



REPUBLIC OF KIRIBATI ISLAND REPORT SERIES

4. Abaiang



OFFICE OF TE
BERETITENTI

Phone: +686 21183

E-mail: islandreports@ob.gov.ki

Website: climate.gov.ki

Updated 2012 by Office of Te Beretitenti & T'Makei Services

Based on a 2008 prepared by the Ministry of Internal & Social Affairs with financial support from The United Nations Development Program & the Kiribati Adaptation Project, and Technical Assistance from the Secretariat of the Pacific Community

CONTENTS

4. ABAIANG	1
Summary of Main Socioeconomic Indicators – Abaiang.....	1
Physical features.....	2
Population.....	2
Land and marine Resources	5
Land Resources	5
Water resources.....	5
Marine resources	6
Education	7
ISLAND ECONOMY	8
Copra.....	8
Agriculture	8
Health	9
Transportation.....	9
Environment	10

PHYSICAL FEATURES

Abaiang is approximately 36.72 km long with its widest width (0.92 km) found in the village of Tabontebike and narrowest (0.07 km) in the village of Tanimaiaki. Riboono and Nuotaea are in the northernmost and western part of the island, respectively. The former has a length of 1.95 km while the latter is 5.24 km long.

The mainland of Abaiang extends from the northern village of Takarano to the southern village of Tabontebike. Apart from the inhabited islets of Riboono and Nuotaea, other islets of Abaiang are uninhabited, with lack of water and remoteness from the mainland being the main issues. They however are used for fishing, copra cutting and campsites. The islets of Oobwaa and Teirio have had small motels built on them, with staff travelling from the mainland of Abaiang and from Tarawa when guests are expected.

Abaiang is suffering from coastal erosion specifically in the village of Tebunginako. Unlike some islands where erosion has been linked to construction of causeways, Abaiang has no causeways, yet coastal erosion has been the biggest physical problem for many years now. Tebunginako is one of the widest parts of the island and includes a peninsula that has been created by erosion of the coastline on the lagoon side of the village. The erosion resulted in land disappearing over the years until it reached an inland lake that was initially used as a milkfish pond, in turn creating a peninsula with the lake as a cove. A causeway was built to bridge the gap between the Roman Catholic campus and the villagers, who have relocated themselves further inland.

As far as stories going back to pre-colonial times, Tebunginako village used to be a campsite for fishing and copra cutting. There was an islet off the coastline that is being eroded away and has almost disappeared. There was also seawall work along that coastline which now can be seen; the seawall caused accretion and eventual closure of a reef-mud area between the islet and the mainland, hence Tebunginako came in existence.

Even though there are no causeways on the island, beach movement occurs with changing direction of wind, currents and waves. The removal of mangrove forests from around the area may have assisted in exposing the entire coastline from wave and wind actions in recent years. Causeways built in North Tarawa can affect water circulation around Abaiang as the two islands are closely connected and both sit on an underwater seamount running in a north - south direction. Human activities could have been the trigger for the erosion at Tebunginako, along with rising sea levels.

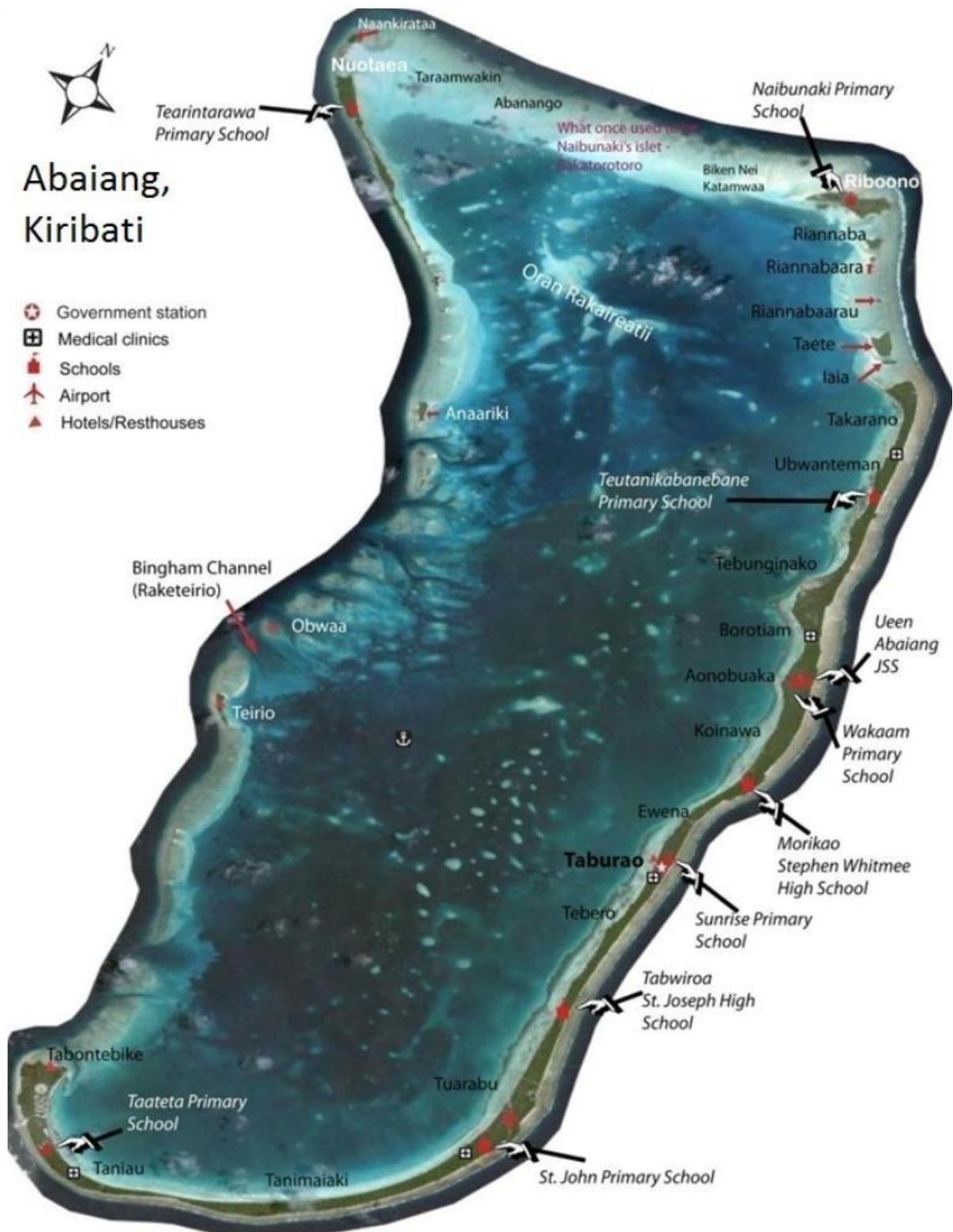
POPULATION

The 2010 census recorded a total population of 5502 people on the island. Abaiang is the fourth most populated island after South and North Tarawa and Kiritimati and is home to 5.3% of Kiribati's total population. The population of Abaiang grew rapidly between 1973 and 1995, but has remained relatively stable since as shown in Figure 4.2.

Abaiang has a combined land area of 17.48 square kilometers and a population (in 2010) of 5502, giving a population density of 315 people per square kilometer.

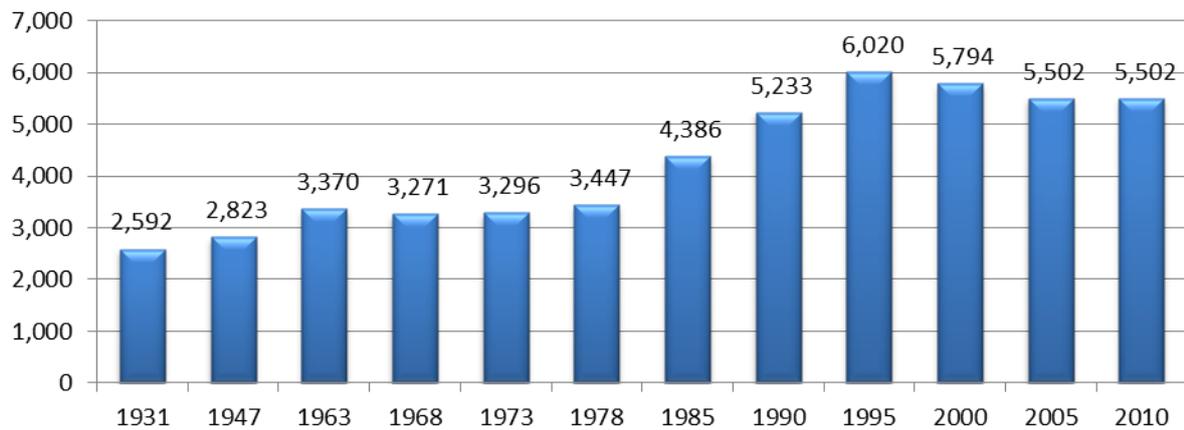
There are 926 households in Abaiang, and the average household size is 5.8 people.

Figure 4.1: Map of Abaiang



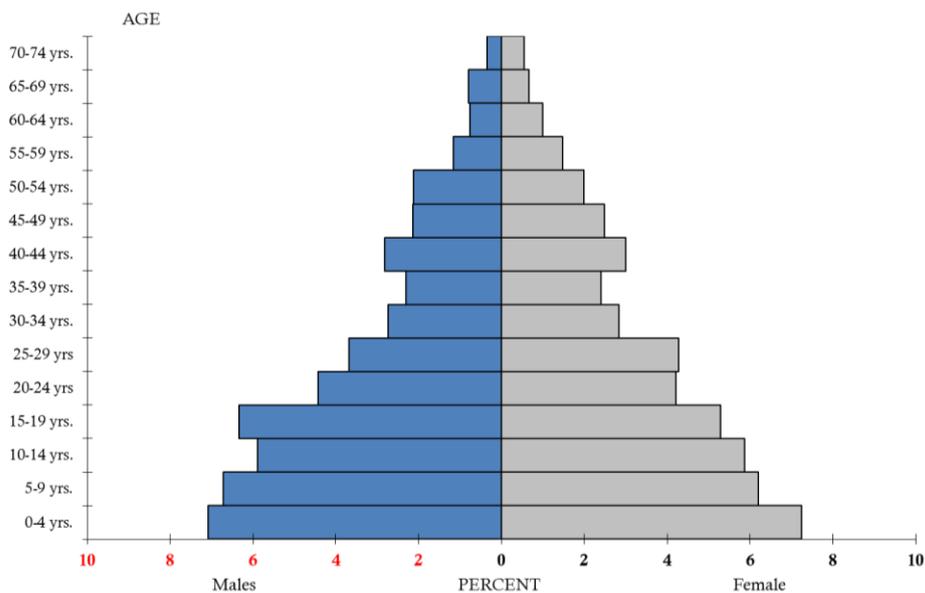
Note: Refer to Abaiang Island Profile 2008 for problem areas and sites of significance.

Figure 4.2: Abaiang Population 1931-2010



Young people aged under 15 make up 39% of Abaiang’s population, but there is no pronounced “baby boom” in the age range 0-4 years; the pattern in Abaiang is more even. The proportion of young people aged 15-19 is higher than on the other Northern islands of Makin, Butaritari and Marakei as Abaiang has two secondary schools; Stephen Whitmee High School and St Joseph's College (Tabuiroa).

Figure 4.3: Abaiang population by age and sex



There are actually fourteen villages on the island but the census records show eighteen villages. This is because the Census includes as separate the two high school locations of Saint Joseph’s College (Tabwiroa) and Stephen Whitmee High School (Morikao). The council station and another school location are also enumerated in the Census as separate villages but in many ways they function as part of the adjacent villages.

The population is spread relatively evenly across all villages as shown in Table 4.1. The two largest villages of Tuarabu (560 people) and Nuotaea (559 people) each have 10% of the population, although Tuarabu is also where Tabuiroa College is located, with a further 237 people.

Table 4.1: Abaiang population by village, 2010

Abaiang	Village	Population
	Nuotaea	559
	Ribono	341
	Takarano	348
	Ubwanteman	126
	Tebunginako	424
	Borotiam	375
	Aonobuaka	328
	Koinawa	312
	Morikao	233
	Ewena	166
	Taburao	322
	Tebero	157
	Tabwiroa	237
	Tuarabu	560
	Tanimaiaki	274
	Tebwanga	310
	Aoneaba	51
	Tabontebike	379
Abaiang total population		5502

Source: 2010 Census

LAND AND MARINE RESOURCES

LAND RESOURCES

Abaiang is faced with major constraints in agricultural production. Poor soils limit the number of agricultural crops that can be grown and the existing physical features limit the land area where agricultural or livestock activities can be extended or expanded. The island's main resources are its limited fruit tree resources predominantly coconut, breadfruit and pandanus trees. Food production in this harsh climate is further threatened by changes in weather patterns with long periods of drought and a future rise in sea level. Fortunately, the islands are not desert islands yet and thus plants and animals have better chances of surviving and adapting to the changes.

WATER RESOURCES

Even though Abaiang is located in the northern group, it still suffers from drought. Water becomes an issue during times of drought. Although water supply is abundant throughout the year, well water is prone to brackishness during prolonged droughts.

There are freshwater reservoirs on the island that can provide freshwater during long periods of drought. Tebero village is has a vast underground reservoir it shares with the neighboring villages of Taburao and Tuarabu which experience water brackishness at the first signs of

drought. This may also be linked with large number of people living in these villages. There is another water reservoir at Terikinikua site in the village of Ubwanteman that helps people during drought periods. The middle of the village of Koinawa frequently experiences water brackishness and people have to rely on the freshwater reservoirs that can be found at both ends of the village. The village of Aonobuaka normally has to move further inland towards the ocean side to get fresh water during drought periods.

Most households do not have toilets, and most people use the beaches or the bush as toilets. Bush toileting in turn leads to further threats to water quality.

MARINE RESOURCES

Accessing lagoon and deep sea resources requires owning a canoe or a boat, fishing gears, a dive certificate and other necessities. Open water fishery is not as popular as lagoon fishery, as Abaiang has a very large and productive lagoon.

Abaiang is in close proximity to Tarawa which makes it an obvious choice to carry out some of the initial marine resource into commercial species such as seaweed and pearl farming, and raising ocean clams for the international aquarium market. The islets of Nuotaea and Ribono are rich in 'te were' (*Tridacna maxima*); however, this shellfish is being overfished over the years due to high demand on Tarawa and, more recently, China.

Table 4.2: Reef and Lagoon Area, Abaiang

Island	Reef (square km)	Reef base (square km)	Lagoon (square km)	Land (square km)
Abaiang	182.15	28	74.2	17.48

Source: Ministry of Fisheries and Marine Resource Development

Fishing catches are generally used for subsistence living only and where there is surplus, this is either shared with neighbors, or sold to local consumers who are mostly Government and island council employees. Fish can also be salted and preserved for later consumption or sent to relatives in South Tarawa and Betio.

Some marine resource issues on Abaiang include:

- a. Lack and cost of fishing equipment
- b. Remoteness of the island makes it costly for fishers to access fish markets in South Tarawa
- c. Inconvenient location of ice-plant (at Tabontebike) has made salting the main way of preserving fish
- d. Depleting lagoon resources in the nearby lagoon and sea area especially 'te were' and sea cucumbers
- e. Establishment and enforcement of legally binding bylaws for use of marine resources by visiting ships/companies and the island community as well.

EDUCATION

Abaiang has a literacy rate of 92%. Of the adult population (those over 15), 19% have not attended school at all; this is a high proportion in comparison with other outer islands and particularly with South Tarawa where only 7% of the population have not attended school. 32% of the adult population have a Primary leaving certificate, 23% have a Form 3 certificate, and 23% have a Senior Secondary certificate. The proportion who hold a Post-Secondary qualification is higher than other outer islands at 3%, this is likely to reflect the number of secondary teachers linked to the island's two high schools.

There are ten primary schools on Abaiang, with a combined roll of 985 students.

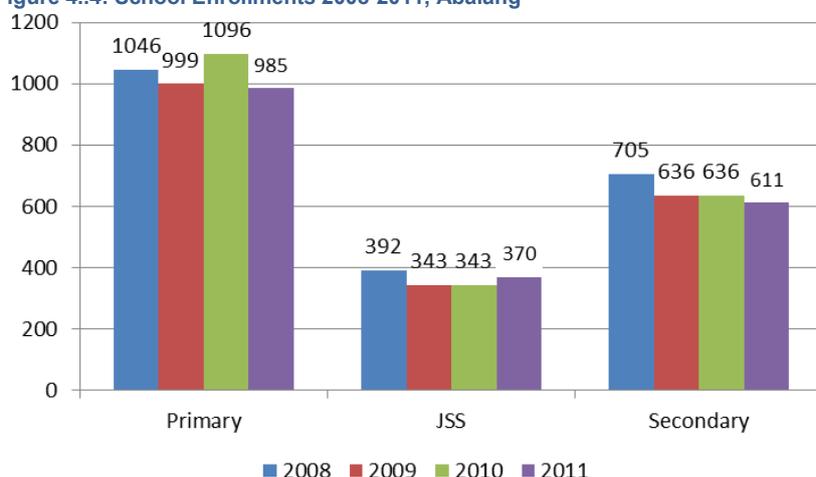
Table 4.3: Abaiang Primary School Enrollments

Abaiang	No. of Pupils			No. of Teachers		
	2011		Total	2011		Total
	F	M		F	M	
Naibunaki Primary School	26	31	57	1	1	2
St Paul	55	62	117	5	1	6
Sunrise Primary School	67	65	132	4	1	5
Tearintarawa Primary School	51	52	103	2	2	4
Unity of Tateta Primary School	64	50	114	4	1	5
Wakaam Primary School	104	108	212	5	2	7
Tebunginiman	19	7	26	1	1	2
Ueen Nei Arauri - Satellite	30	29	59	3	0	3
Taiwan Primary School	57	71	128	2	2	4
Tanimaiki Satellite School	21	16	37	1	1	2
Total	494	491	985	28	12	40

Source: Kiribati Education Digest 2011

At the JSS level, there are 212 students at the Ministry of Education JSS, Ueen Abaiang, which is located between the villages of Koinawa and Aonobuaka, at the ocean side of Wakaam Primary School. A further 135 students are enrolled at JSS levels at St Joseph's College Tabwiroa and 23 students at JSS levels in Steven Whitmee High School, making 370 JSS level students in total.

Figure 4.4: School Enrollments 2008-2011, Abaiang



Data source: Kiribati Education Digest 2011

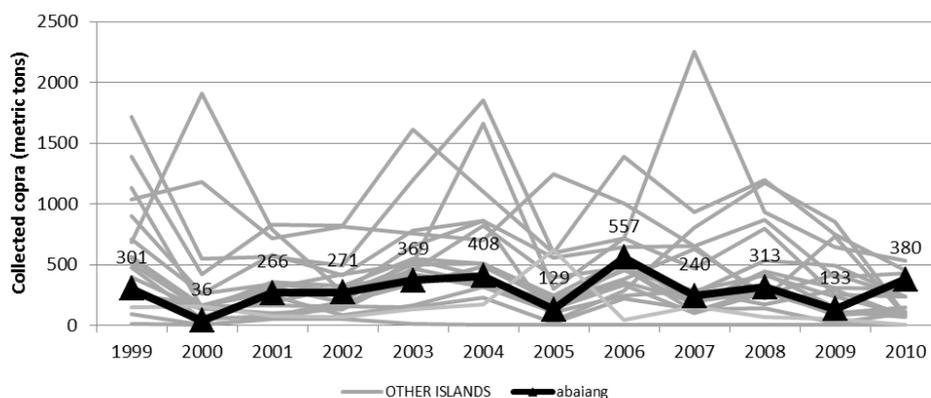
The two high schools of Morikao and Tabuiroa accommodate students from all over the country who have gained entrances into the schools and are therefore a mix of students from Abaiang and other islands of Kiribati.

ISLAND ECONOMY

COPRA

The best year of copra production for the island in recent years was in 2006 when their production reached 557 tonnes bringing in a total income of \$334,200. The most recent statistics on the island copra production was at 380 tonnes in 2010.

Figure 4.5: Abaiang copra production (collected copra)



Data Source: Statistics Office MFED

The worst year of copra production was in the year 2000 when its annual production was a mere 36 tonnes that brought an income of \$16,200.

Of course, copra is not the only means of income for the people on the island as there are other means of income such as remittances, stevedoring, council contracts, fishing and handicrafts. Sea cucumber export is also a rising income earning opportunity for people on Abaiang that is leading to depletion of sea cucumbers along the waters of the islands. Farming of ocean clams for export as aquarium fish is a new business opportunity that is providing some employment on Abaiang.

In Abaiang, a lot of the money received is for school fees and pocket money for students in the two high schools on the island, Stephen Whitmee High School (Morikao) and St. Joseph College (Tabwiroa). 8% of Abaiang families receive remittances from seamen working abroad. Other income sources were copra, the Central Pacific Producers (CPP) ice-plant and sea cucumber agents.

AGRICULTURE

The main agricultural activities include cutting toddy, cultivation of bwabwai, planting of breadfruit, bananas, pawpaw, 'te bero' and pandanus for subsistence living. Every household apart from visitors' households have their own bwabwai pits, either near by the

village or in the bush. In many islands ‘*bwabwai*’ (giant taro) is considered as a reserve food particularly for important community functions but in Abaiang, it can also be part of the staple diet depending on the number of ‘*bwabwai*’ cultivated.

Breadfruit is planted and the fruits are used as part of the daily diet. Most households have their own breadfruit trees that are usually planted along the main road in villages or near homes so that they can be looked after during the early stages of growth. Unlike coconuts and other tree crops, breadfruit is the most vulnerable to drought and thus has to be kept nearby for management during drought times.

HEALTH

There are eight (8) clinics on the island of which two are located on each of the islets of Nuotaea and Riboono and the rest six scattered within the 18 villages of Abaiang as follows:

No.	Clinic location	General information
1	Tabontebike	Supervised by a nursing officer and is accessed by the Tabontebike community
2	Tanimaiaki	Nursing Officer in charge and caters for the Tanimaiaki and Taneau community
3	Taburao	A bigger health centre located near the Island Council, Medical Assistant is in charge as assisted by a nursing officer and is accessed by people from the villages of Taburao, Tuarabu, Tebero and Ewena
4	Koinawa	Nursing officer in charge and clinic accessed by people from the villages of Koinawa and Aonobuaka
5	Borotiam	Nursing officer in charge and clinic is accessed by the Borotiam and Tebunginako community
6	Takarano	Nursing Officer in charge and accessed by Takarano and Ubwanteman community
7	Riboono (islet)	Supervised by a Nursing Officer
8	Nuotaea (islet)	Supervised by a Nursing Officer

On average, people in Abaiang make 2.9 visits to the clinic each year, with the most common notifiable diseases being diarrhea and respiratory infections as in most other islands. Relative to other outer islands there are a lot of clinic visits for conjunctivitis, and also for night blindness which is linked to vitamin A deficiency.

TRANSPORTATION

Land and sea transportation on the island is not an issue as the Abaiang Island Council has three trucks and people have their own pushbikes, motorbikes, canoes and boats. The issues lean more toward a bad road that is riddled with potholes and prone to dust during periods without rain, and to flooding during rainy periods, as well as the high cost of both land and sea vessels.

There is a regular air and shipping service between Abaiang and Tarawa, with three flights each week and usually at least one boat but cost is an issue for inter-island travel and particularly for export of local produce and handicrafts.

ENVIRONMENT

Drought is an ever-present threat to Abaiang. Drought kills off land vegetation and where it does not, the fruits are affected in size and thus production and income decrease.

Coastal erosion on Abaiang has been a major environmental problem since the locals can recall with 13 erosion sites on Abaiang, as listed below:

- i) Tabontebike at the southernmost tip of the mainland - concern for this site is that the beach crest will be eroded (breached) and therefore will result in the flooding of the backshore areas. The accelerated erosion at this site appears to be direct result of aggregate mining.
- ii) The second erosion site is at Tabontebike located on the eastern coast of the island where the rest house is and further down north, accretion is occurring.
- iii) The southern coast at the lagoon side of Taniau village is also eroding, threatening private structures.
- iv) The northern lagoon coast of Tanimaiaki at Teraereke is also affected by coastal erosion.
- v) Apart from small breaks, the whole coastline from Tuarabu to Taburao on the lagoon side is eroding.
- vi) Both lagoon coasts at the end of the village of Ewena are eroding while the central part is accreting.
- vii) The whole lagoon coastline of Koinawa is eroding.
- viii) The whole lagoon coastline of Borotiam is also eroding away.
- ix) The erosion at Tebunginako is extreme and has now reached the fishpond (which is no more) creating a peninsula with the Catholic campus standing on one side of the bay and the village on the other side.
- x) The village of Ubwanteman presently does not suffer from coastal erosion but further towards Takarano, there is extreme erosion from Akina to Tamoia where trees are already standing on the beach and public roads are on the verge of destruction.
- xi) Further north, erosion again starts at Kainiwenei and ends at the southern end of the village of Takarano.
- xii) At the northern tip of Takarano, extreme erosion has been experienced and is still ongoing especially towards the ocean side of the tip of the island. On the lagoon side at the same tip of Takarano, it has eroded and accreted over the years.
- xiii) The ocean side of Riboono at Nakirikiri and lagoon side at Tebikouea are also eroding.

The whole of Abaiang suffers from various events related to coastal erosion or some other phenomena.

The most extreme erosion that is threatening communities and their assets is at the village of Tebunginako where a village *mwaneaba* has fallen, a fishpond is now turned into a bay/cove, villagers have re-located further inland and a church building on the verge of destruction. The history of erosion in this village is tied to the closing of a channel at the end of the village in either the late 1960s or early 1970s after which, shellfish resources soon died and erosion started south of where the channel was built while accretion occurred north

of where the channel was closed. Presently, the villagers are in disagreement over the re-opening of the channel as the southern villagers support the idea and the northern villagers (who are experiencing accretion) do not agree.

In effect, the whole of Abaiang is suffering extreme erosion and inundation to the point that some public and private assets are at risk. Coastal erosion concerns dominate the list of environmental concerns generated by Abaiang participants at the 2011 National Summit, as listed in Table 4.2 below. (Refer to Abaiang Island Profile 2008 for detailed map of problem areas and areas of significance.)

Table 4.4: Environmental and Climate Change Issues and Impacts, Abaiang

ISSUES	PROBABLE CAUSE/S	IMPACT on SOCIETY	REMEDIAL ACTION	SUSTAINABILITY (EFFECTIVENESS)
Coastal Erosion	-Global warming	-reduction in land masses especially at Tebunginako village	-relocation of villages further inland	-questionable
	-aggregate mining	-13 sites affected including islets-Tabontebike, Taniau, Tanimaiaki, Tuarabu, Ewena, Koinawa, Borotiam, Tebunginako, Takarano, Kainiwenei, northern tip of Takarano, Ribono at Nakirikiri and lagoon side at Tebikouea	-mangrove planting	
	-high sea surges		-use national and SOPAC expertise embedded within Mineral Unit at MFMD	-sustainable
	-closing of a channel at the end of the village of Tebunginako in the late 1960s and early 1970s			reopening the channel could be sustainable but costly and will have negative as well as positive effects

ISSUES	PROBABLE CAUSE/S	IMPACT on SOCIETY	REMEDIAL ACTION	SUSTAINABILITY (EFFECTIVENESS)
Water	- frequent and prolonged droughts	-dry vegetation -water turns brackish -kills land vegetation -fruits are affected in size -decrease in income	-concrete cisterns to be built -water tanks and aluminium roofing should be provided to residents -buy own iron roofing	-once obtained all will be sustainable in the long run - encourage self reliance
Reduction in marine resources	-sea cucumber of various types are being overfished -exported overseas -bwaraitoa shellfish not abundant	-decrease in income generation -positive impact in terms of export potential	-white teat is bred in artificial tanks -bwaraitoa shellfish is bred for future use	-takes time -takes time to yield -takes time

ISSUES	PROBABLE CAUSE/S	IMPACT on SOCIETY	REMEDIAL ACTION	SUSTAINABILITY (EFFECTIVENESS)
	<p>-pearl not abundant</p> <p>-“te were” is being depleted by overfishing</p>	<p>-positive impact in terms of export potential</p> <p>-less <i>were</i> for islanders to eat</p> <p>-less stock for sale</p>	<p>-bred and deployed to other islands</p> <p>-opt for other fishing activities</p>	<p>Encourage islanders through awareness programs coordinated by govt.</p> <p>- Encourage conservation</p>