Report – Follow up Assessment on sustainable water use and conservation in the context of climate change enhanced in Fais Island, Yap State FSM.

A report prepared by consultant Ms. Eva Buthung, for the Government of the Federated States of Micronesia with support from the European Union through the Pacific Community (SPC) North Pacific- Readiness for El Nino (RENI) projects.

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Executive Summary

The European Union- North Pacific- Readiness for El Nino (RENI) projects is about communities working to secure food and water resources ahead of drought. The three-year (2017-2020) project is funded by the European Union and is implemented by the Pacific Community (SPC) in collaboration with the governments and people of the Federated States of Micronesia (FSM), Republic of the Marshall Islands, and the Republic of Palau.

Yap State is drier than the other states of the FSM and therefore highly vulnerable during periods of drought. As such, a Yap State Disaster Preparedness Plan was produced in 2017 and together with the El Nino Mitigation Plan of 2016 informed the design of the RENI project in FSM.

The RENI project in the FSM focuses on water security. The selection of activities was informed by the lessons learnt in the 2015-2016 drought and the scope of past and ongoing water security projects in the State. The key components of the RENI projects are influencing community behaviors, enhancing water security, and research and planning to prepare for future droughts.

Introduction

As part of the RENI (Readiness for El Nino) project, a follow-up assessment was conducted for the recent Global Climate Change Alliance Pacific Small Islands States (GCCA PSIS) project funded by the European Union and implemented by SPC from 2013 to mid-2015. The overall objective of this climate change adaptation project is to contribute to water security as a climate change adaptation strategy and to increase access and sustainable use of quality water in the outlying islands of the FSM including Fais Island, Yap State. Significant results of the SPC GCCA PSIS project include installation of water catchment systems (water tanks, gutters, First Flush Devices (FFDs), leaf eaters, etc.) at various households and the construction and improvement of the groundwater well to pump water to the community.

The follow-up assessments were conducted to better inform the current RENI project and similar future projects by highlighting impacts, challenges, lessons learnt, and recommendations.

Community and Group Consultations

Based on the 2010 FSM Census, the following is a breakdown of the population by age categories focusing on the groups (teenagers, adults, and seniors):

	Teenager (13-19 yrs)	Adult (20-59 yrs)	Senior (60+ yrs)
Fais Is.	33	139	13

In Yap State including Fais, men are generally perceived to have the most significant role in decision making for community participation and activities like major community projects. It is important to note that even though women have little involvement in the formal decision making for any community, they play a more active role in getting community activities implemented. As assessed and reported in the recent SPC GCCA PSIS project, women are shown to be the most concerned with family needs. They ensure that there is sufficient water supply for the households. Women decide how and the amount of water the households use daily. They also have control over the types of containers used for collection and storage. According to previous surveys conducted as part of SPC GCCA project, 38% of women and 27% of children spent a significant amount of time each day on fetching water for use by the families.

Consequently, the community consultations conducted targeted these three (3) main groups: men, women, and youth. Notably feedbacks from the groups are similar reflecting the same issues and concerns. Results from the groups are as shown in the table below; **see annex 2 for sample questionnaire:**

Questions	YOUTH	WOMEN	MEN
1. Improved water supply for household? Community?	a. Easy water access b. Less hauling c. Giving us safe clean water	a. Water for drinking & other use b. No more fetching water c. Make family life easier- more time for relaxation and other activities. People are getting bigger	a. More water capacity for usage at home (e.g. shower, washing) b. Less time to get water (easier access) c. Improve health and hygiene Momai (Good) - Community coming together as one - Increased knowledge on installing pipes, tanks, etc. Tekof (Bad) - Not everybody has tanks - Not enough pipes to run to homes
2. Managed during the El-Nino drought of 2015-2016	Distributing water to community; control by elders	Water rationing due to limited supply and concerns regarding water supply. - Collection happened on designated days *(started 5x reduced to 3x then 2x as drought prolonged)* of the week from 8am to 12 noon - 1 gallon per household a day Bathing & washing of clothes, plates, pots, etc. in the ocean- *increased skin rashes esp. in children* Caretaking of the elderly got more difficult.	a. There was a limit of water distribution per household from the community water catchment (chief, elders) b. There was government & NGO assistance for water c. Drank more coconut and drank water only when needed
3. Like project to do differently	To have all the houses connected to the well	a. Install only vertical tanks- horizontal tanks are harder to clean and easily damaged	a. Provide all necessary materials for water catchment system (tin roof, gutter, pipes, faucet,

		b. Need to have water tanks at all houses esp. community buildings c. Tin roof extension to be added to houses with thatched roof to allow for water collection and storage d. Pipe water to all homes and provide technical assistance on pipe selection, measurement, etc.	tanks, stainless screw) and cement b. Clear instruction and guideline in installing water system c. No outside contractor, all project to utilize members of the community and existing businesses.
4. Challenges w/ tanks and well	Not all houses are getting water from the well but all households are charged with the monthly fee Platform the new tanks were placed are too low	a. Horizontal tanks tend to damage easily and harder to clean b. Vertical tank lids are difficult to open c. Most tanks when damaged cannot be repaired for most people lack the equipment or supplies needed d. Install better and more durable faucets for the tanks e. Insufficient water supply from the well that gets pumped and stored for the community (inadequate for other use such as toilets in the evening)	a. Most of the horizontal tanks are leaking or broken- tanks can't hold the weight of water stored, not durable in hot climate b. Storage tank capacity for the well is insufficient c. Piping of water to the households (all) is needed d. Equal contribution towards maintenance funds for well but the well system only provides water to a portion of the community e. Water pump only operates during sunny days
5. Who takes care of tanks and well?		Individual family (mostly) & TFO (Taremal Fais Org)	a. TFO (Taremal Fais Org.)- maintain household tanks & community tanks by fixing broken gutters & patch leaking tanks b. Household members- clean gutters, leaf eaters, FFD, and tanks (inside)
6. Changes to recommend	a. Not to get the horizontal tanks b. Platform to be higher to protect from salt water (?) c. Get better gutter materials	a. Install better faucets b. Either additional pump or better pump for the well to adequately supply and meet community needs c. Training, support, and resources available to community to ensure sustainability	No outside contractor, community to take lead in implementation for: a. Ownership b. creating job opportunity/ income generation venue, and c. capacity building
7. Most beneficial impact of project	Availability of water to the community	a. Easy & Accessible water sources b. No more asking around for water c. Community life has improves d. Easy access to water by the elders/ caretaking duty is made easier	a. Free assistance b. Cleaner water c. More water d. More tanks e. Improve health
8. Other areas for improvement	Landfill	a. Flush Toilets at all houses b. Water to be piped to the garden sites & beach c. Mean of transporting supplies, planting materials,	a. Land restoration (next to airport): need vehicles, wood chipper, wheel barrow, backhoe, etc.) b. Airstrip Improvement

		produce, etc. to and from garden sites	c. Ship port Improvement d. Restroom facilities for each household to improve health and sanitation e. Coastal/ shoreline protection f. Typhoon shelters g. Internet access h. Fitness center i. Community awareness programs

Key Findings

Beneficial impacts- Accessible quality water for household use

Challenges- a) Horizontal tanks are of lesser quality than the vertical tanks (break easily), b) storage tank capacity for the pumped groundwater is at present not sufficient to meet the demands of the community, c) not all households are getting the pumped water from the well but all are contributing equally towards its maintenance by paying a monthly flat rate fee and, d) maintenance and repair often times do not happen due to unavailability of supplies and equipment.

Lessons- a) Resources and support (technical) to be made available especially for maintenance, b) training and other capacity building opportunity for community and, c) all projects to utilize members of the community and existing or local businesses.

Recommendations- a) Community to take lead in the implementation of projects for ownership, income generation, and capacity building, b) durable tanks and materials (gutters, faucets, etc.) that are more suitable to the community and its environment to be provided and, c) increased water supply (pumped groundwater) to sufficiently meet needs.

Other findings:

Based on past experiences particularly the recent El-Nino drought of 2015 to 2016, the community in Fais has already identified some key conservation measures to ensure water security during periods of water scarcity such as droughts. Conservation measures reported include water rationing, drinking more coconuts, bathing and washing with salt water.

Furthermore and to ensure project sustainability, the community has organized and established the Taremal Fais Organization (TFO) to oversee regular maintenance of household tanks and community tanks by fixing leaks, repairing gutters, etc. This is in addition to the more frequent inspection and maintenance by household members.

Survey Findings

A follow-up survey was conducted for a comparative study to be done using data previously collected during the recent SPC GCCA project. The objective was to assess current knowledge, attitudes, and practices regarding water conservation and maintenance in the context of

climate change and to assess possible behavioral changes (that could have resulted from education and awareness activities conducted).

For the purpose of consistency, a convenience sampling was utilized and depending on household size and availability of members, one member aged 12 or above from the household selected was interviewed. Data from 54 household members (N= 54) was collected and recorded. Eighty one (81%) percent of the respondents are men and the remaining 19% are women. Majority of the respondents at 69% reported to be over the age 35 years old with 19% falling into the "elderly" category. An elder is defined in accordance to the UN agreed criterion of 60+ years.

Follow Up Survey Key Findings:

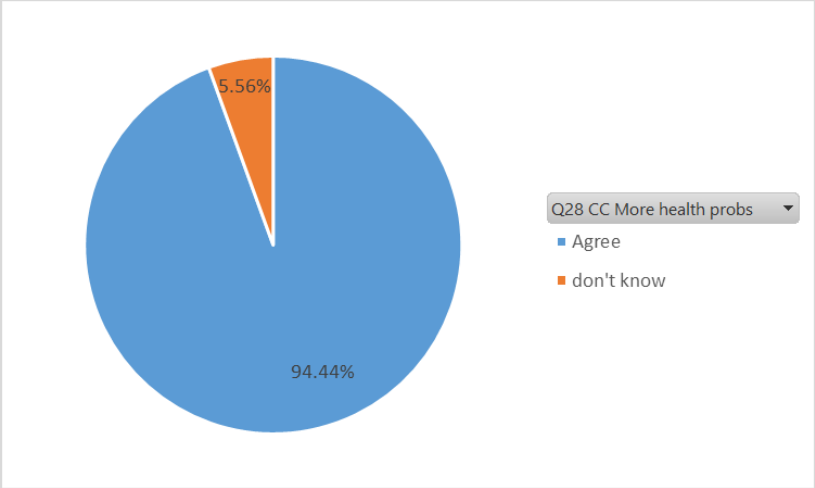
As expected 98% (SPC GCCA baseline at 95%) reported rain tanks (majority are owned and located at houses) as the main source for water. Both findings confirmed the 2007 Water and Environmental Research Institute (WERI) which identified rainwater catchments as the almost exclusive source for fresh water on Fais. The survey also indicated that 94% of the respondents (17% women) have heard of climate change, approximately 37% reported to having first heard of climate change at community meetings that took place mostly at the school followed closely by 31% who reported to having first heard on the radio. Most of the information received on climate change was shared during the SPC GCCA project. Other key findings include:

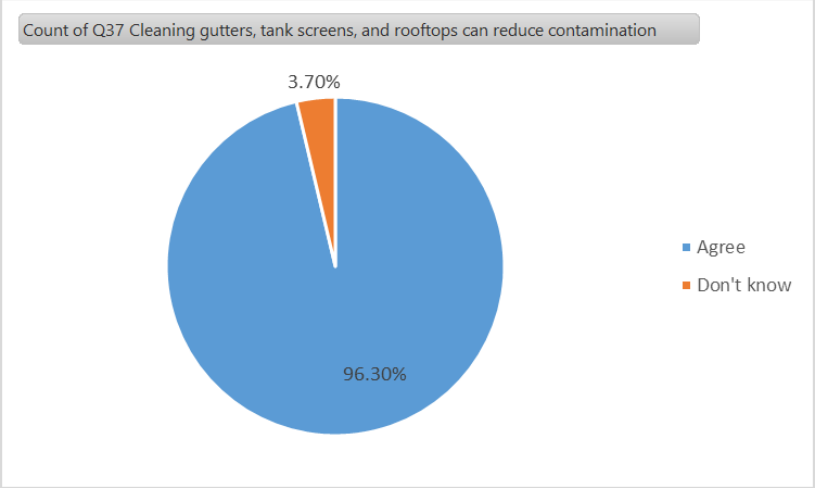
- The average household size: 5-6 people per house
- Top two major water uses: Drinking and cooking (93%)
- Believe climate is changing: 93%
- Aware water tank been tested: Yes (46%), No (28%), don't know (26%)
- Clean tanks: Regularly (22%), Sometimes (63%)
- Treat water for drinking: Yes (78%), No (20%), don't know (2%)
- Gallons of water used daily: < 10 gal (24%), 10-15 gal (39%), > 15 gal (22%)
- Top three preferences to provide information (communication strategy): community meetings, home visits, and radio spots (30%)

Hundred percent (100%) of those who reported that they treat water for consumption further elaborated that the method used is to boil on open fire. The household water tanks get cleaned by members of the household or by the established group, TFO.

Related health implications:

Ninety-four percent (94%) of the survey respondents reported that climate change causes more water-related health problems especially in children. Ninety-six percent (96%) also indicated that good maintenance of the rainwater harvesting systems (gutters, tanks screens, rooftops, etc.) reduces water contamination hence lessening water-related health cases such as diarrhea.

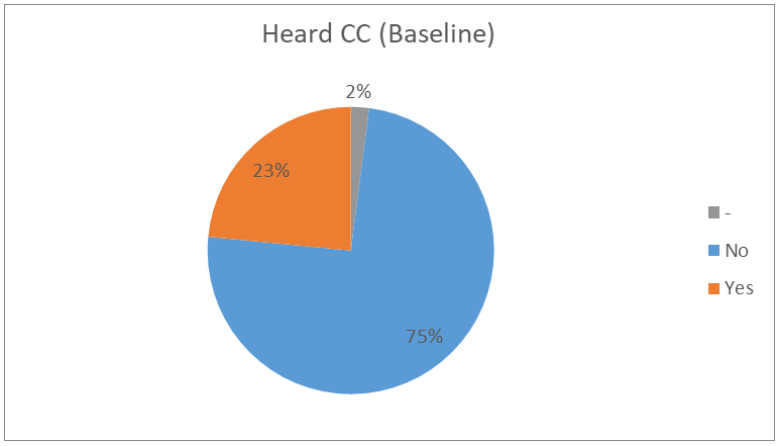


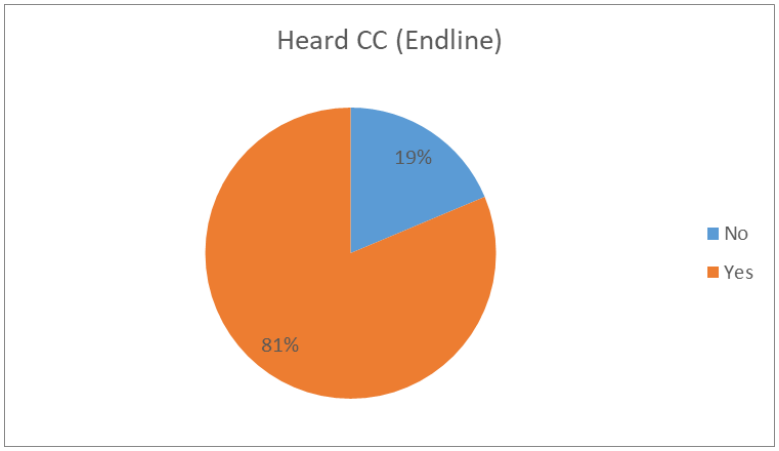


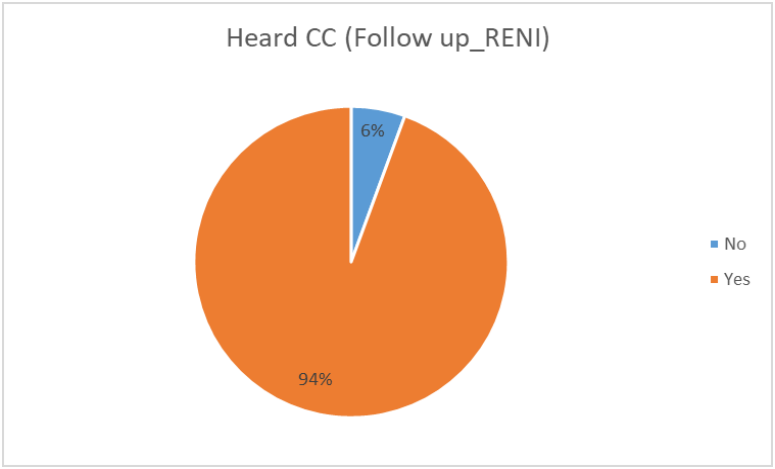
Comparative Study: Key Findings Indicating Behavioral Change

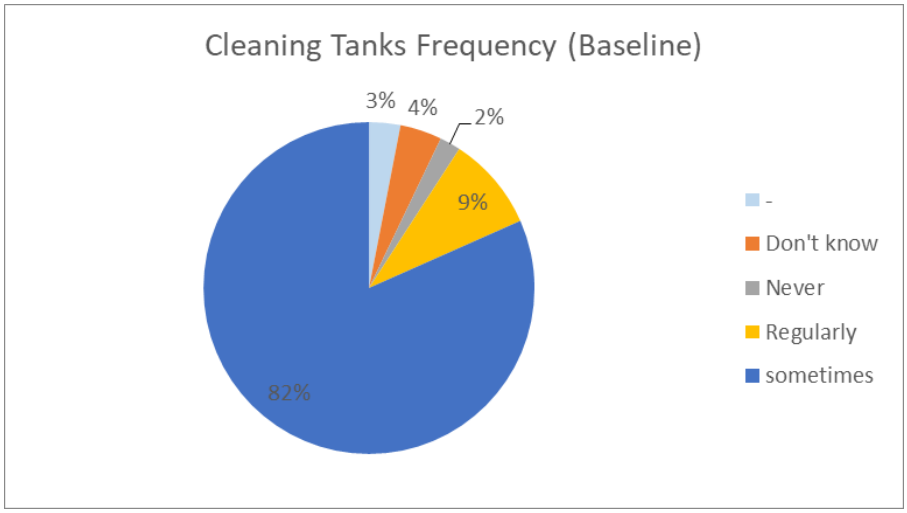
- Heard of climate change: from 23% (SPC GCCA baseline) to 81% (SPC GCCA end-line) → 94% (recent survey) indicating a significant increase of about 71% in awareness to climate change by the residents of Fais
- Cleans tank regularly: from 9% to 21% (SPC GCCA surveys)→ 22% (recent survey) indicating a 13% increase in the number of people who cleans rainwater tanks regularly
- Does not treat water for consumption: from 26% to 21% (SPC GCCA surveys)→ 20% (recent survey) displaying a substantial decrease of 6% that is highly significant for health reasons
- Fix tanks immediately when find leaks: from 64% to 83% (SPC GCCA surveys) → 76% (recent survey) indicating an increase in the number of people who tend to fix any leaks found. Twenty percent (20%) reported that they ask for help from other members of the community. It is further reported that delays or inability to fix the leaks and asking others for help are due to not having readily available tools and supplies necessary for the repairs to be done.

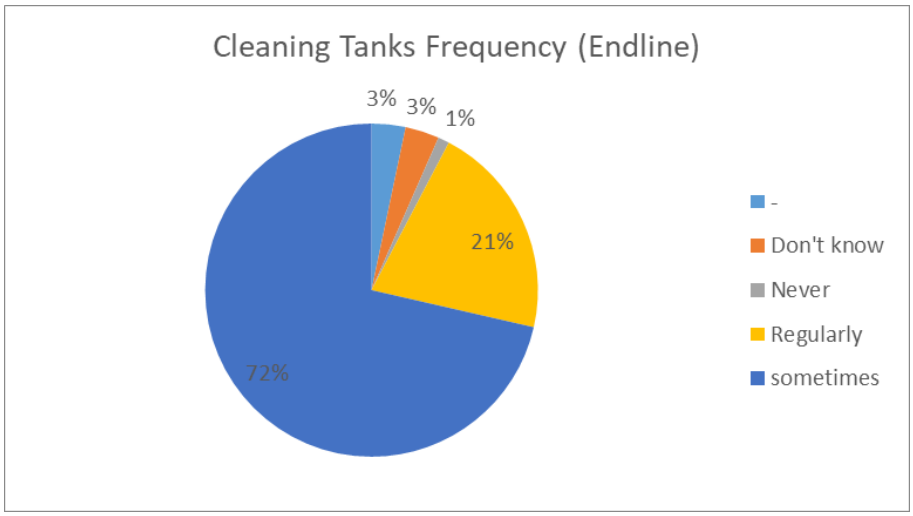
Graphs illustrating changes in knowledge and behavior patterns:

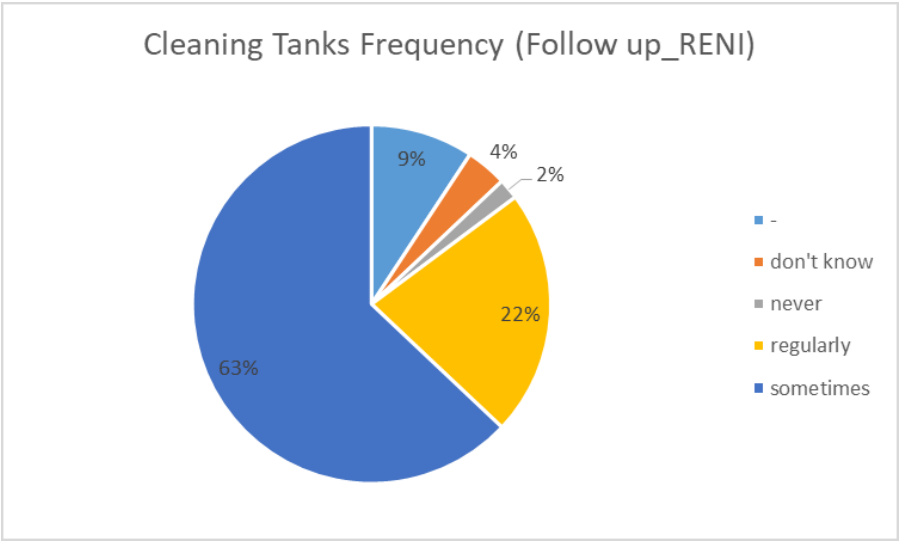


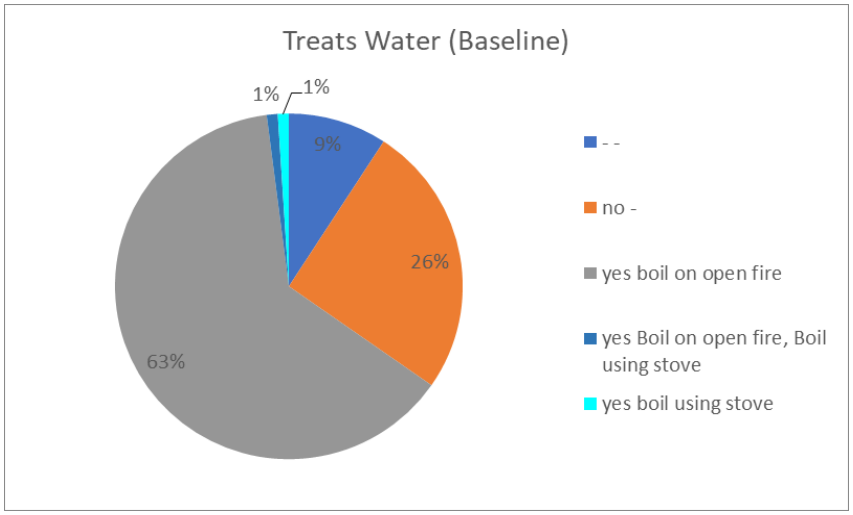


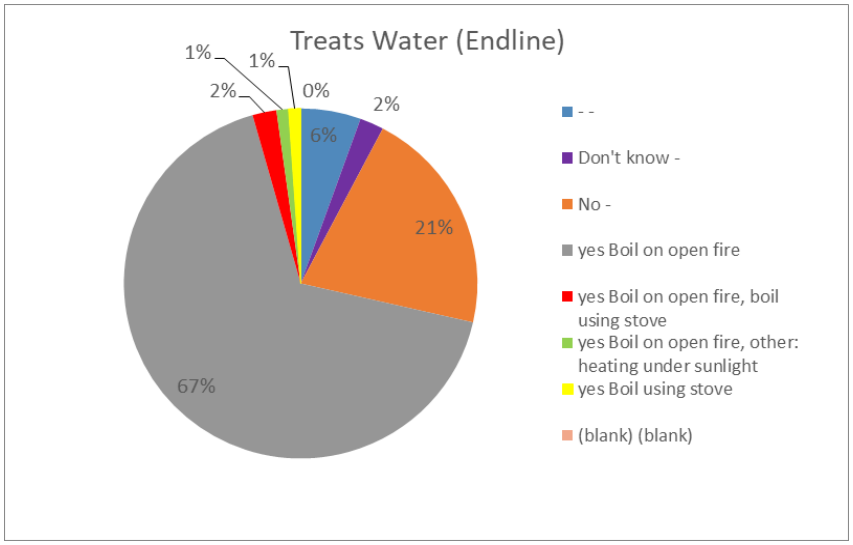


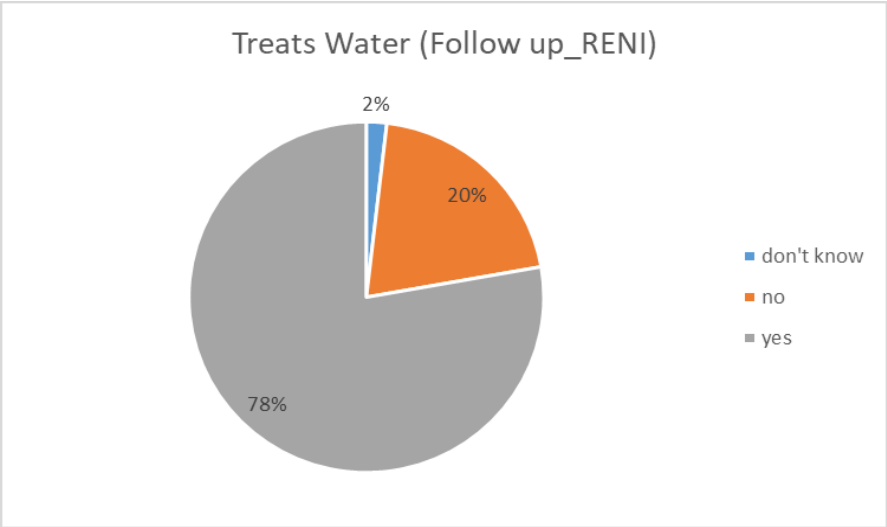

Cleaning Tanks Frequency (Baseline)
3%
4%
2%
9%
82%
-
Don't know
Never
Regularly
sometimes

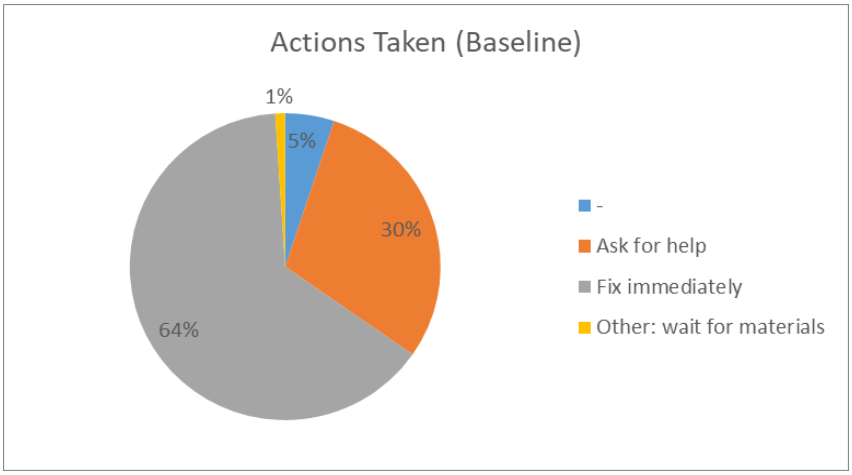

Cleaning Tanks Frequency (Endline)
3%
3%
1%
21%
72%
-
Don't know
Never
Regularly
sometimes

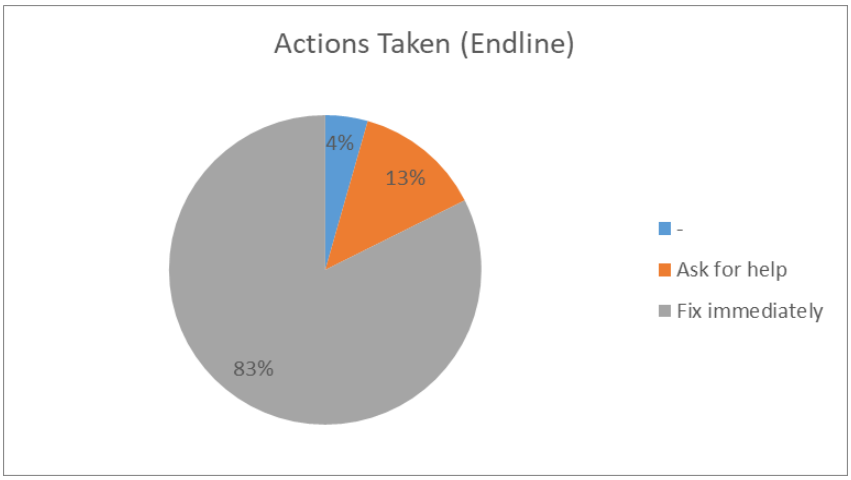

Cleaning Tanks Frequency (Follow up_RENI)
9%
4%
2%
22%
63%
-
don't know
never
regularly
sometimes

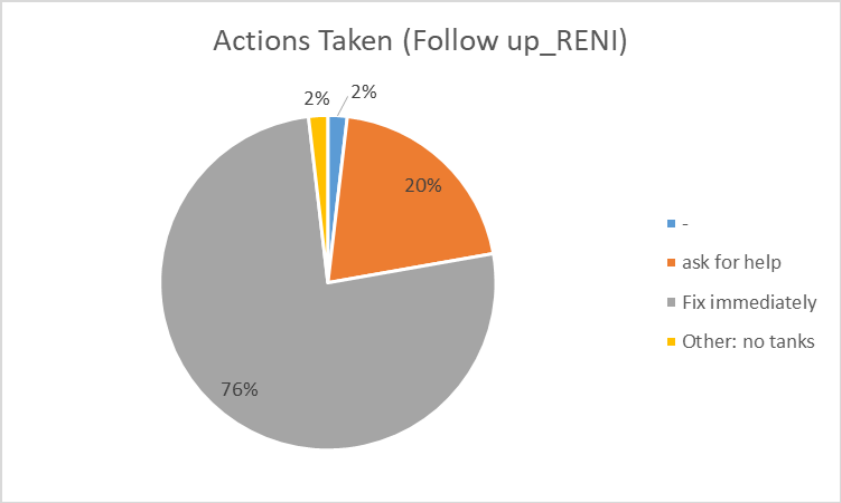

Treats Water (Baseline)
1%
1%
9%
26%
63%
- -
no -
yes boil on open fire
yes Boil on open fire, Boil using stove
yes boil using stove


Treats Water (Endline)
1%
1%
2%
0%
2%
6%
21%
67%
- -
Don't know -
No -
yes Boil on open fire
yes Boil on open fire, boil using stove
yes Boil on open fire, other: heating under sunlight
yes Boil using stove
(blank) (blank)


Treats Water (Follow up_RENI)
2%
20%
78%
don't know
no
yes







Recommendations

- Regular education and awareness programs for the community on water security and related topics in the context of climate change

- Trainings and stakeholders involvement to promote local capacity building (particularly on the maintenance of the rainwater catchment system, installation of first flush devices, etc.)
- Community involvement to foster a sense of community ownership
- Thorough consultations with community for best practices (what would work)
- Relevant government entities to continue to monitor and provide technical support where needed in relation to water security and water quality
- Water testing to continue to be conducted regularly and results to be shared with members of the community
- Information to be shared in both English and Ulithian (Fais) as indicated by 74% of the people surveyed.

Conclusion

To ensure successful implementation and sustainability of future similar projects, it is pertinent to involve and consult with members of the community in the preliminary process of planning. Community involvement fosters a sense of community ownership and allow for a smooth transition when projects get turn over to communities to sustain. Trainings and technical support to be provided to building or enhance local capacity are to be invested in as well.

Annex 1: Trip Photos

Team arrived on Fais, March 22, 2019

Preliminary inspection of some of the water tanks, cable shown to have come off as a result of rusted screws

Some of the minor damages requiring repair but unable for months now due to unavailability of materials

Youth group consultation

Men's group consultation

Women's group consultation

Group presentations and big group discussion

Individual household surveys

Annex 2: Consultation Agenda

Consultation Meeting

Agenda

Meet with the Fais Island communities to listen and discuss their perspectives on the longer-term impact of the previous projects' water security measures. Community survey of different focused group will be done to help provide us learn

1.) The project involved the installation of new water tanks and installing a pump for the well – have these measures improved the water supply for your household? If yes, in what way?
    - Distinct impacts (good or bad) felt or observed of the project on the community as a whole.
2.) How did your household manage for water during the El Nino drought December 2015/mid 2016?
3.) What would you have liked to see the project do differently?
4.) Have you experienced any challenges with the water tanks or the well?
5.) Who takes care for maintenance of the tanks and the well?
6.) If the project was repeated in another island in Yap State, are there any changes you would recommend?
7.) What was the most beneficial impact of this project to you?

****What other needed improvement community want better improve their livelihood?