



NATIONAL ADVISORY BOARD
on Climate Change and Disaster Risk Reduction
GOVERNMENT OF VANUATU

Integrated Tagabe River Catchment Management Plan (ITRCMP) 2021-2030

NAB Meeting
23rd February 2022

Prepared for the Government of Vanuatu and the Secretariat of the Pacific Regional Environment Programme (SPREP) by Wildland Consultants Limited (Contract Report No. 5436).

Overview

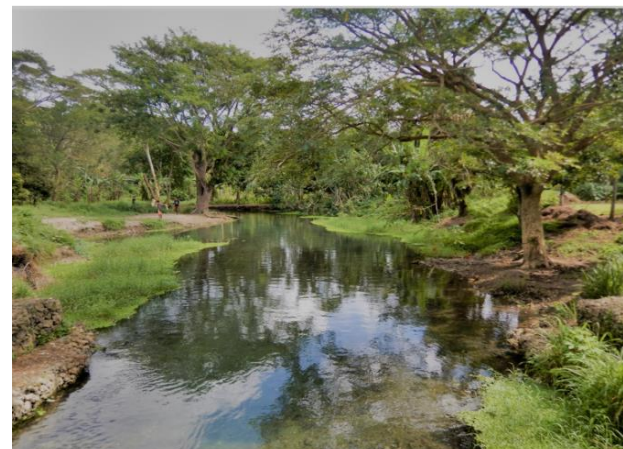
- The Integrated Tagabe River Catchment Management Plan (**ITRCMP**) 2021 - 2030 was initiated by the Government of Vanuatu w/ Secretariat of the Pacific Regional Environment Program (SPREP) and Wildland Consultants Ltd.
- Builds on the initial Tagabe River Catchment Management Plan (2017).
- The ITRCMP expands upon direction set by the initial plan by establishing targets for **assessing improvements in water quality** (including lower catchment) within an overarching set of objectives matched to specific implementation activities, and providing a framework for **assessing community use of the Tagabe River** to inform management decisions.
- The **ITRCMP** also places a strong emphasis on the progressive improvement of **sanitation facilities**, expanding the **water mains network** to include households currently not connected, and assessing the potential to develop planned **reforestation in the upper catchment** as a forest carbon offset project.
- The plan should be viewed as a 'live document', and reviewed and updated as needed.



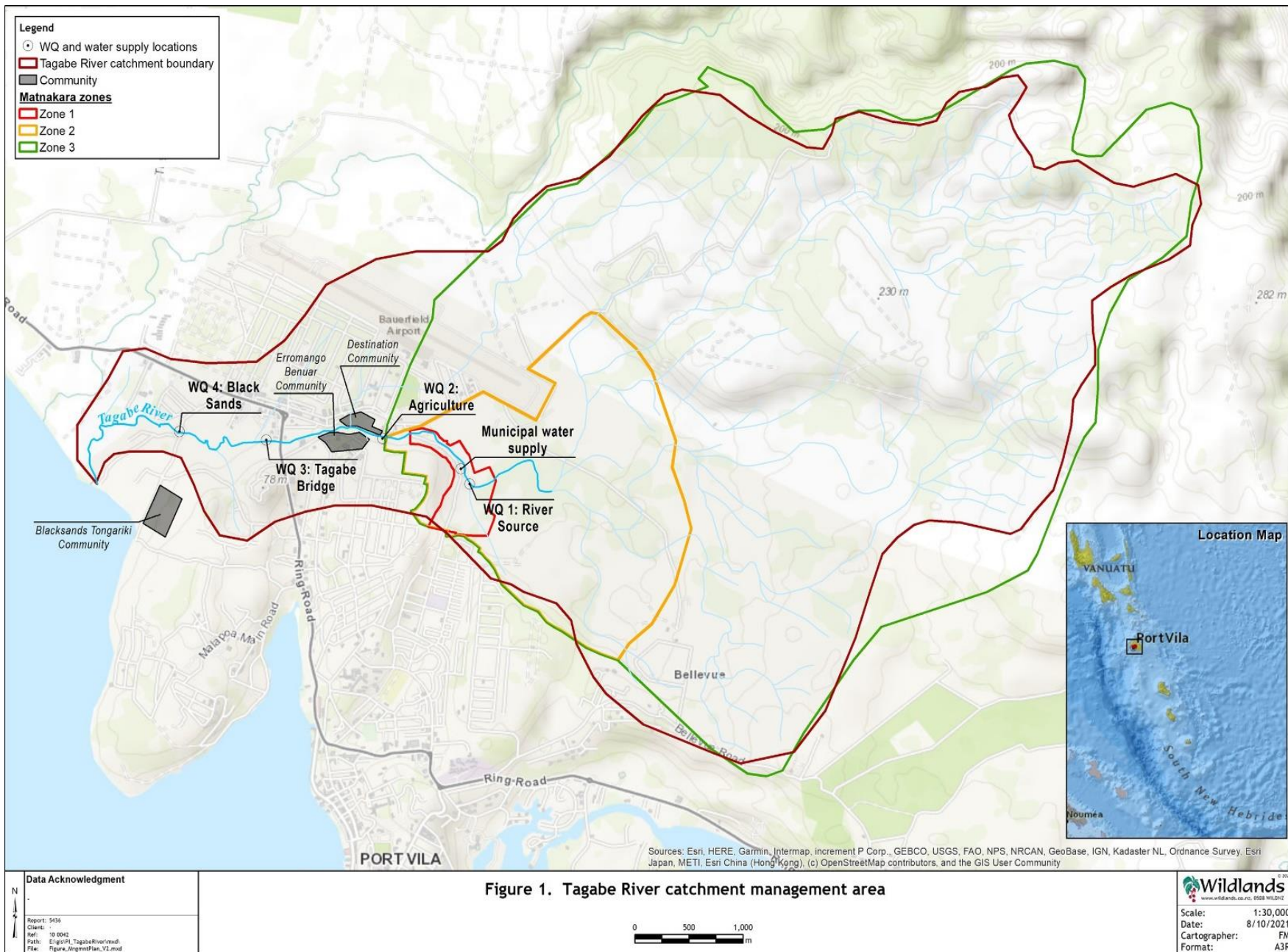
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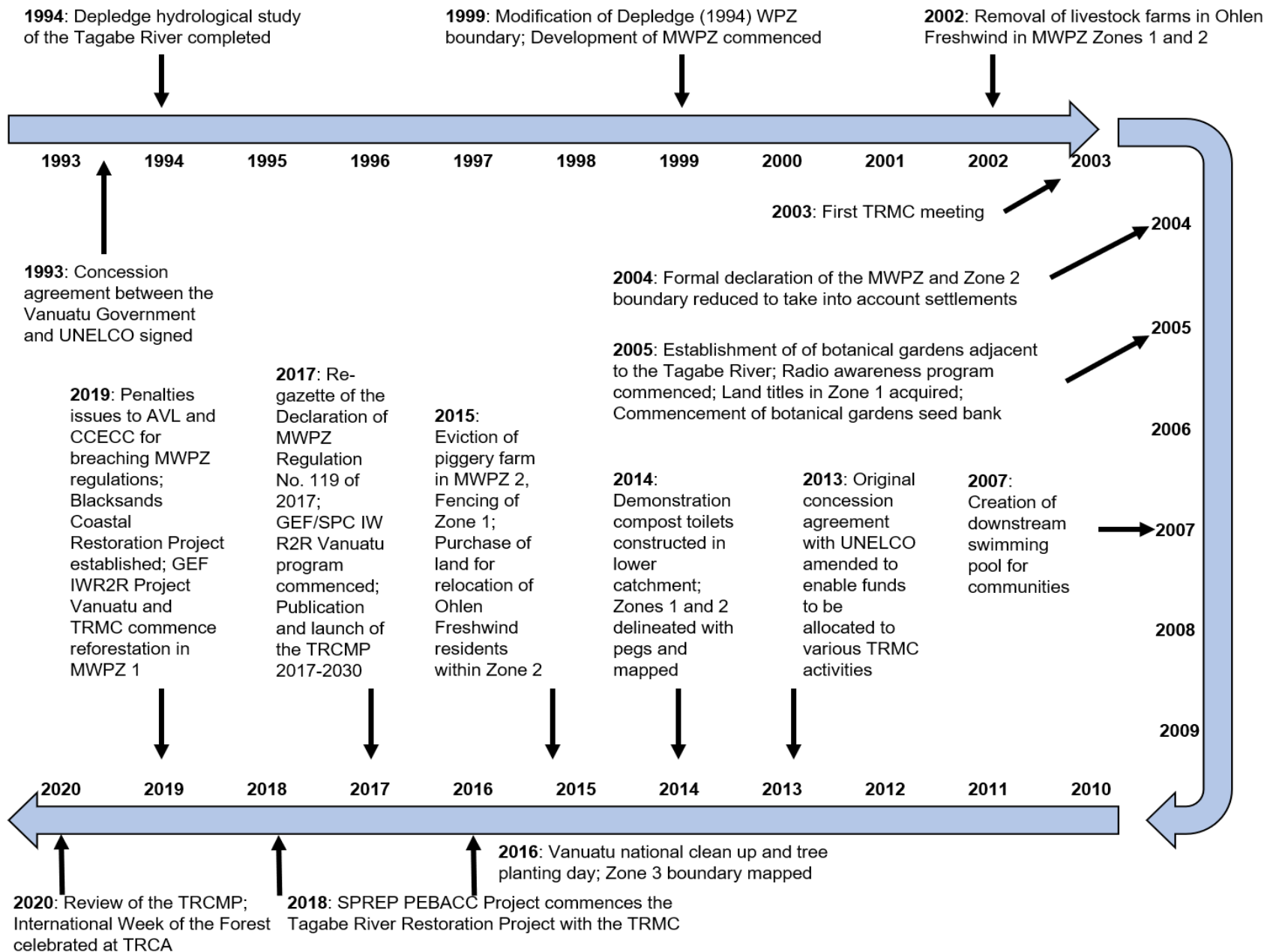
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Top: A makeshift ford over the Tagabe River. Photo credit Ediza Ngwele. **Bottom:** The Tagabe River near its source. Photo credit DoWR.





Timeline of key activities and milestones of the TRMC.

Project Vision and Goal

The vision of the ITRMP is a catchment which enables:

‘Sustainable access to sufficient and safe water for all users of the Tagabe River Catchment Area’

To achieve this vision, the goal of this plan is to:

‘Manage the Tagabe River Catchment Area based on enforceable legal frameworks, consistent monitoring, effective advocacy programs, and the implementation of activities which tangibly and progressively improve the quality and quantity of water in the Tagabe River’.

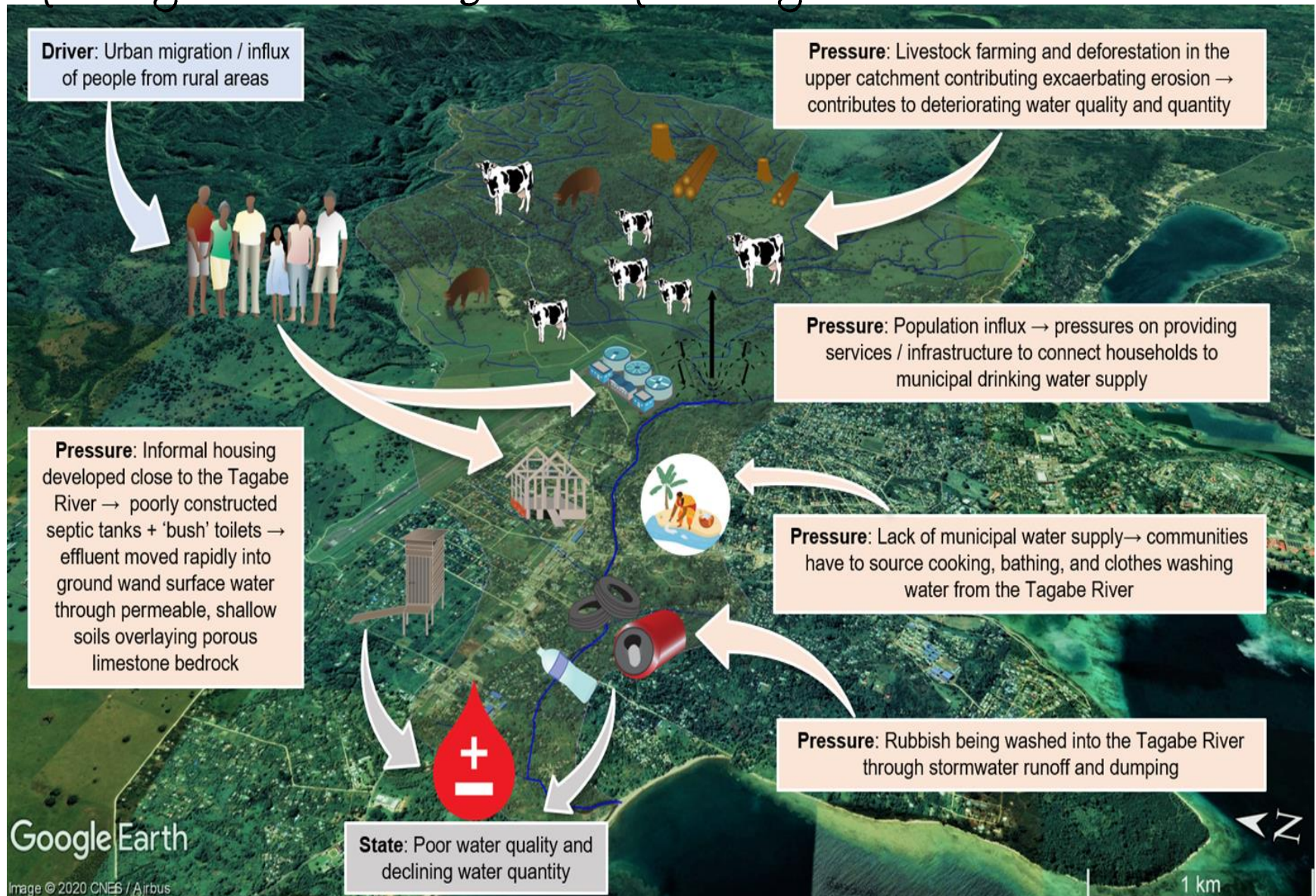


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Top: Upper reaches of the Tagabe River. Photo credit Ediza Ngwele. **Bottom:** Outflow of the Tagabe River into Mele Bay. Photo credit Ediza Ngwele.

Concept diagram highlighting some of the main drivers and pressures on the TRCA and the resultant state of poor water quality and declining water quantity.



ITRCMP Objectives



The following objectives have been devised as means to implement the ITRCMP vision and goals, and are not presented in any order of priority.

- 1. To strengthen governance, enforce regulations, and improve the legal framework for effective management of the TRCA.*
- 2. To develop and implement a systematic, robust water quality monitoring and reporting program in order to gauge progress towards achievement of water quality targets.*
- 3. To develop and implement advocacy, awareness, and educational programs designed to promote the need for protection and improvement of the TRCA for community user groups.*
- 4. To progressively reforest the upper catchment in order to secure and improve groundwater drinking resources, and rehabilitate riparian margins of the lower Tagabe River to improve water quality.*
- 5. To progressively improve the quality of household sanitation facilities by providing sustainable and cost-effective solutions, improve solid waste management, and provide effective solid and liquid waste legislation and enforcement.*
- 6. To progressively connect existing formal households to the water network and, where informal housing has been developed, provide centralised sources and/or rainwater tanks for the collection of potable water.*
- 7. To conduct targeted research to assess groundwater recharge rates of the drinking water supply, compare yield versus projected demand, and (if needed) identify alternative drinking water sources for Port Vila.*
- 8. To improve the management capacity of the TRMC by securing appropriate fiscal and human resource support in order to implement key activities.*
- 9. To undertake adequate monitoring of ecological and social parameters and develop robust reporting to assess the effectiveness of plan implementation and evaluate progress against project goals.*

Objective 4: To progressively reforest the upper catchment in order to secure and improve groundwater drinking resources, and rehabilitate riparian margins of the lower Tagabe River to improve water quality.



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(A) Area for reforestation (ha)	(B) Average Mg CO ₂ e ha ⁻¹ year ⁻¹ for A/R projects	(C) Average Mg CO ₂ e ha ⁻¹ year ⁻¹ modelled over a 30-year project timeframe	(D) Average price of CO ₂ e for A/R VCS projects in 2019, USD \$	(E) USD \$ per year from reforestation	(F) USD \$ per 5 year crediting blocks
800 ha	11.2 Mg CO ₂ e ha ⁻¹ year ⁻¹	7,914 Mg CO ₂ e ha ⁻¹ year ⁻¹	\$9.2	\$72, 815	\$364, 075

Potential carbon offsets able to be generated through reforestation of the upper catchment.

Notes:

(B) Data sourced from Cameron *et al.* (2019) and refers to the average tonnes (Mg) of carbon dioxide equivalent (CO₂e) per hectare per year (ha⁻¹ year⁻¹) reported from an analysis of selected afforestation / reforestation (A/R) forest carbon projects listed on the Verified Carbon Standard (VCS) database for tropical forests.

(C) Modelled on the assumption that reforestation is carried out through planting 100 hectares per year (rather than planting all 800 ha in year one), and using the average value per year over a 30-year project timeframe which is typically used for forest carbon projects.

(D) Sourced from Ecosystem Marketplace (2021).

(E) = C * D.

(F) = E * 5.

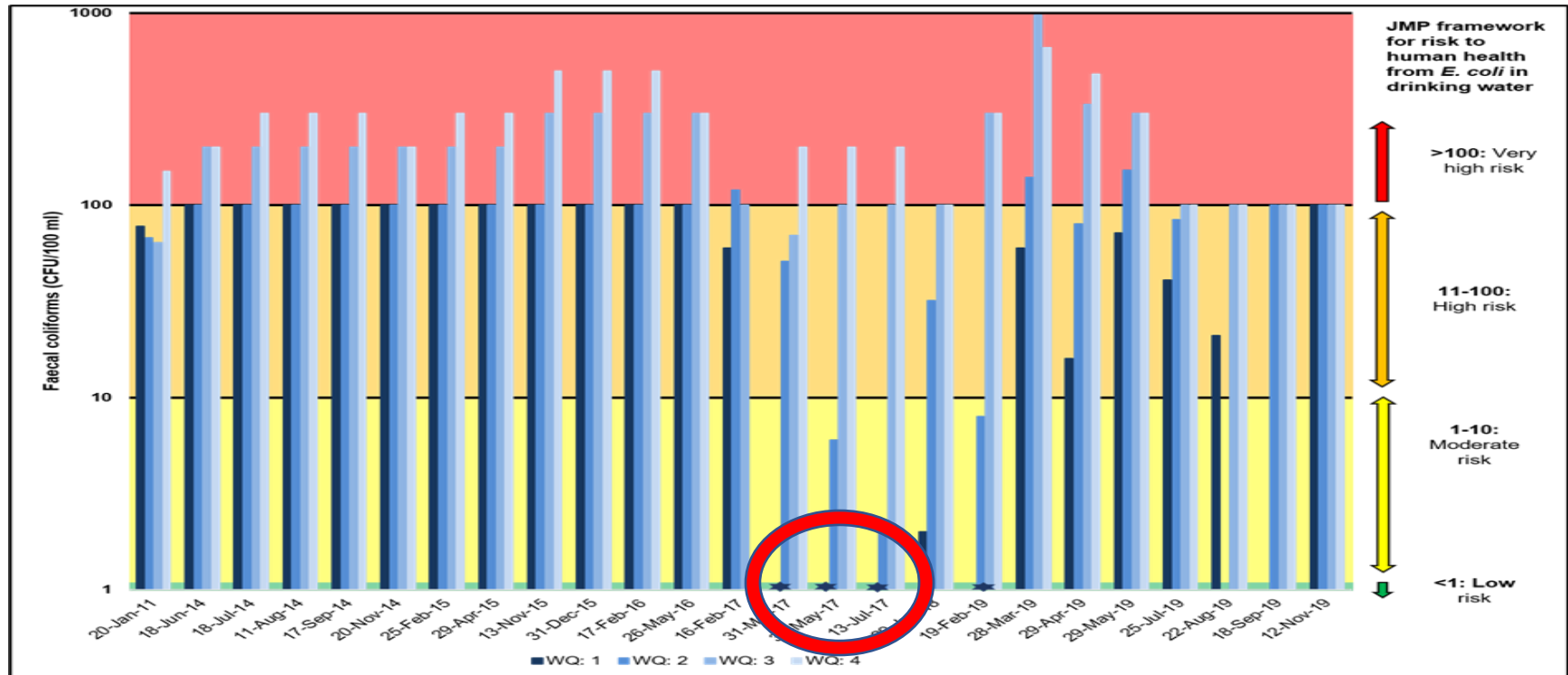


Replanting location in MWPZ 1. Photo credit: Ediza Ngwele.

Objective 5: To progressively improve the quality of household sanitation facilities by providing sustainable and cost-effective solutions, improve solid waste management, and provide effective solid and liquid waste legislation and enforcement.



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Faecal coliform counts from water quality monitoring stations 2011-2019 and JMP framework for risk to human health from *E. coli* in drinking water. Note the logarithmic scale. Stars for WQ 1 in March, May and July 2017 and February 2019 indicate faecal coliform counts <2 CFU/100 ml.



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Objective 6: To progressively connect existing formal households to the water network and, where informal housing has been developed, provide centralised sources and/or rainwater tanks for the collection of potable water.

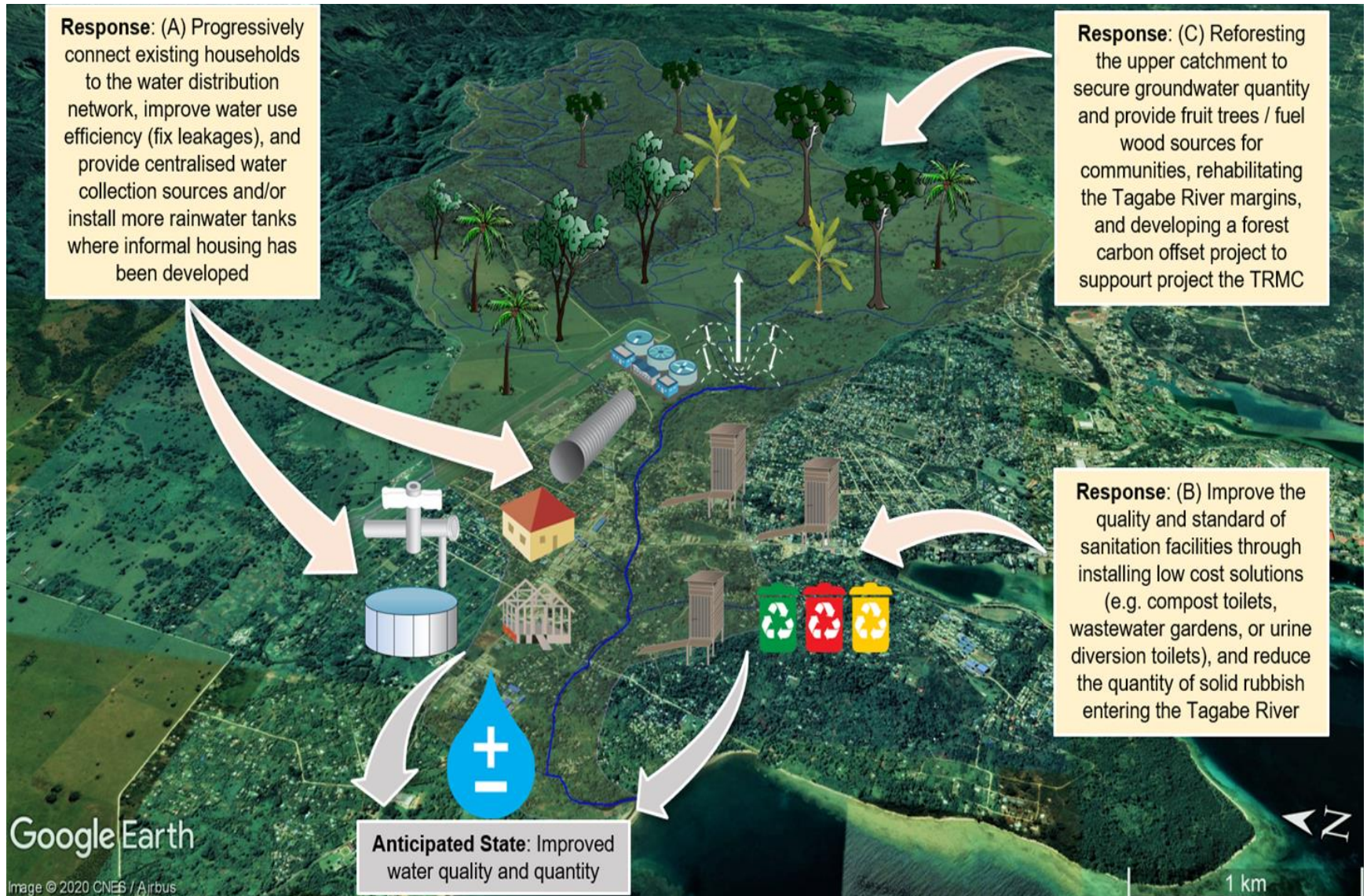
Total estimated no. households in Port Vila 2020	12,075
Estimated no. households connected to the water mains 2020	10,970
% connected	90.9
Estimated no. households not connected	1,105
% not connected	9.1



Informal housing with a greywater soak pipe discharging into the Tagabe River. Photo credit Ediza Negwele.

Total estimated households in Port Vila as of 2020 connected and not connected to the water distribution network. Data sourced from the Urban Resilience Hub (n.d) and the Vanuatu National Statistics Office 2016.

Concept diagram illustrating key response measures to address drivers and pressures and improve the state of water quality and quantity within the TRCA.



Thank you!



QUESTIONS / COMMENT?

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