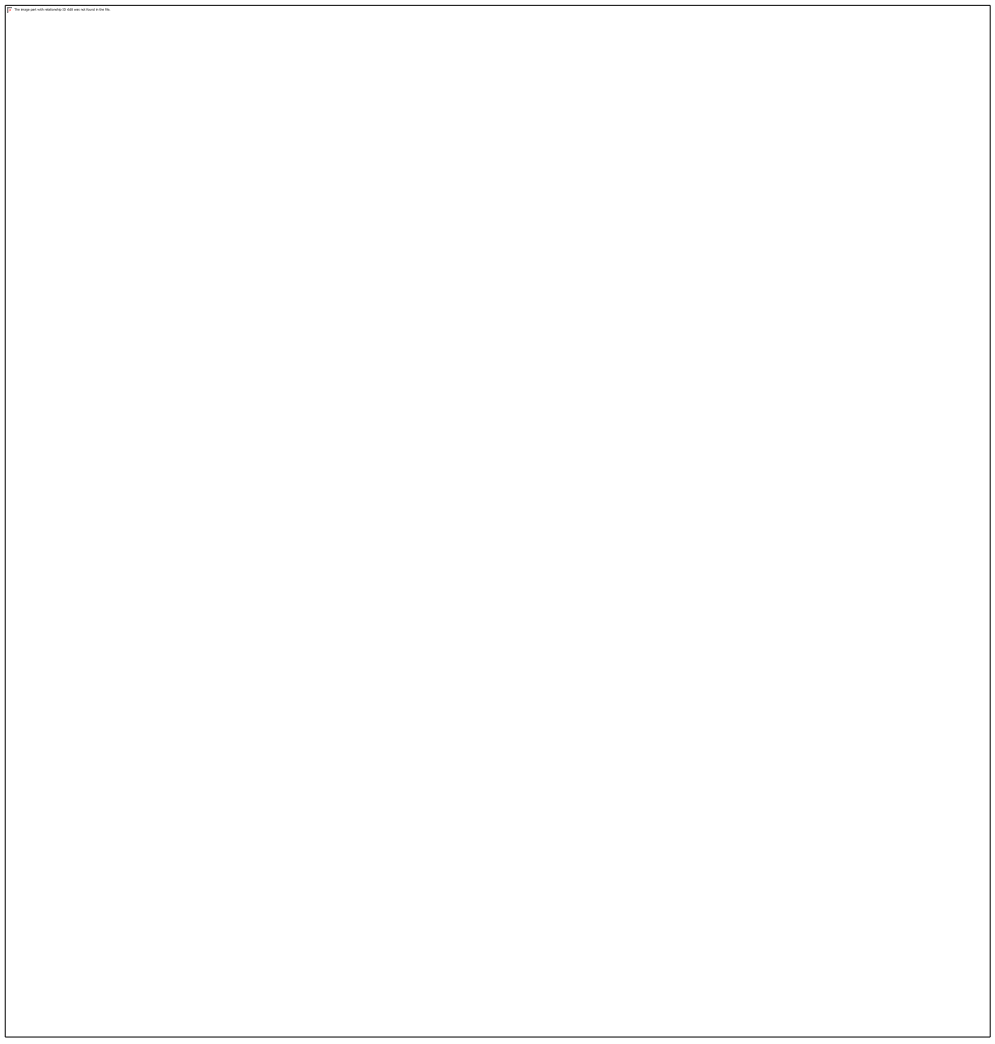
Integrated Vulnerability Assessment

(IVA)

NONOUTI ISLAND



INTRODUCTION

As part of the work conducted collectively through the Kiribati National Experts Group (KNEG), Nonouti was one of the islands, located in the southern group (Gilbert Island Group) which was earmarked as a vulnerable island due to its geographical location, distance from South Tarawa (Capital island), population size and constant reports as a result of extreme weather events and prolonged impacts from climate change.

The IVA was therefore conducted based on the advice from KNEG seeing as Nonouti ranked as the 2nd Most Vulnerable Island in the Southern Island group. The IVA in Nonouti was supported by the Least Developed Countries Fund (LDCF 1- Food Security project) in addition to 2 other islands (Abemama and Maiana).

IVA Framework

The IVA Framework is designed as a generic guide for planning, implementing and reporting an integrated vulnerability assessment (IVA) that targets atoll communities in the Pacific Islands region. It is based on a sustainable livelihoods-based approach that combines the assessment of vulnerability to both climate change and disasters. An analysis of previous vulnerability assessments approaches in the Pacific Islands region suggests the importance of merging vulnerability and risk based assessments. According to the fifth assessment report by Intergovernmental Panel on Climate Change (IPCC) defines vulnerability as the 'propensity or predisposition to the adversely affected', that includes 'sensitivity or susceptibility to harm and lack of capacity to cope and adapt (IPCC 2007). Similarly, vulnerability is defined by the United Nations International Strategy for Disaster Reduction (UNISDR 2011) as the 'characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard'.

The IVA framework combines the principles and components of the other frameworks that have guided previous assessments in the Pacific (SOPAC 2004; Limalevu 2009; USP 2011; McNamara et al .2012; Nakalevu 2006; Duncan 2001). The framework incorporates the GIZ climate change vulnerability framework and the Sustainable Livelihoods Framework (SLF) (DFID 1999). The broad categories of analysis in generic vulnerability framework (Figure 4) pertain mainly so climate-specific vulnerabilities in terms on exposure, sensitivities and adaptive capacity while the sustainable livelihoods framework (Figure 3) focus is on people's access to various resources (natural, infrastructural, human, finance) to support their livelihood needs and the institutional structures and processes that influence people's resources access and use.

Methodology

Three main key component of an IVA exercise adopted in this IVA data collection exercise which include; 1) Community consultations using a Participatory Rural Appraisal methodology 2) Household Survey 3) Sector - specific technical assessment. These are the three mechanisms used to produce information (data) that would appraise the current situation in view of the vulnerability situation on the island. The parameters used determined the vulnerability status of an island which reflected on the socio-economic and environmental situation as a consequence of a climate change impact and disaster risks interacting with the human security objectives and livelihood assets.

Geographic Overview

Nonouti is the third largest island in the Gilbert Group according to land area (19.85 sq.km) and the fifth largest in the country when counting Kiritimati (1st largest) and Tabuaeran (2nd largest). It is 36.72km long, 0,92 km at its widest, and 0.07 km at its narrowest point. There is an islet on the northwest side of the atoll called Noumatong. Noumatong is uninhabited and is reserved as a bird sanctuary. The eastern area of the atoll consists of tiny islets and islands which form a continuous line with a length of 35 km and a width of 15 km.

The lagoon is sprinkled with shoals and sandbanks. A narrow opening in the western reefs allows access to the large lagoon by medium sized vessels. The northern part of the island has several interisland reef passages now connecting some northern villages with causeways.

The main source of drinking water is underground water that is tapped through wells dug 3-5 meters into the ground. The quality of groundwater, especially at the northern and southern portions of the island are easily affected by prolonged droughts which are common and frequent. Not only is the livelihood of the population dependent on the quality of groundwater but terrestrial fauna and flora.

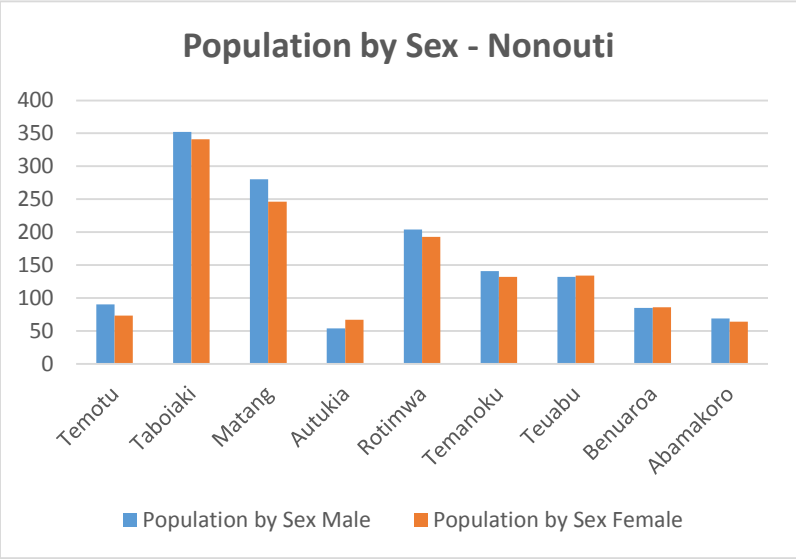


Figure 1 Extracted from the 2015 Census Vol. 1

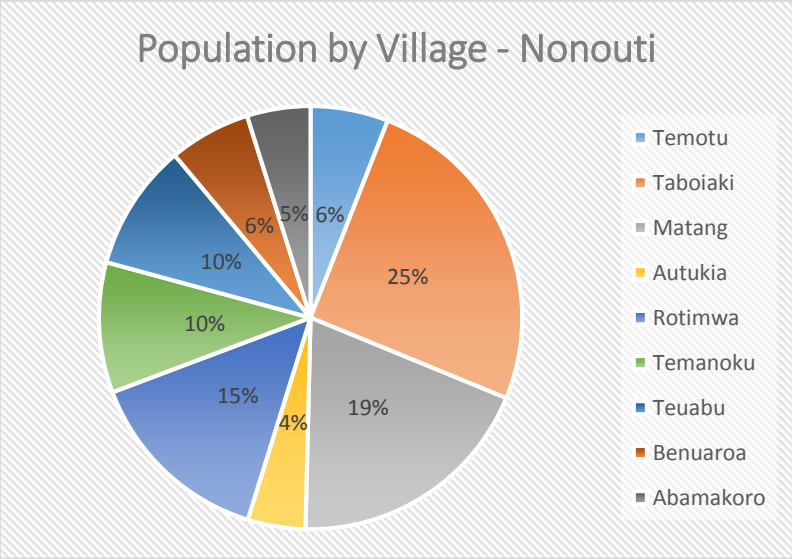


Figure 2 Extracted from the 2015 Census Vol. 1

It is clear from the chart that a large proportion of the people live in Taboiaki village numbering 25% of the total 2,743 Nonouti population. Taboiaki is the largest village of Nonouti and thus holds the most population of the island. Based on the population by sex chart, the general population has almost an equal number of men to the ration of women found across all villages.

Land is owned by the families and the people in general. A small area is also leased by the various religious groups and the Cooperative Society. Islets between the village of Tebuange and Abamwakoro are owned by many families with connections to ancestors that used to live on the islet.

Noumatong is a bird sanctuary and is protected as a conservation area, cared for and looked after by Nonouti Island Council. The people living on the islet of Abamwakoro are given the authority of guarding Noumatong and Tabontenaa from poachers.

Villages consist of lines of houses that are built in a linear formation following the general pattern of the island. The main-road is built through village and runs along the length of the island. A large portion of the land is used up by wild bush and cultivated coconut, few bwabwai, breadfruit, te bero, and pandanus tree. The island is covered in shrubs and fruit trees. Other plants include pandanus (Pandanus tectorius), breadfruit trees (Artocarpus altilis) and bananas (Musa sp.) that grow mostly in village area'

The terminologies used to describe the vulnerability is defined below;

Table 1

Terminology	Description in adaptation context
Sensitivity	The degree to which a system or species is affected, either adversely or beneficially by weather, climate variability and change. The effect may be direct (e.g a change in crop yield in response to a change in the mean, range or variability of a temperature) or indirect (e.g damages caused by an increase in the frequency of coastal flooding due to sea level rise)
Exposure	The presence of people, livelihoods, species or ecosystem, environmental services and resources, infrastructure, or economic, or cultural assets, in places that could be easily affected.
Adaptive capacity	The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences
Vulnerability	The propensity or predisposition to be adversely to be affected. Vulnerability encompasses a variety of concept, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt

PARTICIPATORY RURAL APPRAILS RESULT (PRA)

The PRAs conducted on Nonouti saw consultations with each village to gather information pertaining to the changes that the communities had noticed over different time periods and whether climate change impacts had caused major impacts and associated changes were heavily noticed by the consulted communities/villages.

Table 2

Villages		Men	Women	Youth	average
Temotu	Exposure	3.0	3.0	3.1	3.0
	Sensitivity	1.4	1.5	1.8	1.6
	Adaptive Capacity	2.5	2.3	1.7	2.1
Taboiaki	Exposure	3.0	NA	NA	3.0
	Sensitivity	1.5	NA	NA	1.5
	Adaptive Capacity	2.0	NA	NA	2.0
Matang	Exposure	2.0	NA	NA	2.0
	Sensitivity	2.0	NA	NA	2.0
	Adaptive Capacity	2.0	NA	NA	2.0
Autukia	Exposure	2.9	3.1	NA	3.0
	Sensitivity	1.3	1.3	NA	1.3
	Adaptive Capacity	2.0	2.0	NA	2.0
Rotimwa	Exposure	3.0	3.1	NA	3.0
	Sensitivity	2.0	1.0	NA	1.5
	Adaptive Capacity	1.9	1.8	NA	1.9
Temanoku	Exposure	3.1	3.0	NA	3.0
	Sensitivity	1.8	1.7	NA	1.7
	Adaptive Capacity	2.1	2.2	NA	2.2
Teuabu	Exposure	3.2	3.1	3.0	3.1
	Sensitivity	2.0	2.0	2.1	2.0
	Adaptive Capacity	2.0	1.8	1.7	1.8
Benuaroa	Exposure	2.5	3.4	NA	2.9
	Sensitivity	2.3	1.0	NA	1.7
	Adaptive Capacity	1.8	1.9	NA	1.8
Abamakoro	Exposure	3.0	3.0	3.2	3.1
	Sensitivity	1.0	1.0	1.3	1.1
	Adaptive Capacity	2.2	1.8	1.8	1.9

The following results show the issues expressed in terms of the exposures, sensitivities and adaptive capacity at the village level and therefore represent village and community level strengths and weaknesses in line with climate change and disaster related impacts. While this does not correlate to the Human Security Objectives in other IVA reports, the vulnerability of each village can be determined through the calculation using the formula below.

Vulnerability is the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concept, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt. Further vulnerability is described by the interaction of the three scenarios; exposure, sensitivity and adaptive capacity thus as follow. The vulnerability ranking is based on the following scale 1-5 and where 1 (high vulnerable) and 5 (least vulnerable)

Vulnerability =	**Exposure x Sensitivity**	**2.9 x 1.6**	**2.4**
	Adaptive Capacity	**2**	

Water Security

The 2005 census recorded that 22 households have access to rainwater, 1 to piped water, 476 to open wells, 81 to protected wells and 557 have access to both open and closed wells.

The islets of Tebuange and Abamwakoro experienced from brackish water during prolonged droughts. This is due to their narrow geographical formation, hence their water lens is thin. Fresh water is fetched from the neighbouring islet of Tabukaokao.

Abamwakoro, Tebuange and Matabou (later two are sub-villages of Benuaroa) are facing seawater intrusion and overtopping into their underground freshwater lens especially during high king tides. Cases in point are Mataboou and Tebuange that are badly affected by causeways built there thus resulting in coastal erosion and loss of land. Because the thickness of land dictates underground fresh water lens loss of land at northern end of Mataboou where a village was originally located has forced villagers to move further inland abandoning their former homes. Similarly, coastal erosion at the southern portion of Tebuange has caused worsened seawater intrusion to bwabwai pits and extending towards a village. Consequently, Tebuange villagers will have to move back to the former village site sooner.

The community on the islet of Abwamwakoro has been living on brackish water for generations and find the idea of being relocated amusing as they have lived like that for as long as they can remember and have adapted well to the status of their water supply to the point that they get running stomachs when they drink fresh water from the mainland or rain. The people have never considered relocation and have rarely asked for water projects. However, foreigners especially nurses, teachers and pastors working on the islet have found it necessary to seek assistance in the provision of rainwater tanks for their livelihood.

Community Health

There are six clinics and one health center on Nonouti. The clinics are located each in the villages of Teuabu, Temotu, Taboiaki, Rotimwa, Matang, and Abamwakoro, while the health center is located in the island's administrative center, Matang village. The MA is in charge of 2 nurses and 4 nursing aids. The MA and nurses are paid by the central government while the nursing aids are the responsibility of the Island Council of Nonouti.

The health center and clinics have facilities to accommodate patients who are admitted for medical supervision. These health facilities are as follows:

i. Health Center: 1 health center, 3 wards, 3 cooking houses and 3 toilets
ii. Teuabu Dispensary/clinic: 1 clinic, 3 wards, 3 cooking houses, and 3 toilets
iii. Temotu Dispensary/clinic: 1 clinic, 2 wards, 2 cooking houses, 2 toilets and.
iv. Baroronga Dispensary/clinic: 1 clinic, 3 wards, 3 cooking houses, and 3 toilets
v. Tebobonga Dispensary/clinic: 1 clinic, 2 wards, 2 cooking houses, 2 toilets and
vi. Abamwakoro Dispensary/clinic: 1 clinic, 3 wards, 3 cooking houses, and 3 toilets
vii. Matabou Dispensary/clinic: 1 clinic, 2 wards, 2 cooking houses, 2 toilets

The health center and clinics are built from permanent construction materials, while the wards, cooking houses and toilets are of local material. Various surveys on the condition of medical facilities undertaken over the course of the past few years show that maintenance of medical facilities on most of the islands including Nonouti have been neglected, resulting in the deteriorating condition of both local and permanent buildings. The main cause of this problem is the lack of maintenance funds. The most common diseases on Nonouti Island are fever, cough, headache, stomach-ache and diarrhea.

Coastal Health

Coastal erosion and inundation during storm surges and high tides is becoming a reality that the people have very low awareness of and see no other solution than to build more seawalls or relocating to other unaffected parts of the village or island. Many locations on Nonouti have been seriously eroded, resulting in the relocation of infrastructure (road, buildings, etc.) or the recurrent high expenditure of maintaining seawall protection.

Nonouti, is one of the biggest island in the Gilbert group and thus over the years the construction of causeways has been carried out to connect the mainland to those on the islets. This has resulted in a lot of coastal erosion problems over the years. Topped up with land reclamation by the churches and individuals, parts of the island are eroding while others are accreting.

The bird sanctuary of Noumwatong is undergoing serious erosion at western side due to stronger currents from the western open sea; because of the closure of reef passages along the main island there are no counter water currents from those passages because of causeways. So far five passages have been closed off, one at Routa, Tereiango, Tebuka, Buariki and the most recent one is Benuaroa-Mataboou passage. Noumwaatng will eventually become a sandbar and further reduced to nothing in the years to come. Consequently, birds are slowly moving to the next uninhabited islet, Tabontenaa. It is not only on these two islets that serious erosion is taking place but also along the coastal region of the lagoon side of the whole island.

Security of Place

Bad inundations have been experienced in the village of Teuaabu at the section of Kaaran, Tekatuai and Tekaaroboi where people have walked in knee deep seawater that seeped in from the lagoon side during one of the high tides in recent years. This area still gets flooded every high tide along with other areas of the same village. The destruction that these floodings do are extreme in the sense that they result in salty wells, dying fruit trees especially breadfruit and 'bwabwai' and great discomfort to villagers especially those whose homes are at ground level.

Energy Security

Figure 3.

Figure 3 shows the volume (in liters) of three major types of fuel sent to Nonouti by the year 2001 to 2006. In terms of volume, unleaded petroleum (commonly known as benzine) has been the most commonly used fuel on the island, followed by kerosene and diesel. The chart shows that the volume of fuel sent by KOIL to Nonouti Island between 2001 and 2006 has generally increased, with unleaded petroleum constituting 67% of total requirements, kerosene 23% and diesel 103% (average of combined fuel requirements from 2001 to 2005). It is anticipated that the proportion of unleaded fuel will increase as the use of automotive machines and equipment (portable generators, outboard engines, motorbikes, etc.) becomes more widespread. Conversely, around the year 2006 Nonouti had a very less share of only 532 tons of benzene, 220 for Kerosene and 108 tons for diesel, reasons underlying the circumstances are particularly unknown.

Income Security

Copra cutting is an important activity that provides a steady source of income for many people on Nonouti. At $0.60 cent per kilogram the total revenue from copra was approximately $240,000 in 2003, $1,020,000 in 2004 and $120,000 in 2005. This means that from copra production each household generates on average a total of $472.40 in 2003, $2007.90 in 2004 and $222.20 in 2005.

Table 3: Copra production and revenue 2003-2005

Year	Tons	Total income	Income Per H/hold
2003	400	$ 240,000.00	$472.15
2004	1700	$ 1020000.00	$2007.90
2005	200	$ 120,000.00	$222.20

Source: National Statistics Office, 2007

The lowest production figure for Nonouti was 147 tons in 2000, and the most productive year was 2004 when it soared to 1700 tons. The jump in production was caused by a rise in copra price introduced in 2004.

Apart from copra in other words coconut, there are other types of crops of which outer island people also cultivate as their necessity means of their diurnal food supplier. Such food crops include breadfruit, pawpaw, sweet potatoes, pandanus, cabbage, tebero and bwabwai.

With limited employment and income-generating activities, many people on Nonouti depend to a great extent on remittances sent to them by relatives working in Tarawa or overseas. The general flow of seafarer's remittances into the country is continuous and has increased over the years with more engaged in seafaring employment. There are now two major employers of seafarers from Kiribati: 1. South Pacific Marine Services (SPMS) and; 2. The Kiribati Fishing Services (KFS).

Food Security

Typical subsistent activities include fishing, toddy cutting, cultivation and harvesting of food crops mainly coconut, pandanus, breadfruit and bwabwai. These activities are performed by the adult members of a family, while the younger members are expected to collect firewood and fetch water, clean the kaainga's compound, and assist the adult members to do the easy part of their chores. The predominant food crops on Nonouti are breadfruit; banana, pandanus, and coconut. Each family has its own bwabwai pits, breadfruit and toddy trees. Home gardening is not common but some households have their own vegetable gardens where they grow tomato, cabbage, cucumber and eggplant mainly for home consumption. Some people sell their local crops to business agents in Tarawa.

The main animals reared by the islanders are pigs and chickens, for home consumption. In 2005 the total number of pigs on Nonouti was 2293, with 93 % of households owning at least 4 pigs on average. There were approximately 3471 local chickens.

Since Nonouti is big with a real big lagoon and reef area, fishing is not restricted to the ocean flat and deep ocean only but provides two category option of fishing choices, the ocean and lagoon. The 2005 census records show that out of 540 households on Nonouti where 249 (74.3%) fish on the ocean flat while 315(62.1%) venture in small canoes and boats to fish in the lagoon surrounding Nonouti.

Due to its large reef area Nonouti has a wide variety of fish resources. Nonouti has such an abundance of fish resources in the lagoon that most of the people engage in net fishing most of the time and rarely go deep or line fishing. Of course, there are those who go fishing in the ocean for sharks and tuna but according to the people of Nonouti, most do not see any reason to go far to harvest the fish when they can get it near in the lagoon and faster using a net. It is extremely rare for the people on the island to suffer fish shortage.

Generally, the main issues concerning fisheries include:

a. Lack of fishing equipment
b. Depletion of the different species of sea cucumber especially the white teat fish and other
c. Remoteness of the island makes it hard for them to access fish markets in South Tarawa
d. Increase of algae in the lagoon waters has prompted people to fish further for sea worms
e. Change in lagoon fish sites and migration

HOUSEHOLD SURVEY RESULT (HH)

The Household surveys were conducted to the sample size of 10% of the total households on Nonouti, and where key questions in support of the statements provided through PRA would be accounted for using this method of surveying. A total number of 362 people were surveyed accounting for 71 households on Nonouti.

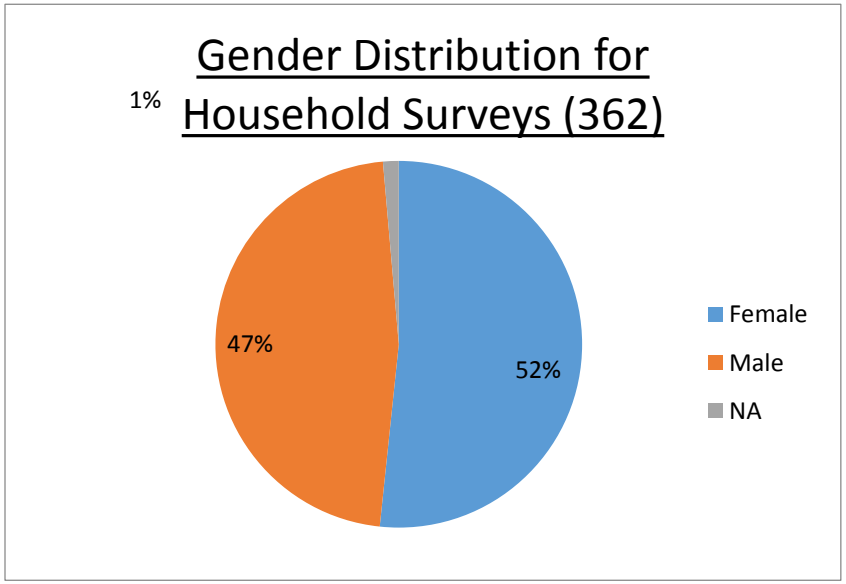


Figure 4 - Gender distribution of HH surveyed

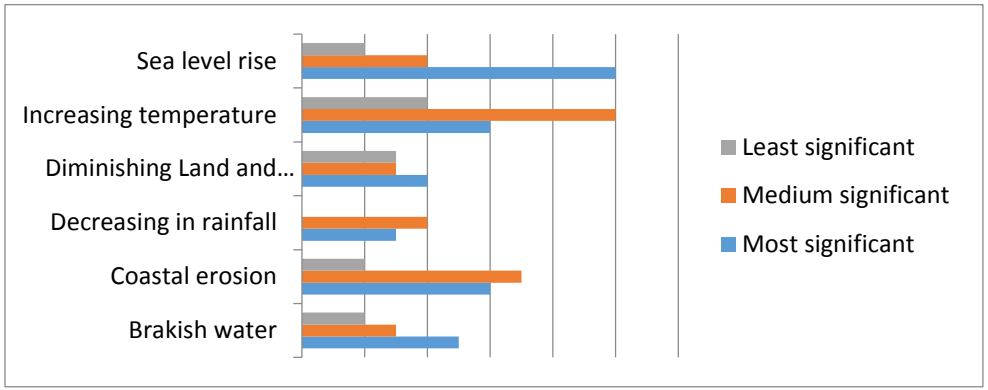
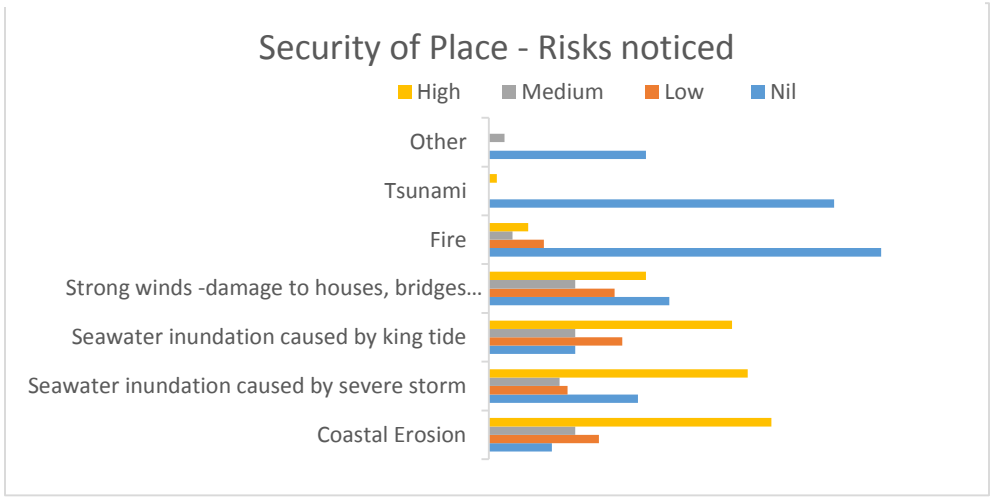


Figure 5: Climate Change impacts noticed

The initial question as part of the HH survey was related to their understanding of the impacts to their environment and surrounding and the level of confidence in relation to the causes of the degrading environment and surrounding as a result of climate change and disasters. As shown in the graph below (fig2), the most significant impacts were related to sea level rise, increasing temperatures and coastal erosion noticeable on Nonouti. Based on the responses and confidence level of their statements, the population sampled under they HH surveys show a clear understanding as it relates to climate change and the adverse effects that it has on them as communities and individuals. A point to note as a well is the limitations of their

Figure 6: Security of plan - risk noticed



understanding of what is climate change related and what is disaster and extreme weather event related impacts. This can however be further clarified through further awareness and consultations through projects and programmes (see fig 3).

Water Security

One of the key impacts constantly voiced though the course of the PRAs and HH surveys is related to water quality, quantity and access. Out of the sampled households surveyed, the results show that the villages, communities and households use water for different purposes and where the use is evenly distributed at the household level (drinking, cooking, cleaning and bathing, for gardening and for livestock), the graph however shows that water use for gardening is low. This is due to water availability across Nonouti Island and in addition to this given the geographic location of the island in the southern gilbert group, the conditions are more dry and prone to drought and where agricultural productivity is also low (fig 5). In addition to the findings at the HH level, the issues related to access are associated with the environmental conditions and climate variability on the island (drought and high tides) have been listed as the highest in terms of impacts on water affecting its access. While there is clear correlation between water use and water access, the findings do not show the amount of water consumed per day and the villages with a larger water lenses. The assessment on water lenses have been conducted in 2013 by SPC. Hence, updated information on such could be assessed by Water and Sanitation Unit (MISE). The HH surveys capture the impacts on water sources as a result of environment conditions as a result climate related events (fig5).

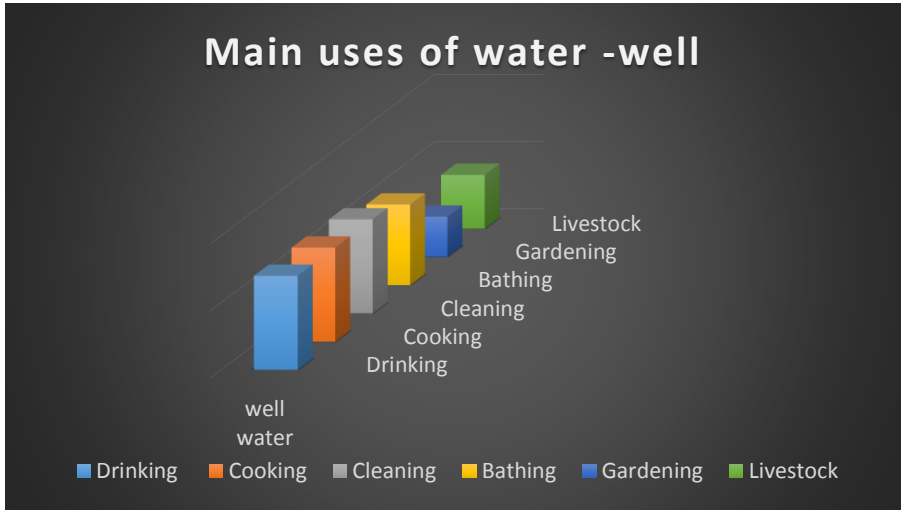


Figure 7: Main water uses (HH)

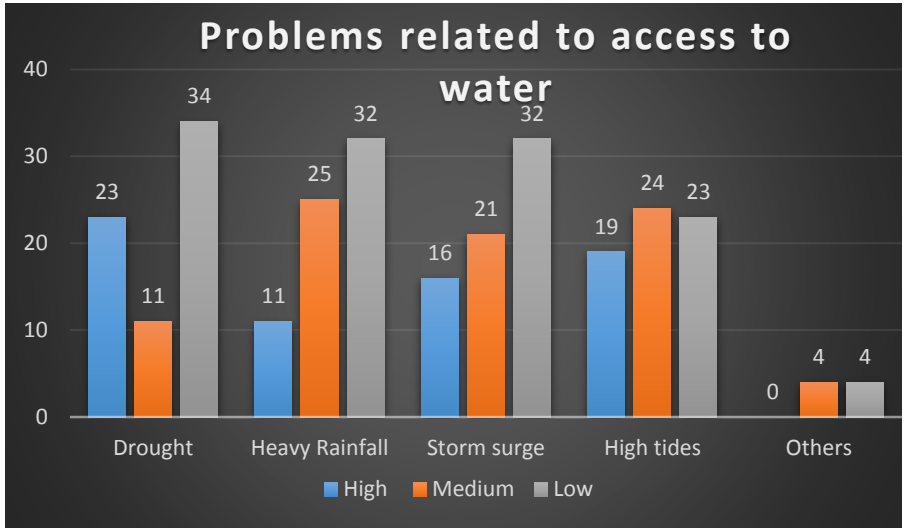


Figure 8: Water related problem - access

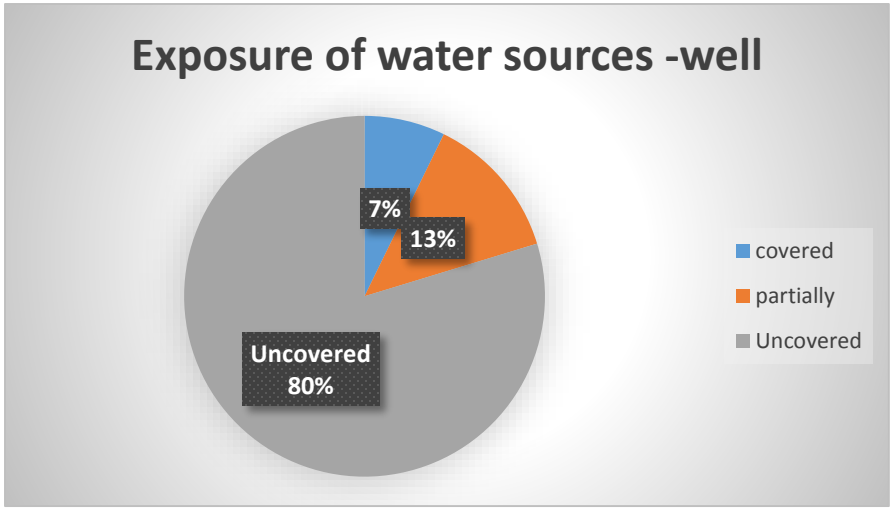


Figure 9 -Exposure of water source

One of the HH survey questions looked at more health related impacts associated with water and where the findings showed that based on the HH surveyed 80% of the total surveyed did not cover their main water sources (well water). In correlating this result with a survey question on the outbreaks and Health related impacts on the islands associated with climate related events the results also show that diarrhea cases occur once a month and minor cases even cause diarrhea every week. While water sources and use are contributing factors to these results, an additional analysis on food related causes could also add on to these results. Health surveillance is also required to provide in-depth analysis on the associated contributors to diarrhea while pin-point the age groups that this affects.

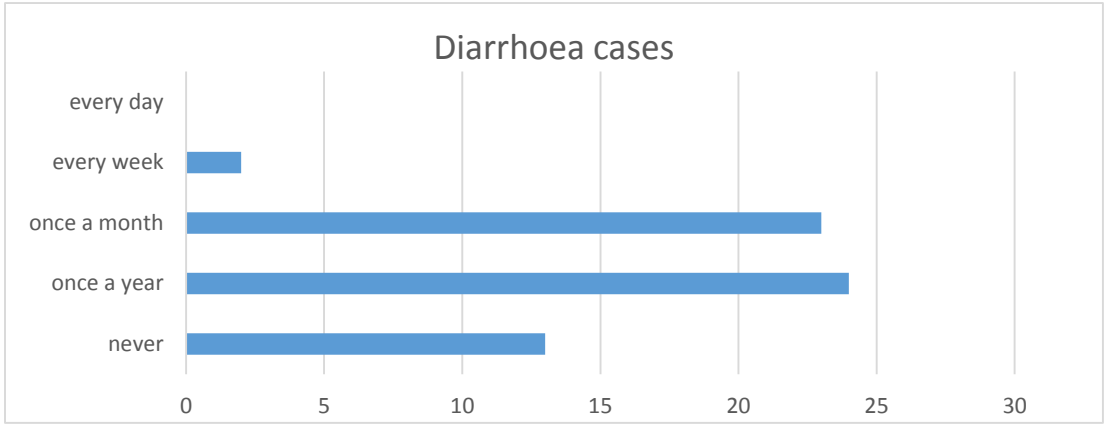


Figure 10: diarrhea cases

Food Security

Another key feature contributing to the overall vulnerability of the people on Nonouti is related to food security, which accounts for Agriculture, Fisheries, income generation (food products/cargo). The results provided in addition to the graphs above (water graphs 1,2) show that land is accessible for agriculture and where 79% of the total HH surveyed have access to land to grow food. Figure 9 shows that at the HH level, a wide variety of food production is practiced contributing to subsistence farming.

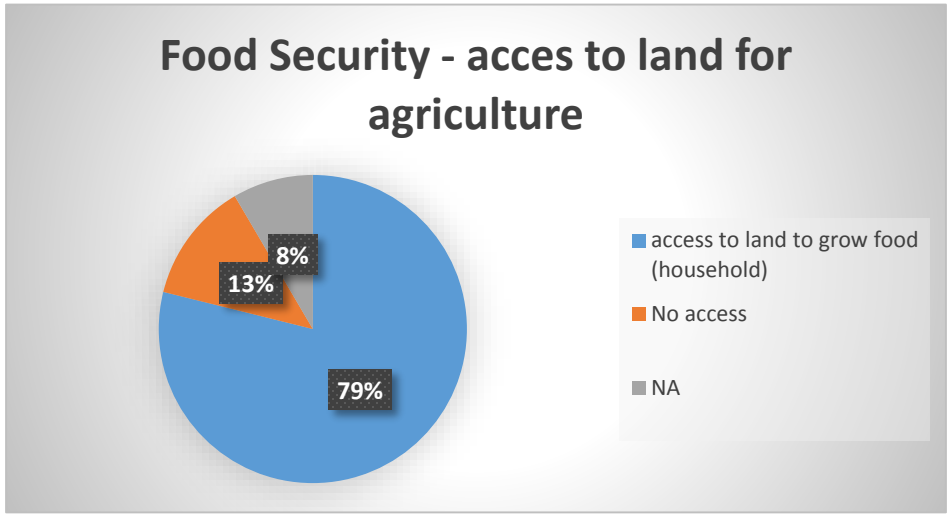


Figure 11: Access to land for agriculture

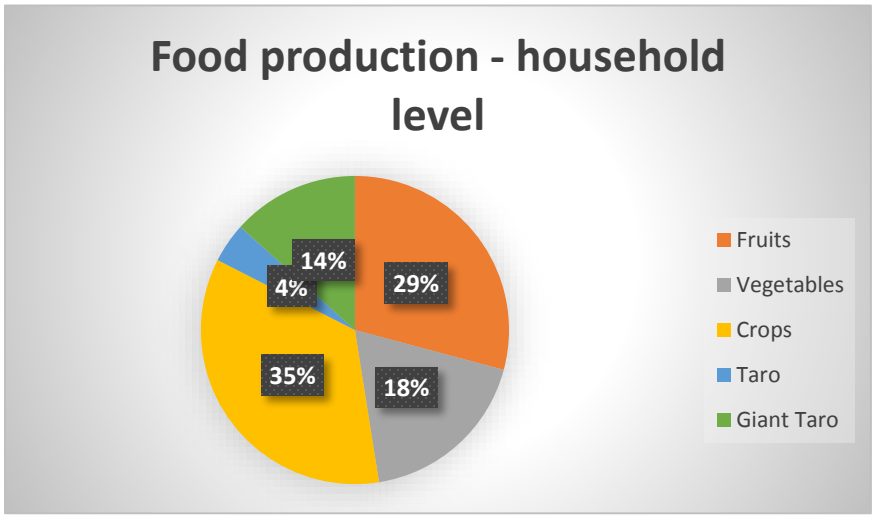


Figure 12: Food production (HH)

Part of the food security survey questions also aimed at understanding the types of HH grown varieties and whether agriculture/farming/gardening was feasible on Nonouti. Out of the total HH surveyed the responses showed that crops are grown (banana, coconut, breadfruit and sweet potato) along with fruits. On the other hand, the results are overall low for food grown varieties for vegetables and taro (root crop) as it may prove difficult for actual practice of agriculture in general. There is however a wide range of support being provided through the Agriculture Assistant on island and through projects supporting Food Security at the outer-island level as in the case of Nonouti, the LDCF Food Security Project.

Looking at figures 10, 11 and 12 together, land-based agriculture/ subsistence farming is average and where production of crop varities is also average. In addition to this, soil fertility is average overall but high for crop farming at the HH level (coconut, breadfruit, sweet potato). The results however do not show the level of production and the time spent (in addition to the capacities) that are required for these practices to be sustained. It does show however that agricultural is feasible subject to additional support.

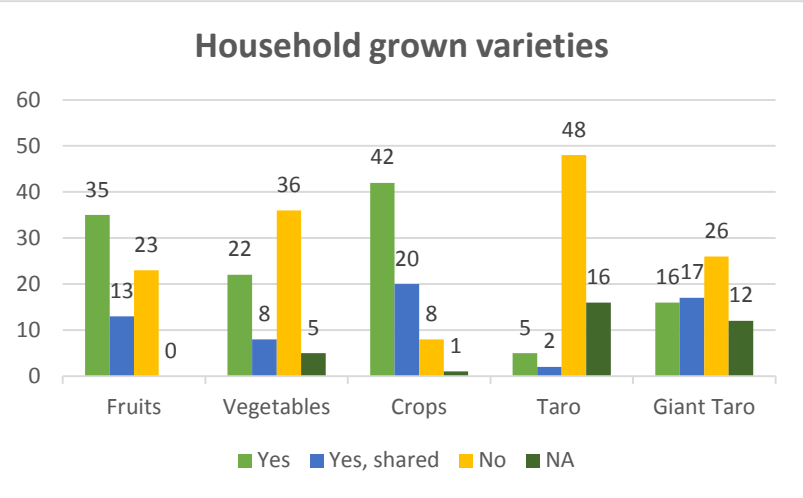


Figure 23: HH grown varieties

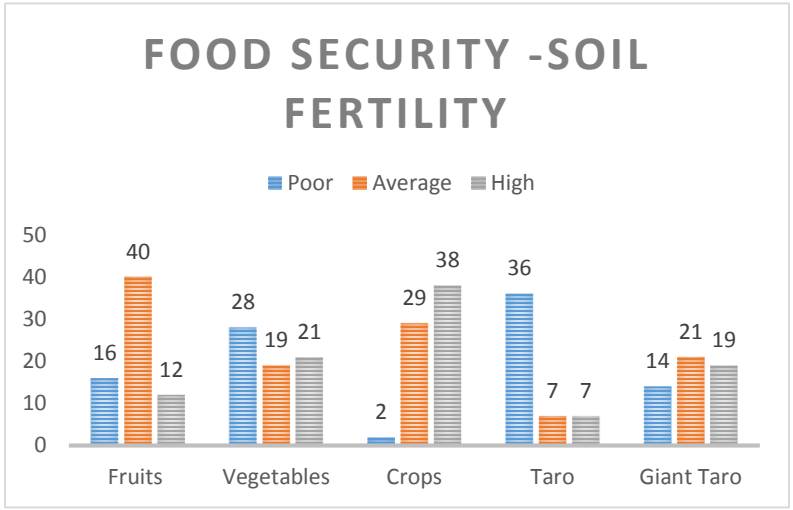
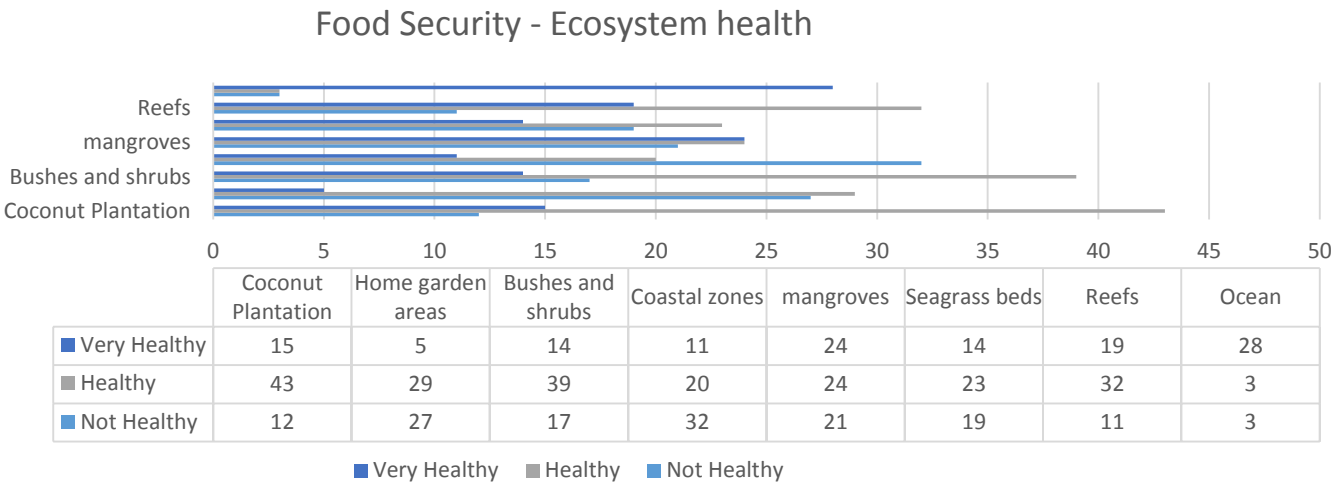


Figure 34: Soil fertility (HH)



	Coconut Plantation	Home garden areas	Bushes and shrubs	Coastal zones	mangroves	Seagrass beds	Reefs	Ocean
Very Healthy	15	5	14	11	24	14	19	28
Healthy	43	29	39	20	24	23	32	3
Not Healthy	12	27	17	32	21	19	11	3

Figure 45: Ecosystem Health

As a second component of Food Security that the HH surveys looked into, fisheries was also factored into the questions. Figure 11 shows that the Ecosystem health for mangroves and reefs are also medium to low as a result of climate related impacts. What this means is that the access and availability of coastal fisheries harvested through net fishing, line fishing and collection is also average in terms of the quantity that they gather at the HH level. Based on the PRA consultations, experiences were shared on how climate change and extreme weather events affects the health of the ecosystems but another contributor that is questioned by community members is the infrastructure developments (seawall, causeways etc..) that seem to have an effect on fish migratory patterns within the coastal zones. Referring to previous results (HH surveys) on their awareness of climate change and its adverse imapcts, the results also show that rising temperatures is a cause of the current degradation to their shores and in this case coastal zones for harvesting (fisheries). The size of the catch and the amount of catch have been affected, however, there needs to be a specific study on whether these are climate related impacts, man-induced or a combination of the two.

Income Generation

The HH surveys looked into not only fisheries, agriculture but also income generation as a contributing factor towards food security in the context of purchase power of imported food sources.

The results (fig 13) show that Copra is the main source of income for the island population and at the HH level. With the additional copra pricing subsidy now to $2/kg this has also elevated the average income at HH level. Figure 13 also shows the other sources of income and practices applied at the island level and where Handicrafts, Farming and Salaries were the second major source of income. In differentiating the 2nd major income sources: 1) Handicrafts are subject to the niche market and inconsistent income source through the supply and demand chain which is low; 2) Farming has become a new source of income but can be altered by weather and climatic events 3) Salaries are not applicable to all HH and also government, island council workers, councilors have this as source of income.

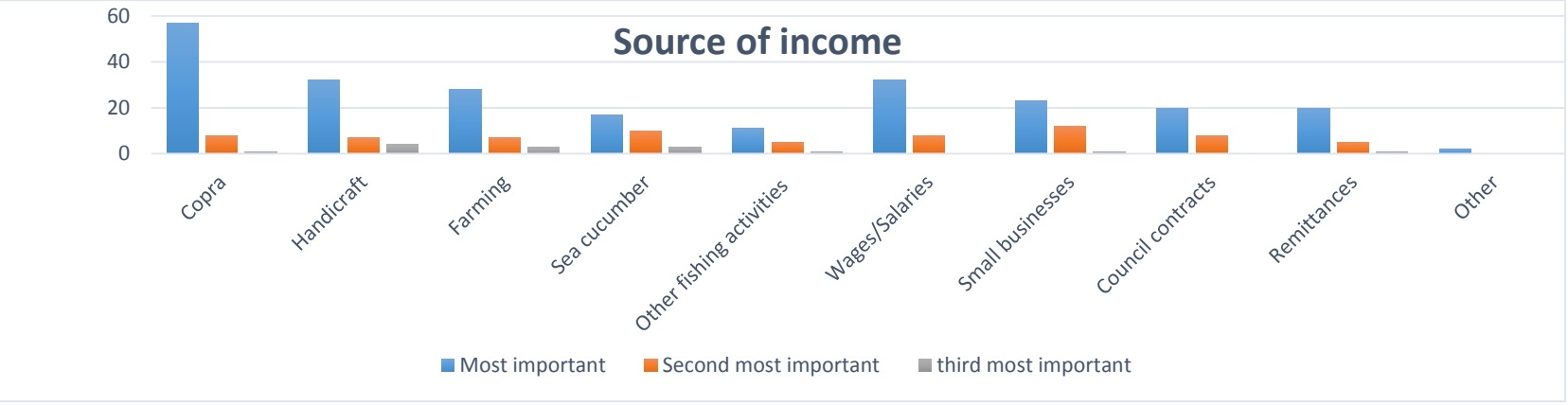


Figure 6: Source of income

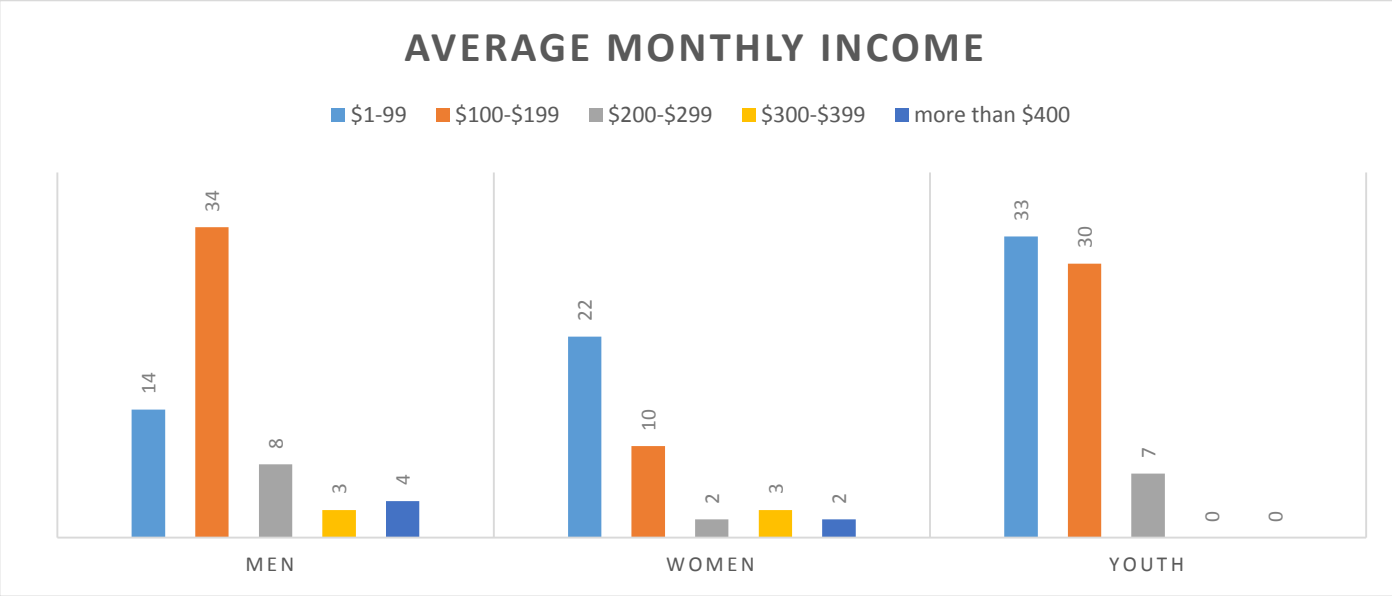


Figure 7 Monthly income

While the IVAs do not go into detail on the actual HHIES (Household Income and Expenditures), the surveyed population provided the average monthly income. The results were then differentiated according to gender and age group (Men, Women and Youth) as key income earners at the HH level. The results provide in figure 14 could be correlated against National Statistics, however for the purpose of understanding their food security issues associated with climate change and disasters the HH survey results showed that Men and youth and the main income earners and where the average salary level is within the range of $100 per month (average). The income level at the HH level is still very low and therefore communities and HH would have to rely not only income but also subsistence farming and fishing (main practice) for Food Security.

With the copra subsidy in place, the HH would enjoy additional income to meet extra expenses on top of the existing above.

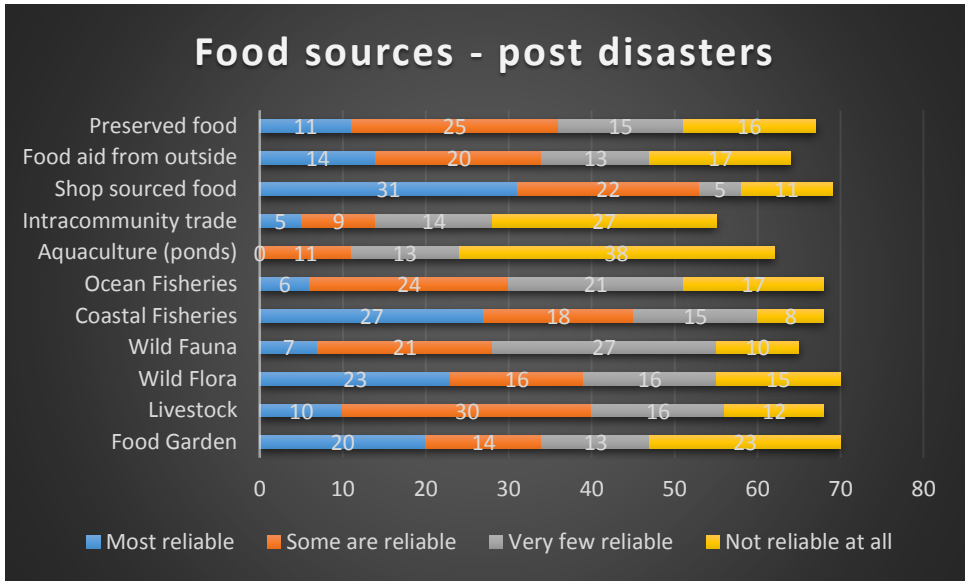


Figure 8: Food source - post disasters

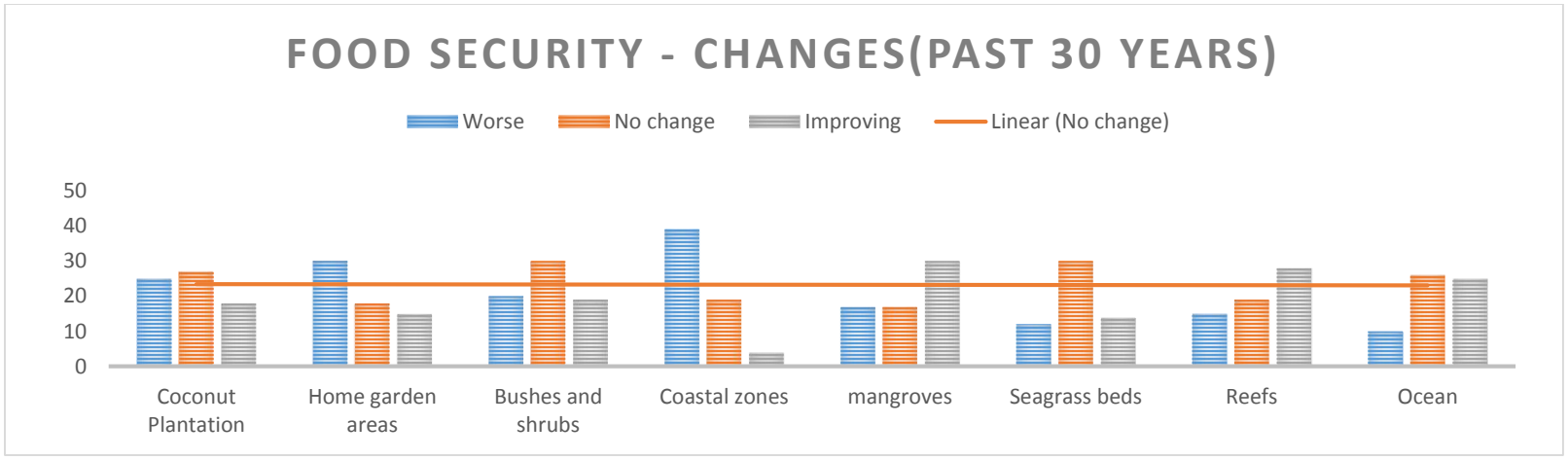


Figure 9: Changes noticed (Past 30 years)

Community Health

One of the vulnerabilities assessed in line with the IVA and more specifically at the individual level is the governance arrangements and inclusivity of vulnerable groups into decision making processes. While the IVA respects the structures, customs and traditional practices existing on Nonouti, the survey looked at understanding the current status in line with existing structures and community cohesiveness in line with climate change impacts and disasters (preparations, responsiveness, awareness and implementation).

A few statements were presented to HH's surveyed and which saw the general responses agreeing to (fig17). Overall there is an inclusive process in place and therefore governance arrangements are respected and practiced including vulnerable groups and their considerations. The results are importants to KNEG and national level sectors/Ministries in terms of working closely with existing structures, supporting their current practices to mainstream CC and DRM considerations in design, planning and implementation process at the island, community and HH level and lastly to enhance the capacities and awareness of vulnerable groups as key contributors and drivers of change for adaptation and resilience at the island level.

Figure 10: Inclusiveness statements

ANALYSIS OF RESULTS/ KEY FINDINGS

While the results are mainly drawn from the HH surveys and PRAs, we have also taken into consideration national reports such as the National census 2015, HIES 2012 and sector specific assessments and reports. In correlating the results and findings, there is a clear distinction between the IVA and national reports and assessments in terms of understanding the current status of Nonouti.

Previous reports and assessments depicts baselines from which we see progress and development combined with additional stress factors such as the frequency and severity of climate related events. Nonouti is vulnerable to climate change and disasters but which can be addressed through the following contributors:

- Behavioral change
- Sustainable adaptation measures
- Awareness and understanding
- Capacity development
- Management and accountability of implemented developments
- Transparency of implementation and decision making processes
- Inclusiveness at different levels of governance and existing structures
- Addressing vulnerable group issues (Women, Youth, People with Disabilities)

The overall vulnerability of Nonouti ranks at 2.36 and therefore provide an indication of the severity of Nonouti's overall status in line with climate change vulnerability through its Exposure to threats and risks at the community level, Sensitivity to on-going pressures aligned with CC and DRM and the Adaptive Capacity to respond to these stresses.

While there is adequate information and data collected to formulate this assessments (IVA), there is also a need to ensure that sector specific assessments and reports are consistent with these results. Each aggregated result provides a general perception of the current status on Nonouti but this needs to be confirmed through sector specific analysis and its correlation with sector assessments.

At the sector level it is noticed that Food Security(Agriculture, Fisheries and Imported food sources), Water Security (access and availability), Health risks, Biodiversity and Ecosystem health are key contributors to determing the level of risk and vulnerability of its villages, individual households and the entire island. These could be supported and addressed through coordinated measures, efficiency of services provides and capacity gaps which could be supported to ensure that communities are prepared, responsive and resilient against the adverse effects of climate change and disasters to their natural surrounding environment (land and sea).

Annex 1. CC & SLR site coordinates – Nonouti

No.	Description	Description
1	Accretion - seawall built and mangroves planted	S0 47 54.2 E174 27 10.9
2	Erosion and flooding	S0 47 55.6 E174 27 10.4
3	Erosion and flooding Point B of 2	S0 47 59.8 E174 27 09.8
4	Kabanei primary School	S0 47 59.5 E174 27 13.3
5	Accretion and migrating beach	S0 48 03.4 E174 27 08.3
6	Temotu medical clinic	S0 48 07.7 E174 27 05.4
7	Freshwater site – Temotu	S0 48 17.8 E174 27 25.3
8	Eroding even though heaps of gravel on the beach	S0 48 31.0 E174 27 27.6
9	Point B of 8	S0 48 29.9 E174 27 25.6
10	Erosion and flooding at Tenanoraoi	S0 46 26.2 E174 28 15.0
11	Point B of Erosion 12	S0 46 25.6 E174 28 14.9
12	Erosion point at KPC Seawall	S0 46 24.9 E174 28 14.4
13	Freshwater site at Tenanoraoi	S0 46 24.2 E174 28 15.3
14	Medical clinic at Taboiaki	S0 45 08.0 E174 27 50.8
15	Bontemps, Leray and Weber landing memorial	S0 44 44.1 E174 27 28.0
16	Freshwater site at Tabiang	S0 44 39.7 E174 27 32.7
17	Biggest traditional mwaneaba	S0 44 14.4 E174 27 12.3
18	Tebukanimatang freshwater site Taboiaki	S0 43 17.5 E174 27 08.4
19	Freshwater site at Tebwaatabuki Taboiaki	S0 42 22.6 E174 27 04.0
20	Council resthouse freshwater site	S0 40 29.8 E174 27 06.0
21	Erosion Point A at Matang	S0 40 28.3 E174 26 54.2
22	Tauraoi Primary School	S0 40 23.29 E174 27 7.25
23	Nonouti JSS	S0 40 20.51 E174 27 7.05
24	Erosion Point B of 21	S0 40 16.8 E174 26 49.0

25	Erosion Point A at Matang	S0 40 11.2 E174 26 47.0
26	Erosion Point B of 25	S0 39 58.8 E174 26 45.5
27	Freshwater site at Matang - Rakentaai	S0 39 32.9 E174 26 55.7
28	Freshwater site at Autukia, Tabontebwaa	S0 39 02.9 E174 26 17.2
29	Freshwater site at Tanrio Autukia	S0 38 55.8 E174 26 13.0
30	Freshwater site at Ararata Autukia	S0 38 51.7 E174 26 10.2
31	Freshwater site at Tekariaria Autukia	S0 38 44.1 E174 26 20.7
32	Erosion at airport at Rotimwa	S0 38 27.1 E174 25 48.6
33	Erosion Point B of 32 at Rotimwa	S0 38 18.22 E174 28 18.81
34	Erosion Point A at Rotimwa	S0 38 08.3 E174 25 06.6
35	Tetaake private residence at risk from erosion	S0 38 02.9 E174 25 00.2
36	Freshwater site at Rotimwa	S0 38 01.8 E174 25 00.9
37	Point B of erosion 34	S0 38 01.4 E174 24 58.7
38	KPC Rotimwa seawall extension	S0 38 00.7 E174 24 56.4
39	Erosion from KPC seawall Point A	S0 37 59.6 E174 24 56.3
40	Point B of erosion 39	S0 37 53.6 E174 24 50.6
41	Accretion at Rotimwa after erosion at 40	S0 37 53.4 E174 24 48.4
42	Erosion at Rotimwa Point A	S0 37 52.9 E174 24 48.2
43	Erosion Point B of 42	S0 37 48.7 E174 24 44.2
44	RC mwaneaba at risk from erosion	S0 37 49.3 E174 24 46.6
45	Rotimwa medical clinic	S0 37 44.5 E174 24 38.3
46	Migrating beach at Katekaa Temwanoku	S0 36 20.9 E174 23 27.8
47	Erosion at Temwanoku Point A	S0 36 20.0 E174 23 23.8
48	Freshwater site at Temwanoku	S0 36 17.3 E174 23 22.1
49	Point B of 47	S0 36 19.3 E174 23 11.6
50	Freshwater site at Temwanoku	S0 36 13.1 E174 23 12.2
51	Nearest house to freshwater site 50	S0 36 17.7 E174 23 06.3
52	Erosion at Temwanoku Point A	S0 36 16.4 E174 23 05.9

53	Point B of erosion 52	S0 36 12.3 E174 23 00.5
54	Freshwater site at KPC Temwanoku	S0 35 59.8 E174 22 45.5
55	Erosion at Temwanoku Point A	S0 35 56.6 E174 22 35.9
56	Erosion at Temwanoku Point B of 55	S0 35 49.3 E174 22 29.2
57	Erosion at Temwanoku Point A	S0 35 31.0 E174 22 13.9
58	Point B of 57 at Temwanoku	S0 35 23.90 E174 22 1.82
59	Primary School Temwanoku	S0 35 16.0 E174 21 51.9
60	Flooding point at Temwanoku	S0 35 16.4 E174 21 44.9
61	Flooded area Temwanoku	S0 35 17.4 E174 21 44.6
62	Flooded area ends Teuaabu	S0 35 00.9 E174 21 19.1
63	Accretion at Teuaabu	S0 34 55.2 E174 21 09.7
64	Flooded area at Teuaabu	S0 34 53.3 E174 20 58.2
65	Point of flooding of 64	S0 34 51.7 E174 20 55.6
66	Teuaabu medical clinic	S0 34 45.3 E174 20 46.7
67	Point B erosion of 68 at Teuaabu	S0 34 49.9 E174 20 34.2
68	Point A erosion of 67 at Teuaabu	S0 34 52.9 E174 20 22.1
69	Freshwater site at Mataboou	S0 34 13.0 E174 18 52.5
70	Erosion at base of unfinished causeway at Mataboou	S0 34 13.0 E174 18 46.5
71	Medical clinic at Tebuange	S0 34 06.1 E174 18 40.3
72	Point of flooding at Tebuange	S0 34 05.4 E174 18 36.3
73	Freshwater site at Tebuange	S0 33 52.1 E174 18 30.7
74	Freshwater site at Tebuange	S0 33 52.2 E174 18 28.2
75	Tebuange Primary School	S0 33 44.7 E174 18 28.7
76	Erosion Point A at Tebuange clinic	S0 34 6.14 E174 18 41.4
77	Erosion Point B of 76 at Tebuange	S0 33 30.0 E174 18 14.4
78	Erosion Point C at western end of Tebuange	S0 33 14.7 E174 17 38.0
79	Erosion Point B at western end of Tebuange	S0 33 15.1 E174 17 37.4

80	Erosion Point A at western end of Tebuange	S0 33 18.1 E174 17 36.4
81	Flooding point and area at Abamwakoro	S0 32 55.0 E174 14 59.9
82	Erosion Point B of 86 at Abamwakoro	S0 32 46.7 E174 15 02.4
83	Freshwater site at Abamwakoro - brackish	S0 32 45.3 E174 14 52.3
84	Abamwakoro Primary School	S0 32 45.9 E174 14 48.8
85	Abamwakoro medical clinic	S0 32 47.1 E174 14 47.3
86	Erosion Point A of 82 at Abamwakoro	S0 32 41.7 E174 14 44.6
87	Erosion Point B of 86 at Abamwakoro	S0 32 39.6 E174 14 37.1
88	Initial erosion point of 82 at Abamwakoro	S0 32 39.3 E174 14 45.1
89	George Eastman High School	

Note: For details of problem area and areas of significance refer to Nonouti Island Profile 2008


TE MAURI TE RAOI AO TE TABOMOA