

PACC Fiji

**Guide Development Project
Component2**

Project Component 2

- Demonstration measures to reduce vulnerability in coastal areas and food production sectors in Fiji.
- Current drainage infrastructure are not adequate to cope with the future rainfall regime & sea level rise due to CC effects thus posing serious threat to agricultural production and productivity.



- Develop guidelines for climate proofing drainage network and associate infrastructure.



Assessment of CC Impact on Drainage Networks & Infrastructure in Fiji

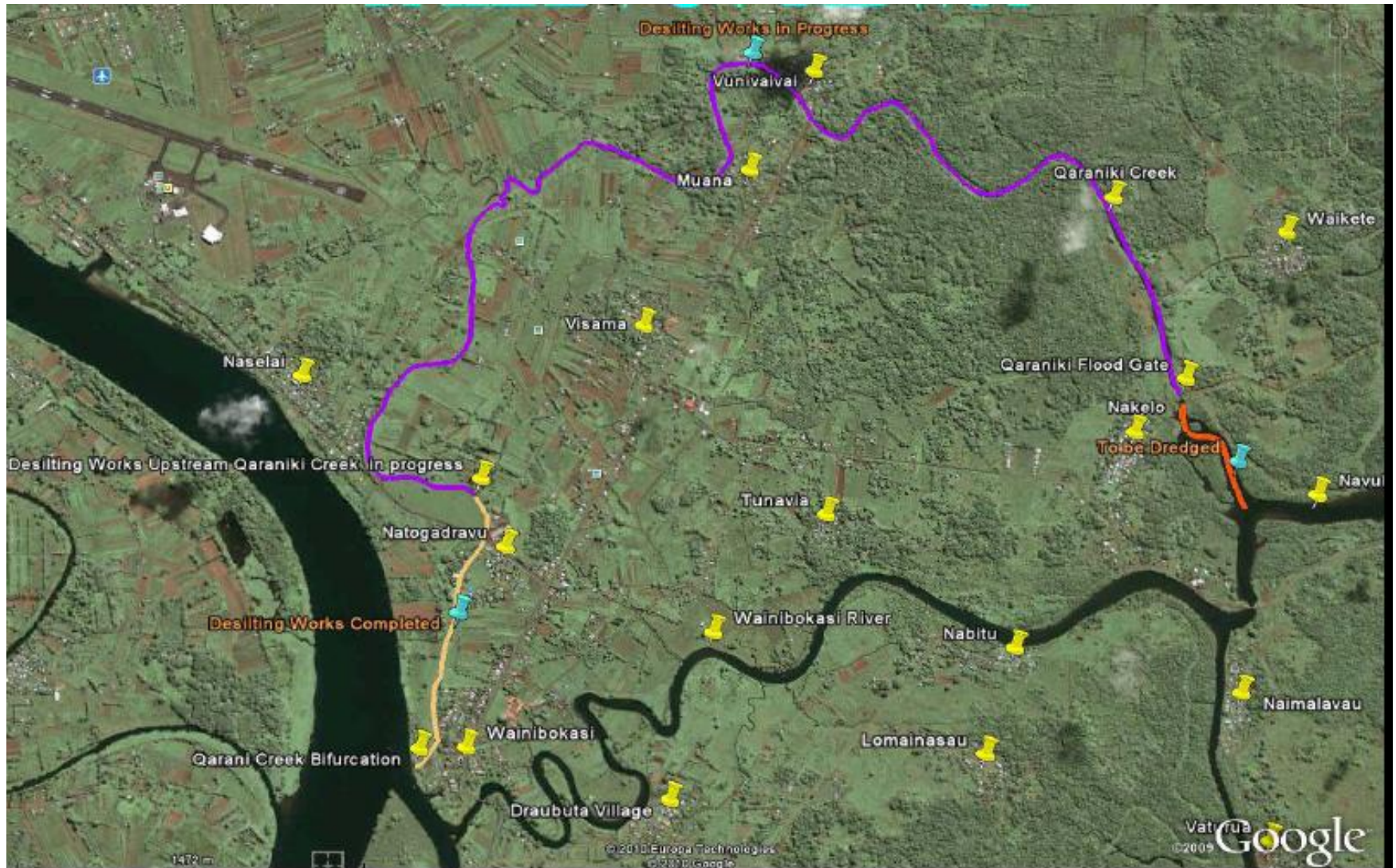
- Drainage design criteria for drainage network and associate infrastructures to be revised to adapt to future rainfall regime & sea level rise.
- 1) Climatology & Hydrology;
 - 2) Hydraulic Engineering;
 - 3) Storm & Wave Run Up Modeling;
 - 4) Vulnerability & Adaptation Assessments;
 - 5) Cost Benefit Analysis;
 - 6) Drainage Design Guideline.

- The objective is to develop climate risk information to be adopted as national standards for climate proofing agricultural drainage network and infrastructure.
- The major output of these assessments are to develop the Drainage Guidelines and demonstrate this at the pilot demonstration sites.

Socioeconomic Information

- Population 149,763 and 21,203
- Total land area of 121,701 ha and 139,201 ha
- 10,122 ha and 3,643 ha are considered arable land.
- Tailevu/Rewa 10,195 farmers of which 944 are full time commercial farmers
- Serua/Namosi 3,370 farmers with 459 full time commercial farmers.
- The rest are semi commercial or subsistence farmers
- Gross value of crops, it was estimated at F\$34,million for Tailevu/Rewa and F\$16.4million for Serua/Namosi

Pilot Demonstration Site TAILEVU / REWA



SERUA / NAMOSI



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3373 ft

Imagery Date: Apr 14, 2010

18°13'10.71" S 178°08'29.01" E elev 26 ft

Eye alt 11701 ft

- In order to develop a revised drainage guideline for Fiji to be used now and in the future, several important assessments need to be carried out which include:



Hydro-Climatology

- Determine precipitation changes over time including the type, frequency and intensity of weather extreme event sin the pilot areas.
- Current drainage designs were based on precipitation data of some 30 years back.
- Information generated from this assessment will determine the need for change in current design criteria

Hydraulic Engineering

- Using the hydrological/climatology information from the 1st assessment to review the current drainage design criteria for pilot sites (Tailevu/Rewa & Serua/Namosi Province).
- Also focus on reviewing the current drainage scheme at pilot sites and make recommendation for any change to enhance drainage performance with new design criteria.

Storm & Wave Run Up Modeling (Naitonitoni/Vunibau)

- Assess the impact of current and future sea level change and storm wave events on current drainage infrastructure in Serua/Namosi pilot areas.
- Possibility of more extreme events, tropical cyclones and storm surges with projected rates of sea level rise and flooding places emphasis on infrastructure roads, vital utilities such as power and water, coastal protection structures and tourism which are at risk



V&A Assessment

- Document the current impacts of hydro meteorology disasters particularly flooding at pilot sites and how it has adversely impacted the livelihood of the population.
- Determine the current and future adaptive capacities and how it can be improved by drainage improvements as one of the adaptation options that could be dressed amongst the others.

Cost Benefit Analysis

- CBA would focus on determining the cost of new adaptation options that could be recommended under assessments 2 & 3.
- CBA would consider the monetary and intangible benefits of the adaptation options recommended.
- The experience can subsequently be replicated in the entire drainage scheme areas in Fiji.
- The study included at collection, analysis, design and cost estimates of all appropriate interventions and to assist in preparing technical specifications, and finalizing implementation plans for the desired adaptation interventions, planning and policing.

VINAKA