



DROUGHT MANAGEMENT AND RESPONSE PLAN FOR ABAIANG ISLAND COMMUNITY

Summary



Photo: Carlo Iacovino/SPREP

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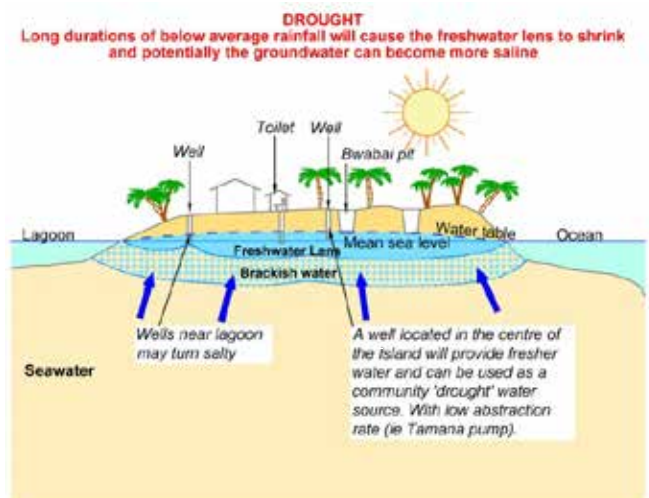
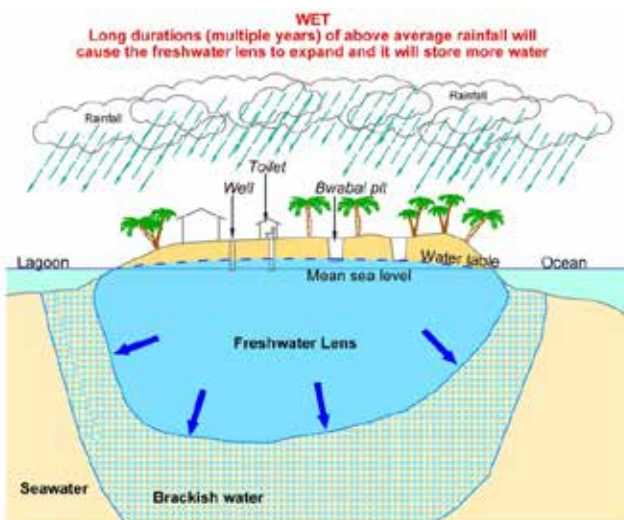
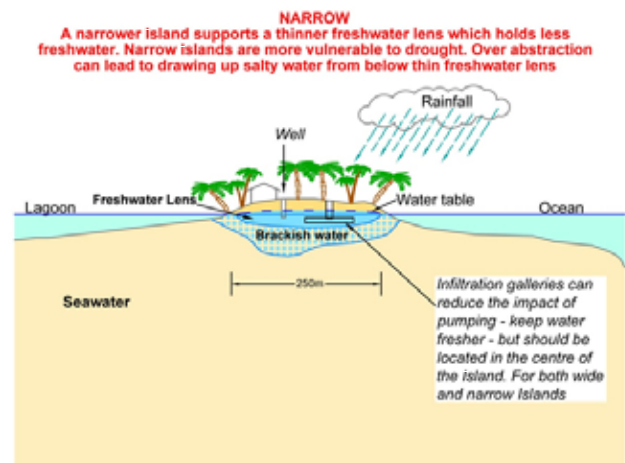
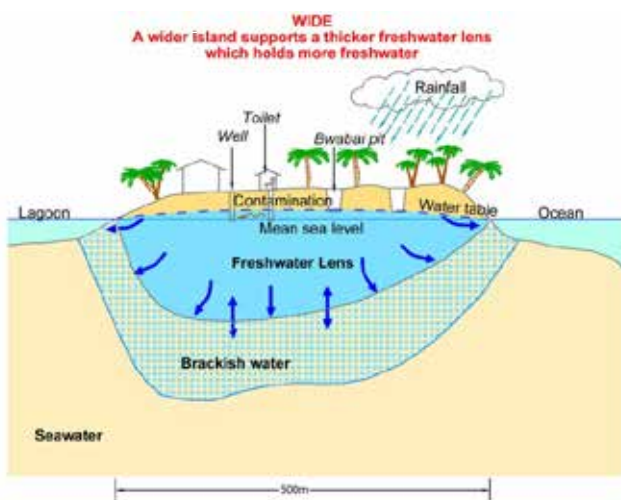


What is Drought in Abaiang?

Drought occurs in Abaiang after long periods of low rainfall. In some villages, this causes fresh well water to turn brackish and this impacts communities and individuals ability to access fresh water and maintain their health and livelihood. Drought occurs at different times in each village depending on their vulnerability to drought.

Vulnerability to Drought

The drawings below illustrate how the amount of fresh water under the ground in the freshwater lens depends upon the amount of rainfall as well as the width of the island where a village is located:



The vulnerability to drought varies between all villages of Abaiang. The impact of drought is dependent on rainfall (exposure) and the sensitivity of the community to drought (mainly island width) and also the adaptive capacity of the community. If the adaptive capacity is increased by planning and preparation, the vulnerability to drought will be reduced!

$$\text{Vulnerability} = \frac{\text{Adaptive Capacity}}{\text{Exposure} \times \text{Sensitivity}}$$

The map below indicates the villages which are the most and least vulnerable to drought. This was agreed by the Abaiang Island Development Committee (IDC) and is useful when planning for, and responding to drought.

Map: Village Drought Vulnerability



¹ Island Development Committee consists of the Island Mayor, Chairman of the Island Elders, Island Councilors, Island Clerk, Police, Agriculture Assistance, Fisheries Assistance, Teachers, Principals, Medical Assistance, Water Technician, Women Representative, Youth Representative and Faith based Organisations

Managing and Responding to Drought in Abaiang

This plan is not focused on improving infrastructure (pipes, pumps, tanks), it is about **doing what we can with the resources that we have**. It is focused on building Island Level capacity to manage drought by improving communication and guiding the actions that can be taken before the worst effects of drought occur – this will help to improve the quality of life in Abaiang villages during drought. These measures need to be taken at a village and household level and this plan will help the villages decide what actions to take before and during drought.

Conserving fresh well water near houses is important for all households in all villages. It is also important that this 'ground' water is **protected from contamination** so that it can be used during drought for drinking and cooking without affecting health. Some villages have access to rainwater in tanks for use during drought and this can be managed better, also some villages have access to water pumped to communities from wells or galleries outside of the village.

Emergency responses include transporting water to communities or relocating people to areas where they can access fresh well water.



Photo: Carlo Iacovino/SPREP



The response follows the process outlined below and illustrated in the communication plan below which was agreed with the Mayor, the Clerk, and the Island Development Committee (IDC).

1 The drought response starts with Alerts generated by Kiribati Meteorological Services (KMS) for (1) Drought watch, (2) Drought warning, and (3) Drought.

2 The IDC will then meet to communicate this to each village and remind them what they are supposed to do at this stage.

3 Villages will then set up a drought committee (based on Maneaba system or existing committees) which must include women. The committee will discuss with villagers and assess the existing drought conditions in the village including the number of households with brackish wells and their general location, they will also check the amount of stored rainwater in the village, and whether any pumped community water systems are working. The drought committee will also suggest Village Level Actions (from the Action Lists – see below) that the village is willing to take to conserve, protect and access fresh water.

4 Each village will report back to the IDC for a second meeting where the severity of drought in Abaiang is discussed and the most vulnerable villages are identified. This meeting will allow proposed village actions to be discussed and endorsed by IDC and knowledge to be shared between villages. If necessary, Island Level Actions (from Action Lists – see below) will be agreed by IDC and carried out by the Island Council. This meeting will be supported by Ministry of Public Works and Utilities (MPWU) at alert levels 2 and 3.

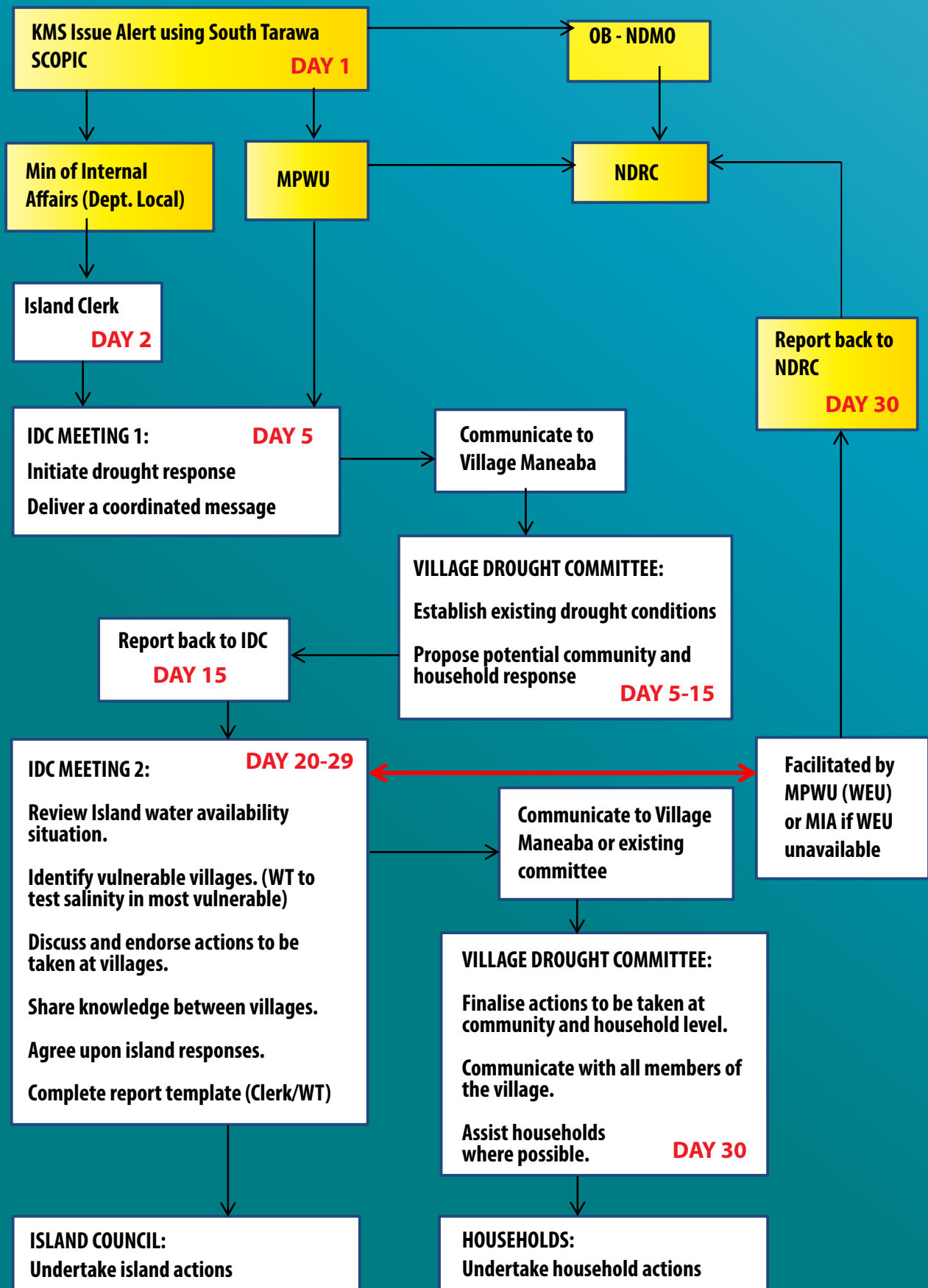
5 Village Drought committees will then finalise and undertake village and household level actions. The Village drought committee will communicate these to all members of the village and assist them where possible.

6 The Water Technician (WT) should check well salinity in some wells in the most vulnerable villages to confirm the situation with salinity data.

7 The WT and the Island Clerk (with support from MPWU at alert levels 2 and 3) will complete the Abaiang Drought Response Report (see below).

8 At Alert Level 3, a National Drought Response Committee (NDRC) meeting will be triggered where they will review all information (Island drought report 1, 2, and 3 and up-to-date monitoring data) and decide whether to declare an emergency drought situation in Abaiang. If this happens, they will coordinate any national level response through Office of Te-Beretitenti (OB) and MPWU.

Communication and Response Plan



Action Lists (GUIDELINES: select relevant actions for each village)

BRACKISH WELLS			
Action		Responsible party	Comment
COMMUNITY			
W1	If large parts of the community are affected by salinity, establish community wells where the landowner is willing to share fresh water.	Village Drought Committee.	This is an existing strategy, water should be shared with neighbours. Often this means a well further inland or towards a wider part of the island.
W2	If a community well already exists away from houses, undertake discussions with the landowner on protecting the well.	Village Drought Committee.	Recommended 10m protection zone: No animals, bwabai, and toilet. Land ownership will be an issue but it was suggested that during drought these issues will be less significant
W3	Implement village by-laws to limit collection of fresh water from to 20 l/p/d.	Village Drought Committee.	Suggested by IDC. If collecting water it is assumed it will not be wasted which assists water conservation.
W4	Water technician to monitor community well salinity on request, and to verify village vulnerability assessment	WT	Guideline for drinking is < 2500µS/cm. WT to fit this in with monthly monitoring round.
HOUSEHOLD			
W5	Identify fresh wells where the owner is willing to share.	Village Drought Committee communicate to households.	This is an existing strategy, water should be shared with neighbours. Often this means a well further inland or towards a wider part of the island.
W6	Use collected water only for drinking and cooking.	Village Drought Committee communicate to households.	If collecting water it is assumed it will not be wasted which assists water conservation.
W7	Use brackish water for all other (non-drinking and cooking) uses.	Village Drought Committee communicate to households.	Eg. washing, laundry, gardening, animals etc.
W8	Protect your fresh well from contamination. Build up walls around the well and cover it.	Village Drought Committee communicate to households.	Most wells still uncovered.

RAINWATER HARVESTING			
Action		Responsible party	Comment
COMMUNITY and HOUSEHOLD			
R1	Monitor water levels every day, communicate this to the village.	A Responsible person should have been identified at installation.	Tanks do not have gauges but it is easy to establish where water level is.
R2	Check that gutter and downpipe are in place.	A Responsible person should have been identified at installation.	Crucial that during drought, when rainfall events do occur, water is captured.
R3	Add additional gutter and downpipe to collect more water.	A Responsible person should have been identified at installation.	Crucial that during drought, when rainfall events do occur, water is captured.
R4	If materials are needed, raise funds to purchase and fit them.	The users of the system.	This was suggested during IDC consultations. Church groups have the capacity to raise funds.
R5	Rainwater should only be used for drinking and cooking. Establish by-laws through Unimane.	Unimane and village chair person.	IDC suggested this should be introduced after an Alert level 1 has been issued.
R6	No rainwater for kava sessions.	Whole community.	IDC suggested this should be introduced everywhere after an Alert Level 1 has been issued.
R7	Install a pipe to route overflow water to a nearby well.	A Responsible person should have been identified at installation.	This helps reduce salinity and improve the water quality in the wells.



Photo: Carlo Iacovino/SPREP

PUMPED SYSTEMS			
Action		Responsible party	Comment
COMMUNITY			
P1	Undertake inspections weekly.	There should already be a nominated person responsible for maintenance	Find system faults early.
P2	Repair leaks in distribution pipes and taps.	Nominated person	Repairs are depended on available resources.
P3	Contact WT to support repairs and inspections.	Community/WT/ MPWU.	WT has a direct report back to MPWU-WEU who are responsible for outer islands water resources. They can support but will have to prioritise support within Abaiang and also across other outer islands.
P4	If materials are needed, raise funds for maintenance.	Community / Church groups / users of the system	As MPWU support can be limited (see above) community water management is required. This action was suggested by communities and IDC.
P5	Reduce pumping rates/durations to conserve fresh water.	Nominated person	Pumping rates from solar systems can be adjusted (dependent on sunlight conditions).
P6	Establish by-laws through Unimane to ration fresh water to 20l/p/d.	Unimane and village chairperson	All communities consulted said that by laws could be established. Useful to engage with all community members in good water management practices



Photo: Carlo Iacovino/SPREP

EMERGENCY ACTIONS			
Action		Responsible party	Comment
ISLAND LEVEL			
E1	Transportation of water to vulnerable communities.	IC	Trucks are available but cost of transport could be prohibitive. Infiltration galleries should be used to source water. There is one located in Tabwiroa (could supply southern villages) and one in the Morikao (could supply northern villages). Uneven road adds difficulty. A pragmatic short term solution.
E2	Temporary relocation of people to low vulnerability village Maneabas or relatives with fresh wells.	IC/IDC (assistance from MIA)	For the most vulnerable households. Long stays for visitors in village Maneabas is relatively common in Kiribati. If the water resource locally is suitably fresh, communities should be encouraged to welcome 'at risk' families.
E3	Use of council funds (through the Local Government Act) to improve/repair water systems.	IC/MPWU	Requires technical assistance from MPWU (initially through WT) in identifying faults, procuring spare parts (may be available in stock), and undertaking repairs.
E4	Seek further assistance from Central Government Agencies for temporary or new infrastructure.	IC	Through MPWU to NDRC.
COMMUNITY/HOUSEHOLD LEVEL			
E5	Temporary/ permanent relocation of to lower vulnerability areas on your own land or village Maneabas or relatives with fresh wells.	Community/Household	This (permanent relocation) has occurred in Nouotaea before. In other outer islands, relocation to areas with freshwater. Requires land ownership in a suitable location or permission from the landowner.



Photo: Carlo Iacovino/SPREP

Monitoring Plan

The MPWU Island Water Technician (WT) is responsible for collecting rainfall data from the Island Council office weather station at 9am every morning when there has been rainfall in the previous day (24 hours).

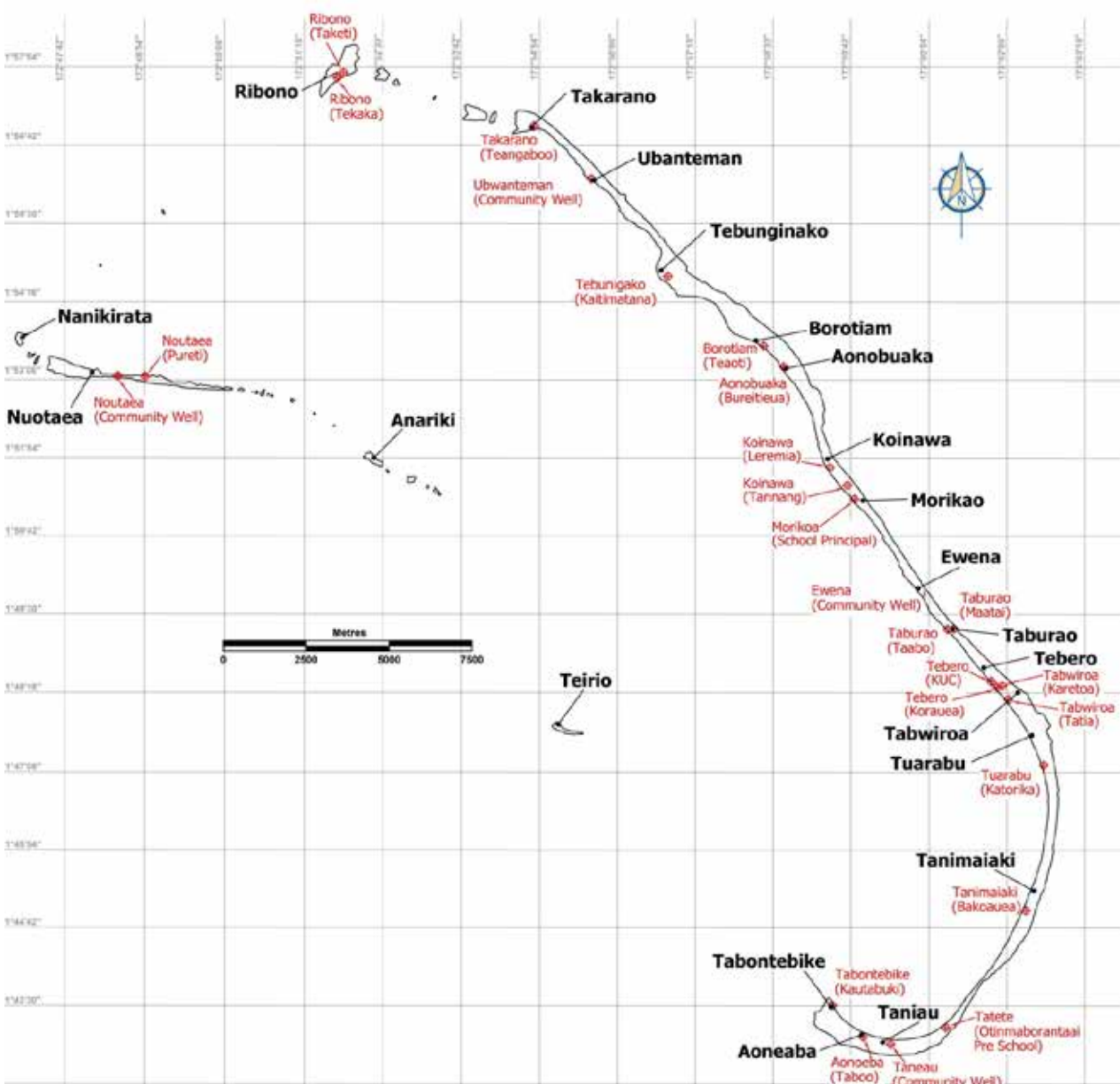
The WT is also responsible for monitoring salinity in 25 selected monitoring wells as outlined in the map below. This should be reported every month to the Island Clerk and MPWU.

This data (rainfall and salinity) will be stored by the WT for Abaiang and will be reviewed by MPWU every time a drought alert is issued. It is important that the monitoring plan is followed so that trends in salinity can be seen which will help to determine water resources and drought impact.



Photo: Carlo Iacovino/SPREP

Map: Monitoring Well Locations



Abaiang Drought Response Report Template

This will be completed by the Island WT and Clerk after (IDC Meeting 2 – see Communication and Response Plan) to record actions and report back to MPWU and national government on the situation in Abaiang.

Village drought conditions assessment						
VILLAGE	No. of households with brackish wells	Salinity checked by WT? Yes/No	Estimated current rainwater storage	Pumped system working? Yes/No	Actions taken (use code eg W2)	Other comments
Nuotaea						
Ribono						
Takarano						
Ubanteman						
Tebunginako						
Borotiam						
Aonobuaka						
Koinawa						
Morikao						
Ewena						
Taburao						
Tebero						
Tabwiroa						
Tuarabu						
Tanimaiaki						
Taniau						
Aoneaba						
Tabontebike						
ISLAND						
Actions taken (use code eg W2)		Comments				

