there is limited coordination of effort, no centralised asset register and no meaningful monitoring of service delivery

To date it has been challenging to coordinate RWSS planning, investment and service delivery – hence, the draft Water and Sewerage Services Bill to strengthen DWS as the water regulator

WAF is the main implementation agency

water authority of fiji

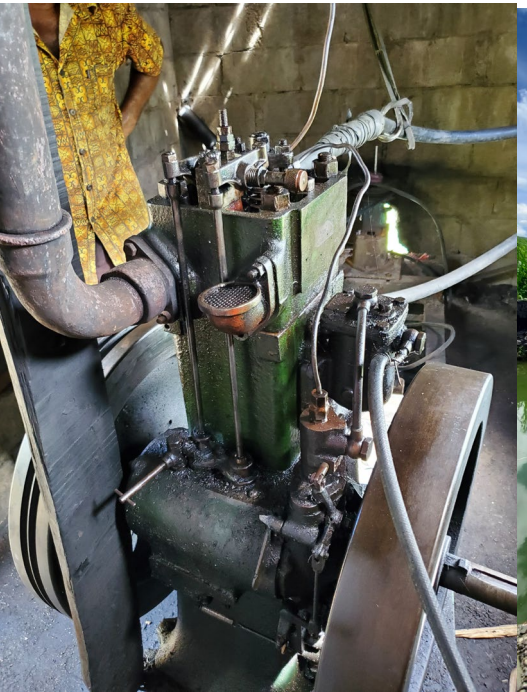
Clean Water & Sanitation for a Better Life

WAF's role and mandate for rural communities are as follows:

- Build new and upgrade existing rural water projects
- Distribution of rainwater harvesting tanks
- Rural water carting
- EPS installation
- Desalination plants (operation and maintenance support)

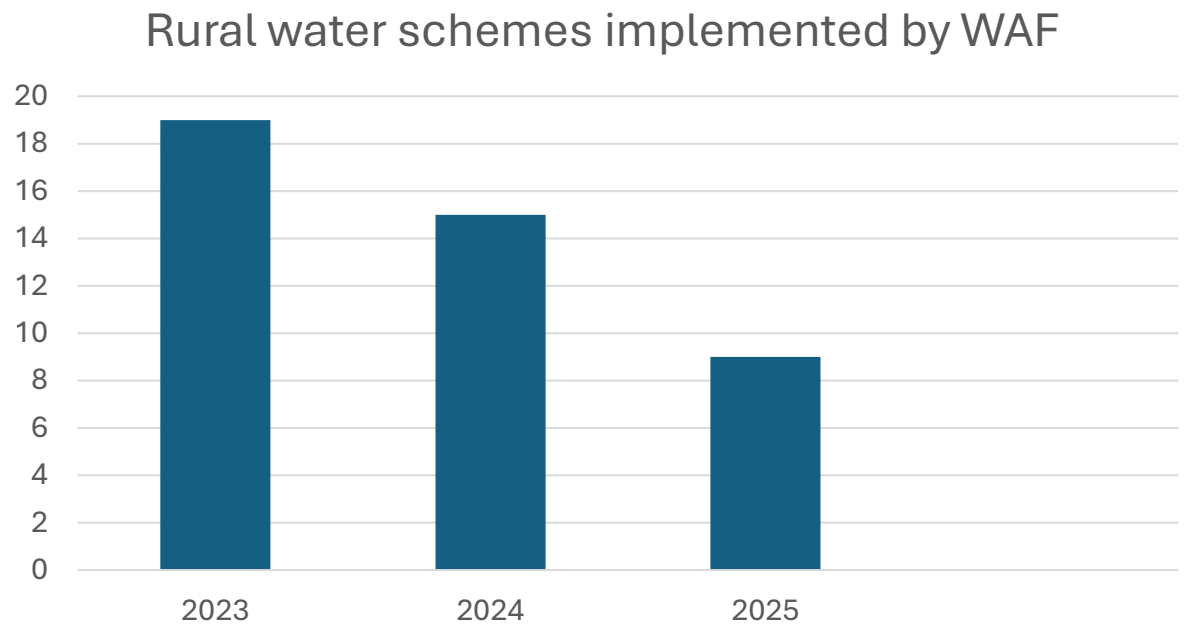
Case study in a rural settlement: The original source is highly contaminated. The pump functions but the tank and pump house are dilapidated. One of the settlements (12 households) has an unprotected borehole and an old storage tank. The other settlements rely on water carting, the existing polluted surface water or buy water or take from neighbours.

This case study illustrates the difficulty in categorising the need to build new schemes vs upgrading existing rural water supply projects




The rural WASH programme under WAF is in decline

- WAF has completed a total of 353 rural water supply projects benefitting an estimated 73,832 population for the period 2017 to 2023 and is supplemented by the distribution of a total of 12,565 water tanks to the rural communities
- However, the number of projects is declining and the number of core staff in the rural WASH programme have reduced
- There has been no budget allocation (advocacy) for rural sanitation since 2010



There is already a policy recommendation being tabled

- The situation for RWSS has led to the policy shift to establish DWS as the water regulator with the WAF rural programme (and staff) moved under dedicated RWSS Units
- Additional requirements are for a Stakeholder Coordination Platform supported by a digital platform (data base and MIS) and coordinated water quality monitoring and surveillance programme

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Open mic – please feel free to ask any questions

Discussion points:

1. What is needed to improve the process for identifying / prioritising rural WASH projects and ensuring minimum standards for planning, design and construction?
2. What mechanisms can be adopted to integrate the minimum designs for climate proofing under the MRMD Governance for Resilience programme?

Perspectives on planning and Investment

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Drinking Water and Sanitation Plans

Drinking Water Safety And Sanitation Plans

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The technicalities and importance of DWSSP/WSSSP have been covered in the earlier session at the CRP conference.
Our interest is in the following questions to learn how DWSSP can integrate/compliment WSMP:

- What is the focus for DWSSP? Capital works, capital maintenance, or O&M?
- How is the budget for DWSSP determined and what is the scale of investment?
- Who is carrying out the capacity building and training and are their constraints to scaling this up?
- Are DWSSP carried out as a one time exercise or is it an ongoing process?

"Localising water safety planning practices for climate-resilient water security in the Pacific"

What is the focus for DWSSP?

- The UNICEF Pacific WASH Resilience Guidelines for DWSSP were prepared in 2018. The approach includes:
  - Capacity building and training at community level
  - Health-based risk informed planning
- Communities prepare an Action Plan which they implement themselves; larger works are implemented with technical support
  - Improvements are linked to improved public health as the output, with the improved infrastructure a means to that end
  - These are small works and maintenance tasks i.e. asset management, rather than large capital works or rehabilitation
- In addition to water availability and water quality the approach also includes assessment of sanitation risks and upgrades (hence the DWSSP has evolved into the WSSSP)
- The main surveillance activities are for waterborne disease and drinking water quality surveillance

How is the budget for DWSSP determined and what is the scale of investment?

- In the MoHMS business plan, The target is for 20 DWSSP in the current year with 1 from each subdivision.
- Yearly the budget of FJ$150,000 and received submission for FJ$435,000 This year FJ$300,000 was requested. This can be boosted with underutilised funds from other programmes.
- This covers the training programme (approx. FJ$1,500 for catering and FJ$500 for stationary), and the small works and maintenance tasks implemented by the communities themselves.
- The WASH programme does not just focus on DWSSP but also covers water quality testing, treatment technologies, Clean Healthy Water WASH Manual, etc.
- Training is normally 5 days spread over several weeks on a Monday and Tuesday to not impact farming and market livelihood activities.

Who is carrying out the capacity building and training and are their constraints to scaling this up?

- In addition to Environmental Health Officers, training is provided by:
  - WISH Fiji
  - Live & Learn
  - PCDF Fiji
  - Habitat for Humanity
  - Wildlife Conservation Society
- Training capacity is determined by the Business plan which has 20 training per year. There is no limit. The training modality allows for both single and clustered communities to be trained.
- A Training of Trainers programme will help disseminate the approach. It is proposed that NGOs register under the MOHMS and use the facilitator guidelines and training materials to regularise the training.

Are DWSSP Carried Out as a One Time exercise or is it an ongoing process?

- Communities are encouraged to follow up on their Action Plan
- There is a need to strengthen the follow up M&E e.g. of disease outbreaks and water quality monitoring and surveillance e.g. with field test kits
- This can be the basis for updating the DWSSP/Action Plan which may require refresher training
- In time, the DWSSP can become embedded as a requirement for all WCs to access TA and funding based on their performance

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Open mic – please feel free to ask any questions

Discussion points:

1. How can we scale up the capacity building and training programme for DWSSP?
2. How often should a community carry out the exercise of water safety and sanitation planning?

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The way forward

A lot of progress on policy, regulation, master plan

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Policy

RWSS Master Plan

Investment Plan

Action Plans

Priority Projects

Regulation

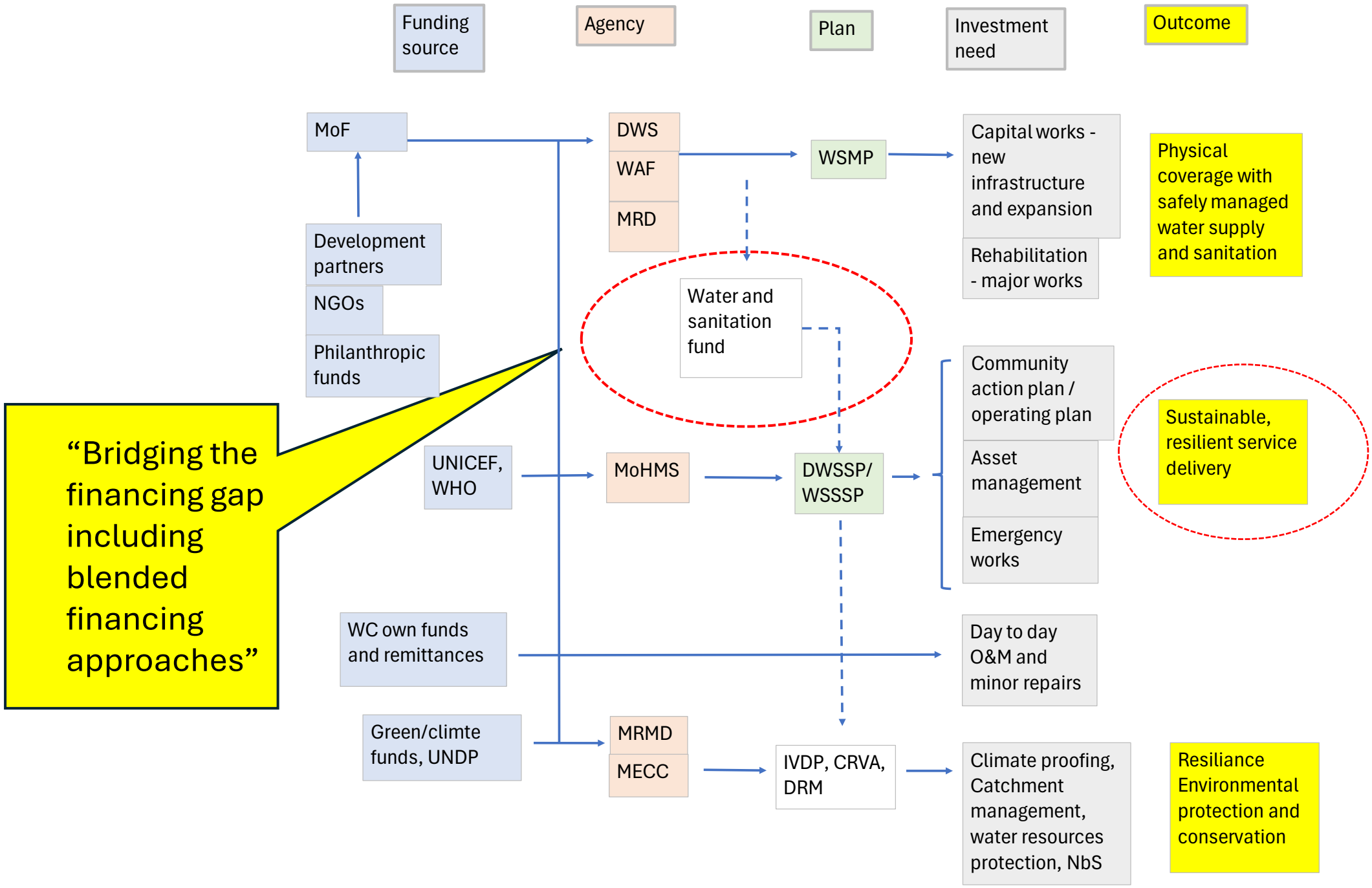
Important tasks for the regulator concerning the implementation of policy:

To balance service delivery standards, investment needs and cost recovery (tariffs, subsidies)

To ensure that enforcement measures (penalties) are backed up by the resources and mechanisms needed to achieve regulatory compliance

Service Delivery

Achieving the SDG targets means not only physical coverage but also sustainable service delivery


Funding source
Agency
Plan
Investment need
Outcome
MoF
Development partners
NGOs
Philanthropic funds
DWS
WAF
MRD
WSMP
Capital works - new infrastructure and expansion
Rehabilitation - major works
Physical coverage with safely managed water supply and sanitation
Water and sanitation fund
"Bridging the financing gap including blended financing approaches"
UNICEF, WHO
MoHMS
DWSSP/ WSSSP
Community action plan / operating plan
Asset management
Emergency works
Sustainable, resilient service delivery
WC own funds and remittances
Day to day O&M and minor repairs
Green/climte funds, UNDP
MRMD
MECC
IVDP, CRVA, DRM
Climate proofing, Catchment management, water resources protection, NbS
Resiliance Environmental protection and conservation

The WSMP + DWSSP approach can cover life-cycle costs

Summary:

The WSMP is the primary mechanism to obtain approval and funding
The WSMP focuses mainly on rural water schemes and large capital works

The DWSSP/WSSSP focuses on water safety, water security and sanitation
The DWSSP/WSSSP is a good instrument for asset management and climate proofing

Both the WSMP and DWSSP/WSSSP provide capaciity building and training

MoHMS provides support to communities to implement their own action plans
Other larger improvement measures need external support
The most common improvements identified in DWSSP could be prioritised as "emergency works"

Analysis of previous DWSSP can provide a shortlist of about 6 emergency works that should be implemented (if required) on a priority basis

Summary of life-cycle costs

Summary:

Capital works: for new infrastructure and expansion - these are covered by the WSMP (can be every 5 years)
Capital maintenance: for rehabilitation (renewal and replacement) - large projects are covered under the WSMP
Capital maintenance: asset management can be covered by DWSSP/WSSSP (should be annual)
Operation and mainatenance: for day to day operations and minor repairs - is the responsibilty of the WC
Climate proofing and sanitation: these can also be covered by the DWSSP/WSSSP (they can also be annual)

If each division covers every community once every five years this means:

- Central - 85 per year
- Eastern - 51 per year
- Northern - 82 per year
- Western - 103 per year
- Total - 320 per year

Can the DWSSP/WSSSP support an annual technical and financial audit and improvements?

Timeframe for implementation of the RWSS Master Plan

2025 to 2030

Focus on achieving physical coverage

Accelerated investment in safely managed water supply and sanitation

WSMP approach under DWS and investment needs set out mainly in the National Water Point Mapping survey

2025

Focus on sustainability and resilience of service delivery

DWSSP/WSSSP perspective becomes critical to ensure asset maintenance, climate proofing, sanitation needs and capacity building and training to enhance community management

2030

2050

Vision 2050

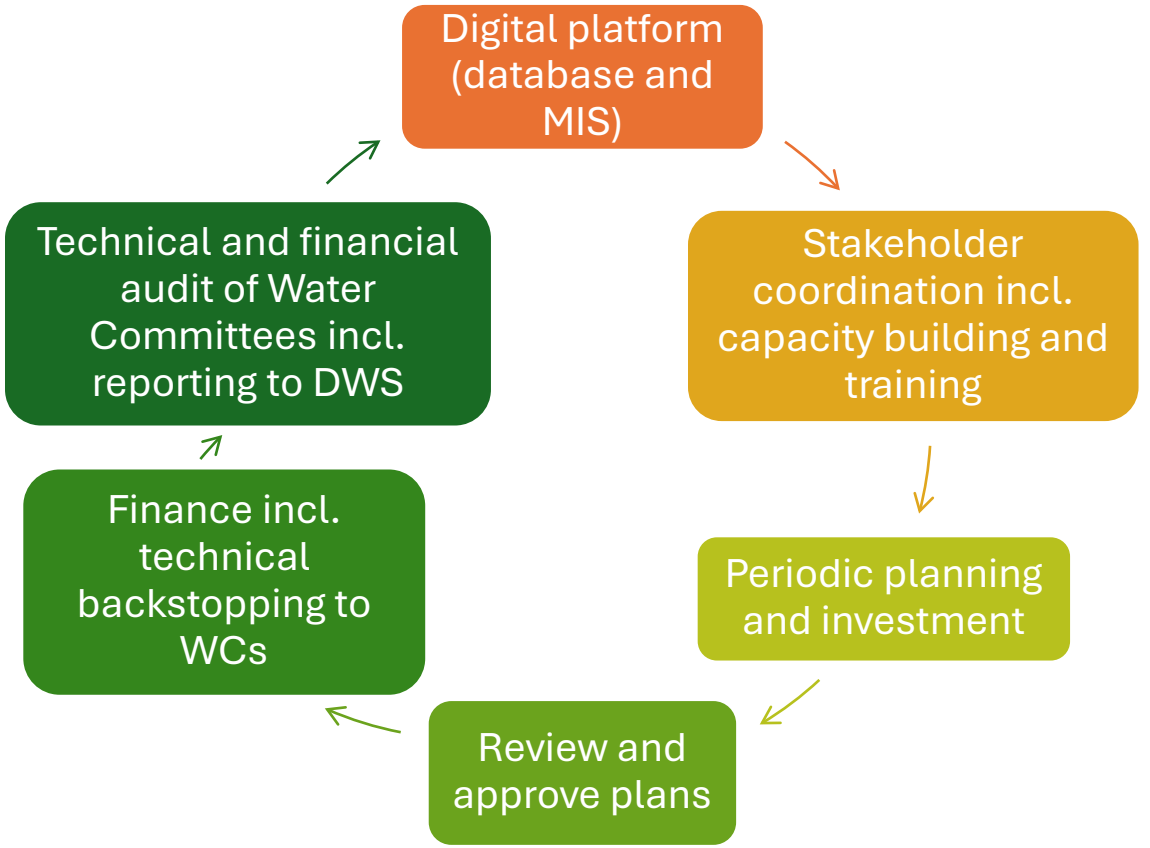
Government led programme with full coverage of safely managed, sustainable and resilient water supply and sanitation

5-year periodic planning based on WSMP

Annual DWSSP, technical and financial audits and monitoring framework

Six core functions for DWS

1. Digital platform (database and MIS)
2. Stakeholder coordination including capacity building and training, plus R&D and pilot projects
3. Periodic planning and investment
4. Review and approve WSMP and DWSSP/WSSSP (with MoHMS)
5. Performance based finance including backstopping WCs
6. Technical and financial audit of Water Committees including the submission of annual reports

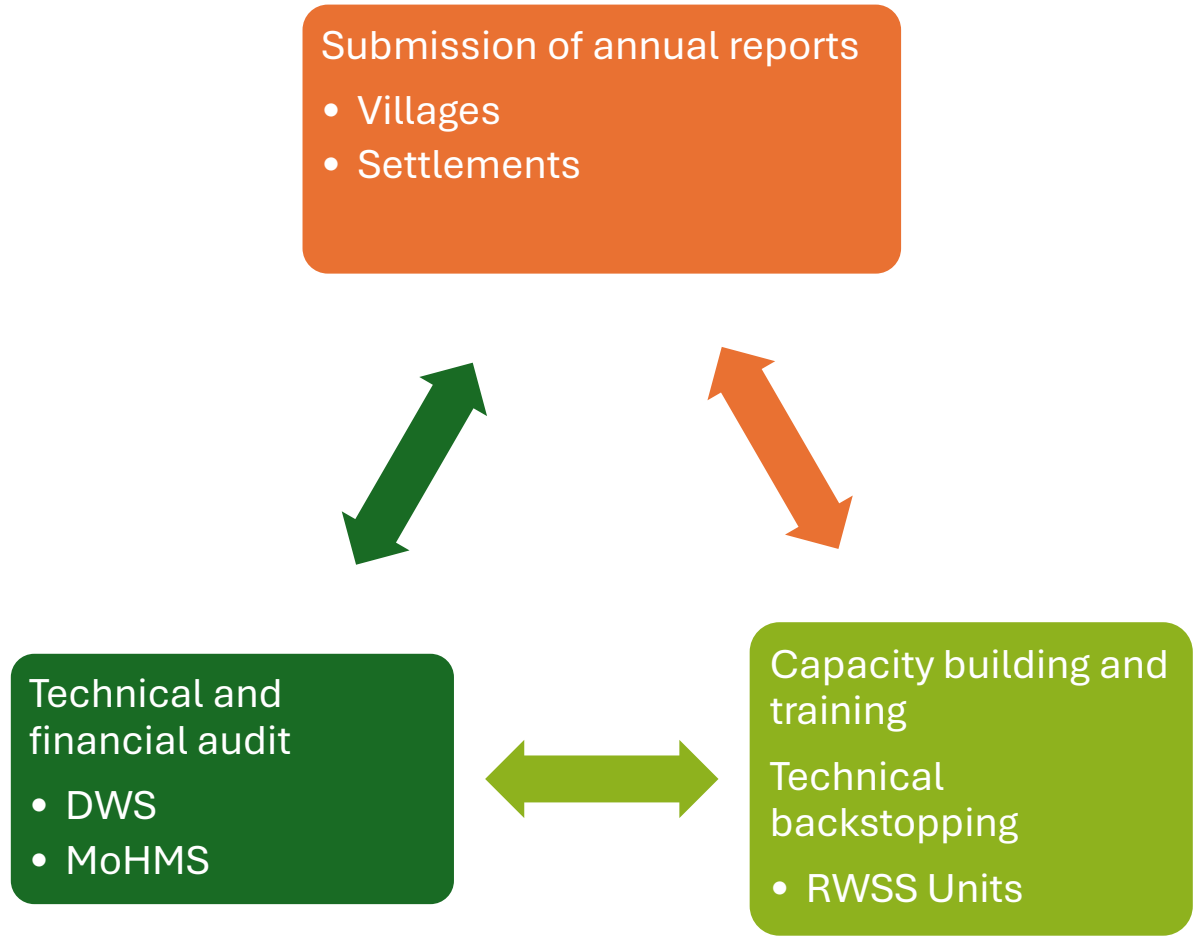


Three core functions for RWSS Units

In addition to current technical work…

1. Capacity building and training
2. Technical backstopping WCs
3. Submission of annual reports (supporting the communities)

Close coordination and collaboration is needed with MoHMS environmental health workers and iTaukei and Rural Development representatives



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Open mic – please feel free to ask any questions

Discussion points:

1. Does it make sense to focus on physical coverage for safely managed water supply and sanitation in the medium term (2025-2030) and sustainable, resilient service delivery as the Vision 2050?
2. What are the options to fund DWSSP as the basis for annual asset management, community improvement programmes and emergency works?

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Thank you!