



NIKUNAU ISLAND



SOCIO-ECONOMIC PROFILE

PRODUCED BY THE MINISTRY OF INTERNAL AND SOCIAL AFFAIRS,
WITH FINANCIAL SUPPORT FROM THE UNITED NATION DEVELOPMENT PROGRAM,
KIRIBATI ADAPTATION PROJECT AND TECHNICAL ASSISTANCE FROM THE
SECRETARIAT OF THE PACIFIC COMMUNITY



Strengthening Decentralized Governance in Kiribati Project
P.O. Box 75, Bairiki, Tarawa, Republic of Kiribati
Telephone (686) 22741 or 22040, Fax: (686) 21133



NIKUNAU ANTHEM

RORON NIKUNAU TEIRAKE

Roro n Nikunau teirake
Noora tamaroan otin taai
Bwa antai ae wene man aoria
E na reke te kabwaia n tera

Cho: Bwaina te nano n aba ae riai
Tabekarake aran Nikunau
Tangiria kain abara ni waaki nakon te raoiroi

Ko taku bwa tei antai ngkoe
Kabonganako ibukina
E boni kanganga te mwakuri
Tai toki ee, e na tai bwara nanom

Tina tei iaon ara berita
N toro iroun te Atua ma abara
Ni buokia aomata nako
Ni kawakin ana tuua nako

STAND YE GENERATIONS OF NIKUNAU

Stand ye generations of Nikunau
See the beauty of the sun shining
Who is lying down and being idle
How can anyone prosper

Cho: Be patriotic as necessary
Raise the name of Nikunau
Guide our community to righteousness

Who do you think you are
Make yourself useful for Him
Work will always be hard
But don't stop and never lose hope

We shall all stand to our promise
Be slaves for our God and our land
To always help other people
To always maintain His laws.

FOREWORD

*By the Honorable Amberoti Nikora,
Minister of Internal and Social Affairs, July, 2007*

I am honored to have this opportunity to introduce this revised and updated socio-economic profile for Nikunau Island. The completion of this profile is the culmination of months of hard-work and collaborative effort of many people, Government agencies and development partners particularly those who have provided direct financial and technical assistance towards this important exercise.

The socio-economic profiles contain specific data and information about individual islands that are not only interesting to read, but also more importantly, useful for education, planning and decision making. The profile is meant to be used as a reference material for leaders at both the island and national level, to enable them to make informed decisions that are founded on accurate and easily accessible statistics. With our limited natural and financial resources, it is very important that our leaders are in a position to make wise decisions regarding the use of these limited resources, so that they are targeted at the most urgent needs and produce maximum impact.

In addition, this profile will act as reference material that could be used for educational purposes, at the secondary and tertiary levels. This is one of the intentions when the revision exercise was conceived in the first place. In its new format, the profile contains valuable information on the history, geography, demography, commerce and trade, natural resources, the environment, and many other important facts about the islands. The vision to make the island profile important reference material will be further enhanced with the launching of the Ministry's website. This is indeed a revolutionary step in the sense that such valuable information will be made accessible on the internet, for everyone to use in and outside Kiribati.

The profiles have potential economic value because they provide the kind of information that local and foreign investors need. This aspect of the profiles will be improved with time, as better information on marine and land resources becomes available and incorporated in the book.

The island profiles are useful development documents for individual islands and the nation as a whole. Whether they are used by students, businesspersons, tourists, politicians, or planners, I can say with conviction that it will prove a useful resource on Kiribati.

Te Mauri, Te Raoi and Te Tabomoa to you all.

ACKNOWLEDGEMENTS

The preparation of this profile involved the hard work and commitment of various individuals, Government ministries and external development agencies. At the outset, the initiative and financial support of the United Nations Development Program (UNDP) must be acknowledged with deep appreciation. UNDP financed the revision of the profiles through a joint UNDP-GoK project known as *Strengthening Decentralized Governance in Kiribati (SDGiK)*.

Other regional organizations that have been very supportive to the profiling exercise include the South Pacific Geo-science Commission (SOPAC), who provided technical support in relation to the incorporation of GIS and CHARM in the project. The South Pacific Commission (SPC), who assisted in the establishment of POPGIS for use in data sourcing and analysis, provided input to the structure of the profiles, recommended the incorporation of valuable data and information, and generously offered to publish the profiles. Without their assistance, the profiles as you see them now would not have attained such a high quality in terms of content and appearance. The Ministry of Internal and Social Affairs owes much gratitude to these organizations particularly their concerned staff, for their readiness to assist even if it was beyond their terms of engagement.

The project office of the Commonwealth Local Government Forum (CLGF) based in Fiji, through its Pacific Project, also contributed invaluable assistance to the project, in particular to Component 3, which focused on capacity development of local government bodies on the outer islands. Several of the activities under this component were jointly funded by CLGF, thereby absorbing much in terms of financial costs and time. For these contributions, we are very much thankful.

The various ministries of Government have helped in one way or another, especially in the furbishing of valuable data and information used in this profile. The project has been successful in maintaining the good relationship that had developed with other ministries and civil organizations. In addition, inter-agency committees were established for monitoring and technical support during the implementation phase of the project. The most important of these committees is the Outer Island Project Coordinating Committee (OIPCC), which serves as the overall steering body of SDGiK. Other technical working committees were also instrumental in getting some of the difficult tasks done. These working committees include the committee on the review of the Local Government Act, and the committee on the review of development procedures. One of the important lessons learned from the establishment of these committees is that it is possible to cut across borders to get the kind of commitment and cooperation that are reflected in the achievements of the project.

Hopefully the network of cooperation, which is necessary in sustaining and improving the profiles in future, is maintained between the various ministries of Government. As the leading agency in the production of this profile, the Ministry of Internal and Social Affairs must ensure that the linkages between the statistical units of various government departments remain intact.

Due to its multi-dimensional nature, far too many people are involved in the profiling exercise to allow acknowledgement on a personal level. It is hoped that by according merit to their respective agencies will somehow convey the deep sense of gratitude, which the project owes to these committed individuals. With this in mind, we would like to acknowledge the great contribution and support of the Ministry of Internal and Social Affairs (MISA), in particular the Rural Planning Division (RPD), the Local Government Division (LGD), the Cultural Centre, the Community Development and Services Division (CDSD), and the Accounting Unit, who spearheaded the various activities related to their areas of expertise. The successes that have been achieved in the different project components are indeed the result of such collective work.

Ultimately the greatest contribution and sacrifice in the production of these revised Island Profiles was offered by a few committed individuals, both within the Ministry as well as from outside who deserve to be acknowledged. Nei Terautete Tareti, the computer operator in the Rural Planning Division who collected the initial data and Nei Buraieta Tekabwaara who worked hard to collect and update data required for the profiles. Nei Ruta loata, who assisted in data collection, designed the graphic formats in the profiles, willingly assisted in collection of outer island data and pictures and had to work extra hours to complete her profile responsibilities.

Phil Bright and his colleagues at SPC in Noumea generously offered to edit and publish the profiles, besides arranging for a work attachment with SPC for two of MISA staff. The profiles will have not attained the very high quality in which you see them now without their assistance. In addition, the improved layout and presentation of information is also based on their professional views and guidance.

The strong support and leadership of the Minister of Internal and Social Affairs, Honorable Amberoti Nikora has been a significant factor in the successful undertaking and completion of the profiling exercise, and for the whole SDGiK project for that matter. His support would have not been that strong without the equally solid support and guidance of the former Secretary of MISA, Karib'aiti Taoaba, and Rikiau Takeke, the current Secretary.

The Deputy Secretary, Manikaoti Timeon spearheaded the profiling and completed the first prototype on Makin after which project staff continued drafting the other outer island profiles. His immense effort and guidance in the profiling is a major contribution to the completion of these profiles. The unwavering efforts and dedication of Nei Erimeta Barako in the completion of the profiles even after the SDGiK project had ended culminated in the completion of these outer island profiles. Ultimately, the KAPII project under the directions of Kautuna Kaitara, the KAPII Coordinator, Kaiarake Taburuea, the Project Manager and Paul Craig, provided the required funds and support in the eventual completion of the profiles.

To everyone who have contributed in one way or another to the production of this useful document, including the many people and organizations on the outer islands, the Government of Kiribati is deeply indebted, and wish to thank you immensely for your useful contributions.

AMI BAU TE MAURI TE RAOI AO TE TABOMOA.

KAM BATI N RABWA.

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LIST OF ACRONYMS

SDGIK	Strengthening Decentralized Governance in Kiribati
MDGs	Millennium Development Goals
MOP	Ministry Operational Plan
NDS	National Development Strategy
UN	United Nations
GOK	Government of Kiribati
SOPAC	South Pacific Geo-Science Commission
CHARM	Comprehensive Hazard and Risk Management
GIS	Geographic Information System
CLGF	Commonwealth Local Government Forum
OIPCC	Outer Island Project Coordinating Committee
MISA	Ministry of Internal and Social Affairs
RPD	Rural Planning Division
LGD	Local Government Division
CDSD	Community Development and Services Division
SPC	Secretariat of the Pacific Community
MOH	Ministry of Health
MELAD	Ministry of Environment Land and Agricultural Development
MEYS	Ministry of Education Youth and Sport
MFED	Ministry of Finance and Economic Development
POPGIS	Population GIS
RC	Roman Catholic Church
KPC	Kiribati Protestant Church
SDA	Seventh Day Adventist Church
LDS	Church of Jesus Christ of Latter Day Saints
COG	Church of God
KHLP	Kiribati Handicraft and Local Produce Company
KSECL	Kiribati Solar Energy Company Limited

CHAPTER 1: INTRODUCTION

The first Island Profiles were published in the late 1980s, about 20 years ago. Apart from being used as a resource book by project personnel in the Rural Planning Division, it remained largely unutilized, and the information quickly became obsolete as the years passed without any attempt to update a lot of the statistics contained in them. This is the first time that the profiles are being updated and upgraded to suit today's need for information. In addition to the upgrading exercise, the profiles will also be updated, annually if possible, depending on the regularity and availability of reliable statistics. The current revision is based on a mixture of methodologies including importation of data from different government ministries (MOH, MELAD, MEYS, and MFED), the use of PopGIS software to analyze and map data, face to face interviews, questionnaire surveys and the use of reference materials and the internet.

While the purpose of the profiles is to serve as the basic information tool for planners and decision makers, it can also be used to meet the needs of students, business people, politicians, tourists, planners, and the public in general. This is possible due to the fact that it contains unique and interesting information on the island's culture, economy, natural resources, environment, infrastructure, social services and various other features. With the incorporation of MDG indicators in this new version, the profiles will now serve a very useful purpose of becoming an important tool to monitor the country's performance in respect of achieving MDG targets. Island-level statistics enables more specific analysis of the situation faced by Kiribati in the different sectors of health, education, poverty reduction, gender equality, the environment, and HIV/AIDS. These are the issues embodied in the eight goals set by the United Nations which countries are expected to achieve by the year 2015.

Another new feature of the profiles is the introduction of a computerized back-up system, which is made up of an electronic copy of the profile, as well as a GIS program, which enables detailed analysis of statistics right down to the village and household levels. The ultimate objective of the whole exercise is to have an efficient and reliable source of information about the outer islands, that is not only available in hard copy, but better still one that could be accessed immediately by the push of a keyboard button. This will enable professionals and lay people alike to acquire information quickly, for whichever purpose they may have. The profiles will be made available on the Ministry's website – www.misa.com, or alternatively through PRISM. This will enable international access to the profiles for the use of traveling officials, overseas students, potential investors and visitors. Apparently the website will contain information other than the island profiles, from the various divisions of the Ministry and perhaps additional relevant information from other government ministries. Upon completion of the website two goals will be achieved, first, that the information will be available on line for the first time and, second, that such useful information will be accessible from anywhere in the world in electronic form. This is going to be a significant achievement in itself.

The continual usefulness of the profiles, and other information contained in both the hard and electronic versions, will depend to a great extent, on a reliable system of updating and upgrading. After all, information changes all the time, as do the technology upon which it depends. Finally, it is hoped that the profiles in their new format and accompanying electronic features will serve the purpose for which they are designed, and much more. We wish every user of this profile enjoyable reading, and trust that they find it interesting and rewarding.

Summary of main socio-economic indicators

	NATIONAL			Nikunau		
	Total	Males	Female	Total	Male	Female
Total population (November 2005)	92533	45612	46921	1912	980	932
Urban population	40311	19435	20876	NA	NA	NA
Percent of national population				2.1	2.1	1.9
Percent urban (%)	43.6			NA	NA	NA
Rate of Growth (%) of total population 2000-2005				1.97		
Population density	127			100		
South Tarawa population density	2558			NA	NA	NA
% population younger than 15years	37	38	36	44	45	44
% population 15-24 years	21	21	20	15	12	14
% population 15-59 years	58	57	58	49	48	48
% population 60 years and older	5	5	6	6.6	8.7	7.6
Age dependency %	74			49.7		
Households						
Number of private households	13999			335		
Number of persons in private households	88644	43749	44895	1,912		
Average household size	6.3			5.7		
Number of institutions (non-private)	43			NA	NA	NA
Number of persons in institutions	3889			NA	NA	NA
Labor market activity	36969	20013	16956	1,066	542	542
Employed population	34715	18883	15832			
Cash workers	13133	8095	5038	652	432	220
Village workers	21582	10788	10794	86	18	68
Unemployed	2254	1130	1124	0	0	0
Non-labor market	21069	7926	13143			
Students	7323	3496	3827	86	43	43
Persons engaged in home duties	6077	793	5284	150	2	148
Inactive persons	3662	1996	1666	11	9	2
Retired persons	3227	1179	2048	58	25	33
Disabled or sick persons	709	398	311	23	13	10
Prisoners	71	64	7	0	0	0
Labor market participation ratio	63.6	71.5	56.3	60.7		
Employment-population ratio	22.6	28.9	16.7	NA	NA	NA
Unemployment rate (%)	6.1	5.6	6.6	11.6		
Education						
School enrolment rates 6-15 year olds (%)	91.0	89.1	93.0	NA	NA	NA
Proportion of population 15 years and older with secondary or higher education	50.5	51.6	49.5	NA	NA	NA
Proportion of total population with secondary or tertiary qualification	19.4	18.2	20.5	3.6	4.0	3.2

CHAPTER 2: GENERAL BACKGROUND

2.1 Location, Size and Land Area

Nikunau is one of the southern islands in the Gilbert group, its nearest neighbor is Beru that lies 51.41 km west of it. It lies 473.25 km south east of Tarawa, the capital island in Kiribati.

Alternative Names:	Byron's Island
Area / Country:	Southern Gilbert group, KIRIBATI
Coordinates:	Latitude (DMS): 1° 20' 19.38" S Longitude (DMS): 176° 27' 29.94" E (Degrees, minutes and seconds)
Area:	Total land area: 17.63 sq.km Widest width: 2.60 km Narrowest width: 0.26 km Length: 14.12 km

Its widest area can be found in Tabutoa and narrowest width at the strip of land (between Mwanriiki and Nikumanu) connecting the two sides of the island.

2.1.2 Physical features

At 19.08 sq. km, Nikunau is the 6th biggest island in the country with Kiritimati the biggest atoll with a land area of 388.39 sq.km and Tamana the smallest at 4.73 sq. km. It is split into two parts connected by a narrow strip of land in the middle. The northern part accommodates the main service infrastructures such as the Council offices, airstrip, seaport and the villages of Muribenua, Tabutoa, Rungataa and Mwanriiki. The southern part accommodates the rest two villages of Nikumanu and Tabomatang. The Nikunau Island Council is located at Bukerua in the village of Rungataa.

Nikunau has several (3) landlocked, hyper-saline lagoons located within the island, measuring about 0.3 km² in area. The largest of these is called 'Riiki's lake', north of Riiki's lake are 'Kabangaki' also known as the 'Salt lake', 'Bekubeku' and 'Tabakea' lakes. The island is surrounded by a narrow fringing reef while the tip of Nikunau, located near the airstrip, has the largest waves on the island and is the point where two tides meet, clashing one wave with another, thus creating amazing tides, waves, and currents (*wikipedia 2008*).



Nikunau, like most of the outer islands has one main road that runs along the island and sidetracks into the bush and other areas of the island. Due to its width, the road runs along and around the two parts of the island. These sidetracks are used for accessing lands and the side of the island if one so wishes, most of the reef/ocean side of the island as villages are placed along the lagoon side of the island and Nikunau is quite wide compared to the atolls of Kiribati.

The Island Council (Government station) is located at Rungataa along with the medical centre, Mwanruna Primary School, Tekabangaki JJS next to it and most of the Government and Council

infrastructures such as Police headquarters, mechanical workshops, and rest-house etc. Medical and teaching facilities are shared between two villages thus Muribenua and Tabutoa (Muritoa), Rungataa and Mwanriiki (Mwanrunnga) and Nikumanu and Tabomatang (Nikumatang) share a primary school, a medical facility and a preschool. The airstrip is located north of the northern village of Muribenua.

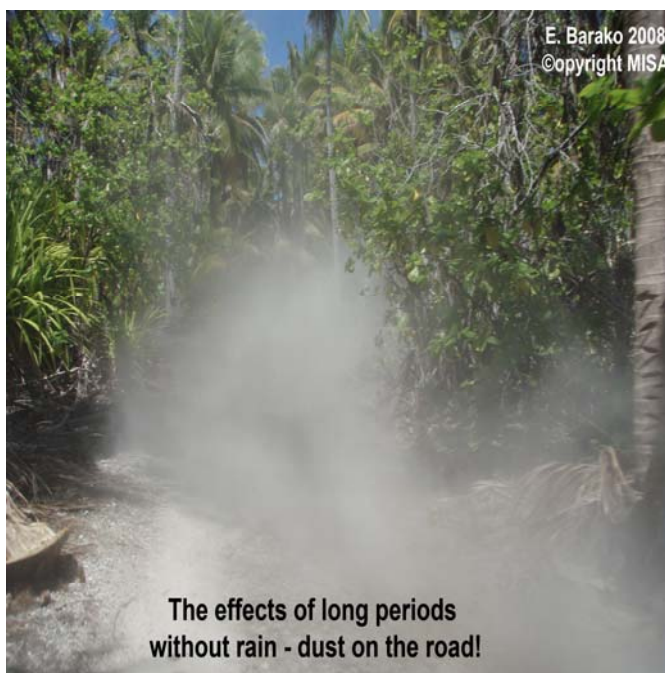
2.3 Climate

With the exception of Tarawa that has its own meteorological office, the non-availability of rainfall measuring equipment on the outer islands has resulted in the lack of rainfall data for all the outer islands of Kiribati including those in the Phoenix and Line group and Nikunau.

Nikunau like the other islands scattered astride the equator, has a tropical climate. It is hot and humid all year round with east trade winds moderating the temperatures throughout the year. November to April is the rainy season, with high humidity and stronger winds, however, the heat in Nikunau great and according the locals, the hottest and most humid island of the islands.

Most of the Kiribati islands are located in the dry belt of the equatorial oceanic climatic zone, between 5° on either side of the equator (*Frank R. Thomas: 2002*). The strong influence of El Nino and La Nina events on the climate is therefore prevalent throughout and Nikunau is no exception. El Nino Southern Oscillation (ENSO) variability is defined by the Southern Oscillation Index (SOI) that measures the difference in pressure between Darwin, Australia and Tahiti. Simply defined, El Nino is the warming of the sea-surface temperatures in the equatorial Pacific Ocean that influences the atmospheric circulation and consequently rainfall and temperature in specific areas around world. Depending on this complex interplay of sea surface temperatures (SSTs) in the equatorial Pacific ocean, atmospheric circulation is affected which either then moves eastward or westward producing either of the two events, El Nino or La Nina which in turn either results in rain or drought on the islands depending on where the atmospheric circulation is headed.

(http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/nino_regions.html).



Drought spells in Nikunau are also a common occurrence however, their affliction with drought have not been so well documented compared to the other southern islands of Tamana, Onotoa, and Arorae but observably suffers from drought.

Generally in Kiribati, the wet season, according to records, falls between the months of September to February, while the dry season begins in March and ends in August. The temperature ranges between 28° Celsius at dawn to 32° Celsius in the early afternoon but have been known to get hotter or warmer than 32° C. Cool ocean breezes play an important role in keeping the temperature down during hot days.

2.4. Soil

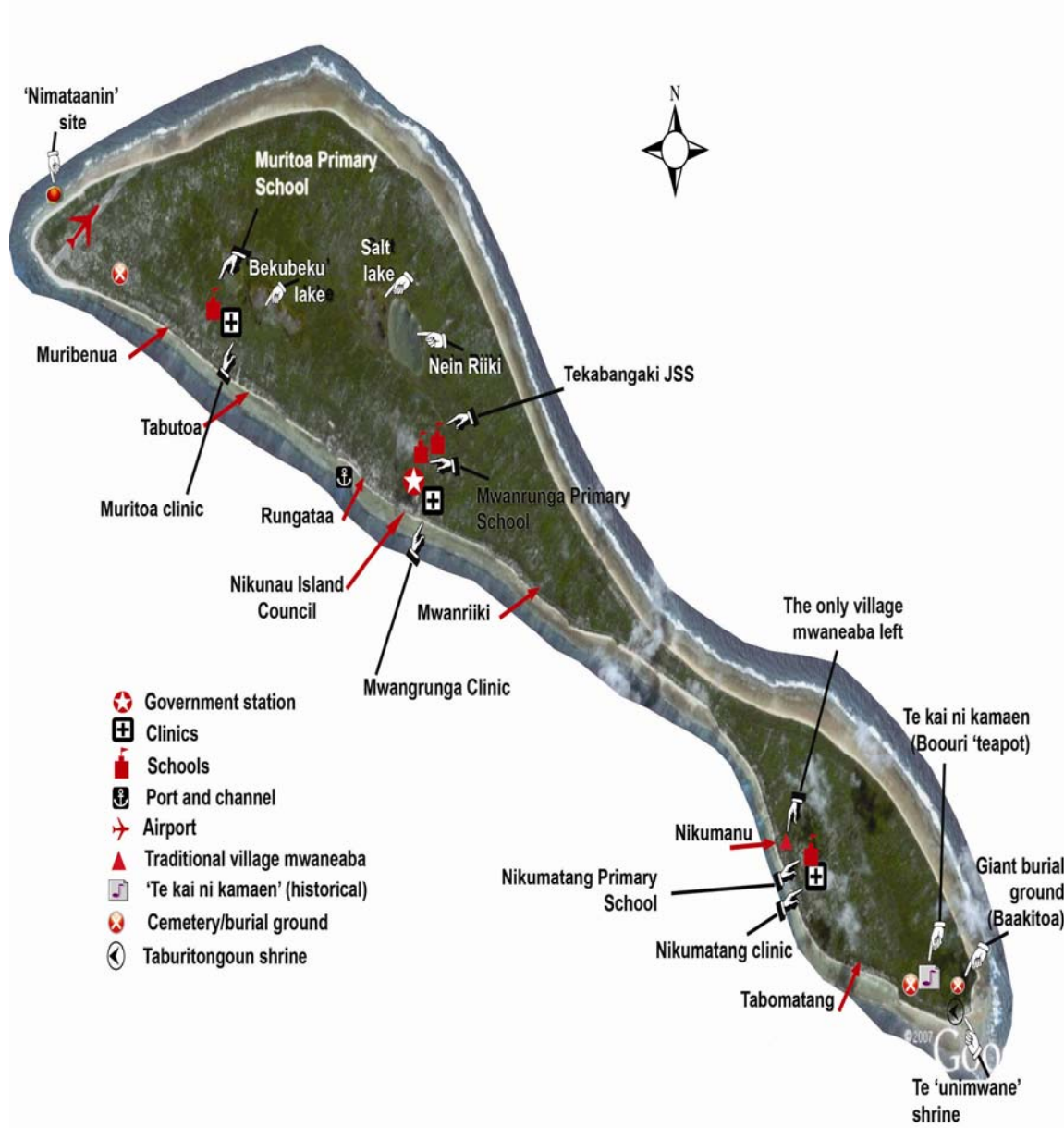
Kiribati atoll soils are derived from the underlying coral reef and thereby consist mainly of calcium and magnesium carbonates (Town 1982) and are among the poorest in the world (Frank R. Thomas 2002). The soils tend to be shallow and highly alkaline with large soil (grain) particles rendering it highly permeable with low capacity to hold water, highly porous (J. Barr 1991). Because the soil is highly alkaline, fertility is dependent on organic matter for the concentration and recycling of plant nutrients and for soil water retention in such excessively well drained soil. Kiribati soils especially those in the Gilbert group are classed as among the poorest in the world (Frank R. Thomas 2003).

The soils encountered in Kiribati are described as having an AC type profile. The A-horizon consists of sand containing a variable quantity of humus. It is usually about 25 cm deep, has a pH of 7.6-8.0, and is dark grayish to black in color. This rapidly gives way to coarse white and pink gravely sand of the C-horizon, which consists almost exclusively of calcium and magnesium carbonates and has a pH of 7.8-8.3. The soil type is one of coral sediment with varying topsoil that is poor in nutrients. The soil has a high amount of free calcium, locking up most of the necessary nutrients. The soils are very highly permeable and have a low moisture-retaining capacity. The topsoil may have clay-sized particles constituting up to 5 percent of the volume of soil but such particles are formed by the breakdown of the algae shells by carbonic acid in humus. The soils are generally low in N and K, and P tends to be fixed. Deficiencies of micro-minerals (nutrients) such as Cu, Zn, Fe and Mn are very common, however, the levels of sodium, boron and molybdenum are adequate, while sulphur may be borderline in some areas.

<http://www.fao.org/ag/AGP/AGPC/doc/Counprof/southpacific/kiribati.htm>



Fig 1: A geographical map of Nikunau



2.5 History and Culture

Traditionally, when the universe was called the 'boo-ma-te-makii' (the darkness and cleaving together), Nareau alone existed. He roamed the 'bomatemakii' and came across a hollow habited by a monstrous eel (Riiki) whom he instructed to lift the sky up. After Riiki had lifted up the sky, he fell down and became the island of Nikunau (A. Grimble). On the other hand, it is also said by the Nikunauans that it was the first island to be created after the cleaving of the earth and sky which Nareau, the creator, versed in his cleaving song and created Nikunau, thus after Samoa. Later, the island was visited by Taburitongoun (descended from Nareau himself) and some others from Samoa, who then married Nei Toromao of Onotoa and created Tentoa who established the 'mwaneaba' in Buariki called 'Te rarea ni Matang' (The blood of white people), the same name as the one in the village of Tabomatang that was later changed to 'Te Atu ni Uea' after the Beru leader, Teinai' had been de-capacitated by Tentoa. Both Beru and Nikunau (or any other island for that matter) are well known for their contradictory stories and legends with both saying that their island was the 'moan atibu' (the first stone), the first island to be created.

Nikunau was discovered in 1765 by Captain John Byron on the ship H.M. *Dolphin* which according to literature makes it the second island to be discovered in Kiribati after the discovery of Butaritari in 1606 by the Spanish explorer Pedro Fernandex de Quiros who named it Buen Viaje (*Wayne H. Brummel 2005*). During Captain Davis visit to the island in 1892, he reported that there was no king on the island but rather had a council of old men. There were also some LMS missionaries from Samoa and Tuvalu and foreign traders. The Protestants then outnumbered the Roman Catholics by 1,621 and women married at the ages of 15 and 16 (*J. Resture's oceania website*).

The Nikunauans are fortunate in their island being wide and pride themselves in the growth of coconuts on the island for it is said that the coconut trees on the island rarely suffer the effects of drought and will continue to produce coconuts thus copra, during periods of famine. A favorite local term on the island is 'te kataang' (spreading across an area to collect coconuts or fish etc). This term is generally used on the island when collecting coconuts across a span of land.

Visitors residing on the island are highly commiserated with, and for consumption needs, a yard on both sides and including the road itself is generally allowed for them to collect coconuts from thus it is quite common to see teachers, council workers or medical officers hire a truck for a round trip of the island just to collect coconuts for their own consumption. This custom has however been misused by the islanders themselves to the effect that the 'unimwane' now deem it a waste of time and to be stopped.

All guests staying at the Council rest-house in Rungataa are always booked for the first four nights of their stay on the island to visit four different 'mwaneabas' in the early evening for general introduction and discussion of island visit objectives. The bookings for the different four 'mwaneabas' are however restricted only to visitors in the council rest-house. Every time a guest is called to such gatherings, a new 'nangoa' (lavalava/sarong) is provided to highlight the importance of the guest(s) and to bring good luck to the visitors during their time of visit to the island. The provision of 'nangoa' is not limited to guests at the rest-house but generally to any visitor to the island invited to similar gatherings. This custom was introduced in the 1920-1930s (*Timeon pers. comm.*) during the phosphate mining years of Banaba and Nauru when excess rolls of materials were sent back to the village of Tabomatang for the opening of either a 'mwaneaba' or a church. Though the materials were meant to be used that one time only, the people found that the materials had been excessively sent whence the custom of providing guests with the 'nango' was born. The excess materials were then used to dress initially the unimwane, guests and later anyone deemed a guest (a foreigner or from Nikunau).

The Nikunauans are generally like those in the rest of the country – friendly, hospitable, religious and like Beru, have a similar accent with the end of their sentences always ending in a high pitch.

CHAPTER 3: TE MAURI – ENVIRONMENT, RESOURCES AND SOCIAL SERVICES

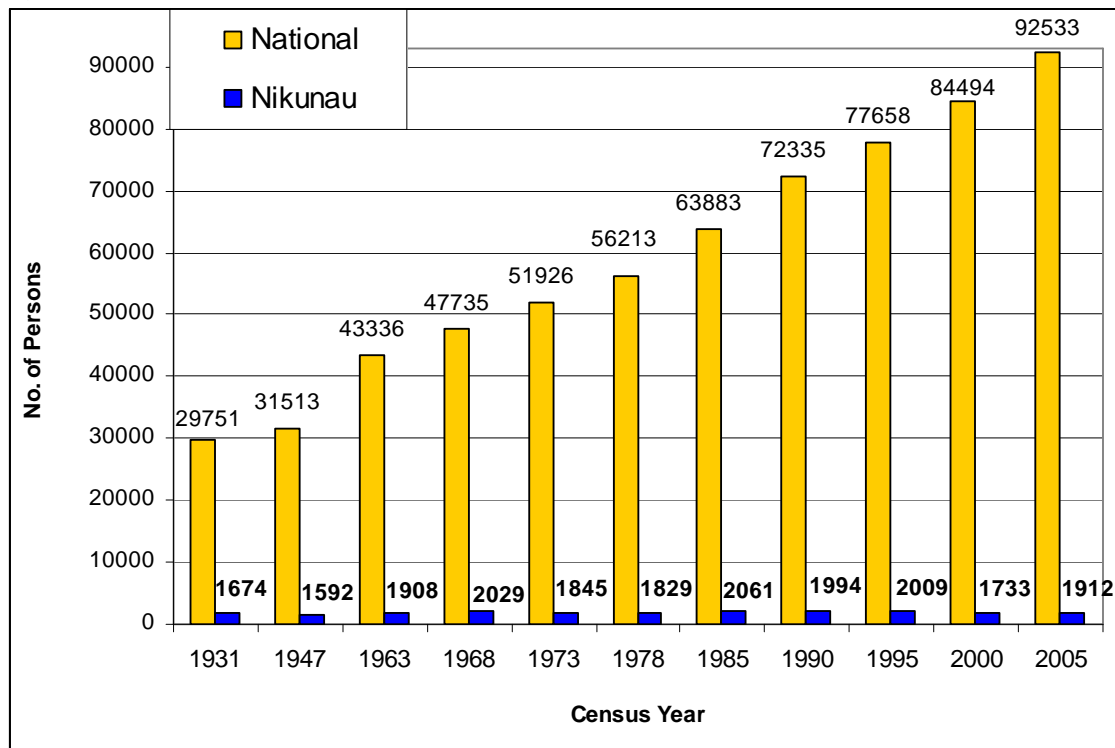
A. ENVIRONMENT AND POPULATION

3.1 Demography

3.1.1 Total population

The 2005 census recorded a total population of 1912 people on the island, an increase of 179 people since the 2000 census when the population was 1733. Of this 1912, there are 980 males and 932 females scattered throughout the island's six (6) villages of Muribenua, Tabutoa, Rungataa, Mwanriiki, Nikumanu and Tabomatang.

Fig 2: Nikunau population trend since 1931-2005



The population of Nikunau represented 2.1% of the total 92,533 population of Kiribati with South Tarawa having the greatest number of people at 43.6%. As evident from the 2005 census, the population of Nikunau increased by 179 (10.3%) people since the 2000 census. Its population trend has pretty much remained constant between 1500 and 2000 since 1931. The highest count of people was recorded in 1985 when the population reached 2061 and the lowest record was in 1947 when the population was 1592.

3.1.2 Growth rate

On its own, Nikunau population has gone with the trend in population growth as the population has changed and increased by 10.3%. The population in Nikunau in 1995 was recorded at 1733 that decreased in the 2000 census by 276 people, and again increased in the 2005 census. Statistics showed that in the year 2000, the population change in Nikunau was at -13.7% while the population change in the year 2005 was 10.3%.

Consequently, where its annual growth rate in 2000 was at -3%, the most recent statistical record in the year 2005 recorded Nikunau's growth rate as being 2%. Nationally, the Gilbert islands population growth was 1.7% in 2000 and 1.8% in 2005. Kiritimati in the Line Group had the fastest national growth rate of 8% on average (*2005 Analytical report*)

3.1.3 Population Density

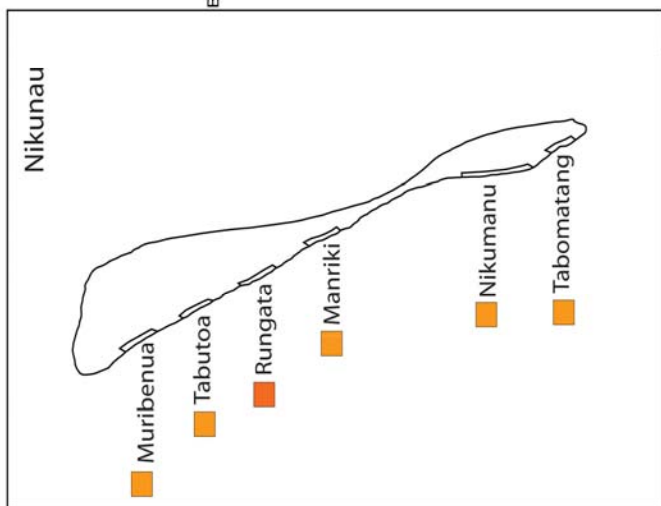
Population density is defined as the number of people living within a square kilometer of land that is calculated by dividing the number of people in a given location with the area of land. Table 2 below presents the population density on Nikunau throughout the years since 2000, showing that the density has been slowly increasing over the last census years meaning that there are more people on a given square kilometer of land. The latest density for Nikunau stood at 100 people per sq. km, further illustrated in the following table.

Table 1: Population Density by village (2000 & 2005)

Village	Village Land Area	Pop 2000	Density 2000 (%)	Pop 2005	Density 2005 (%)
Muribenua	0.17	228	1341	204	1412
Tabutoa	0.13	157	1208	416	1069
Rungataa	0.15	813	5420	101	6220
Mwanriiki	0.14	186	1329	315	1407
Nikumanu	0.26	281	1081	348	1215
Tabomatang	0.13	68	523	74	669
Total Village	0.98	1733	1768	1912	1951
Total Land	19.08		91		100

Source: PopGis 2005 SPC Noumea

Population density by Island, Kiribati 2005

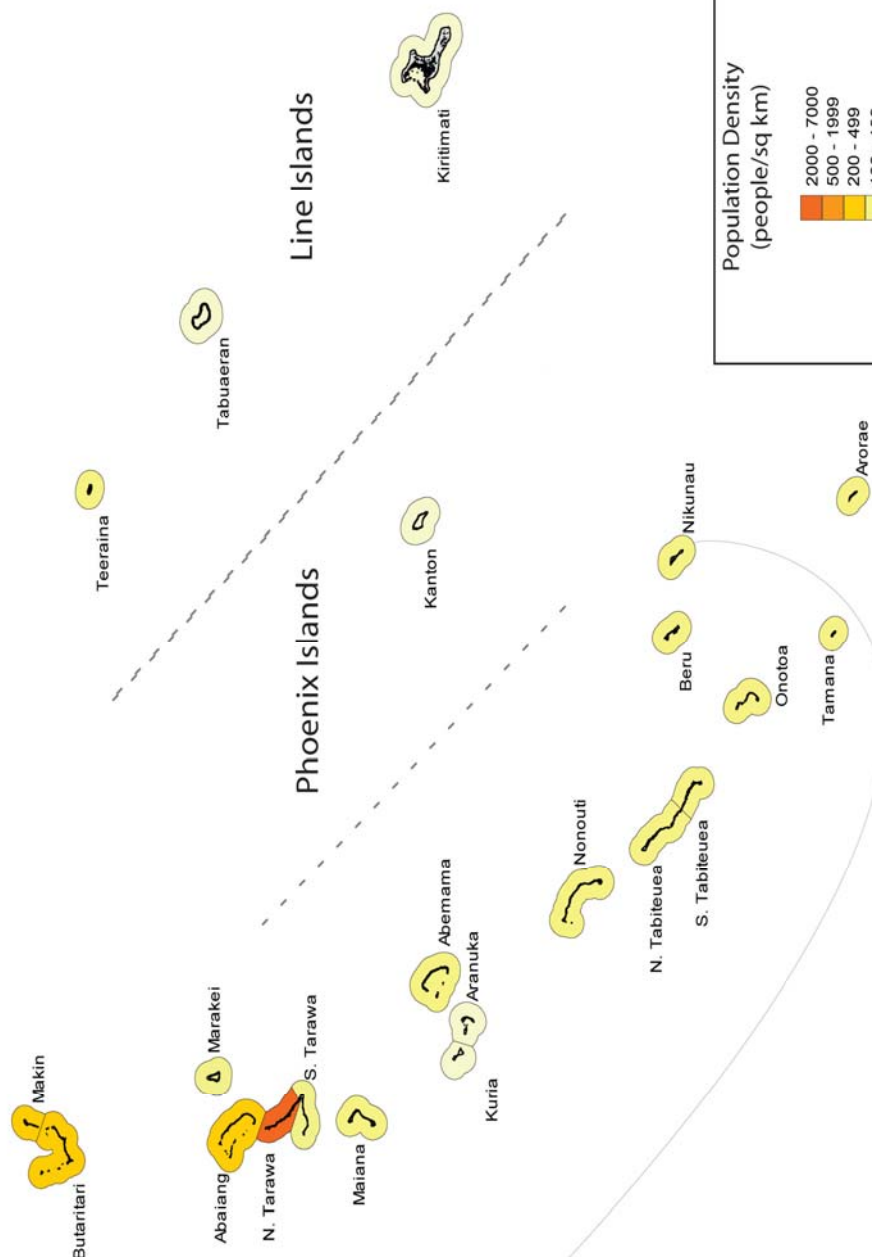


Gilbert Islands

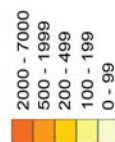
Banaba

N

100 km



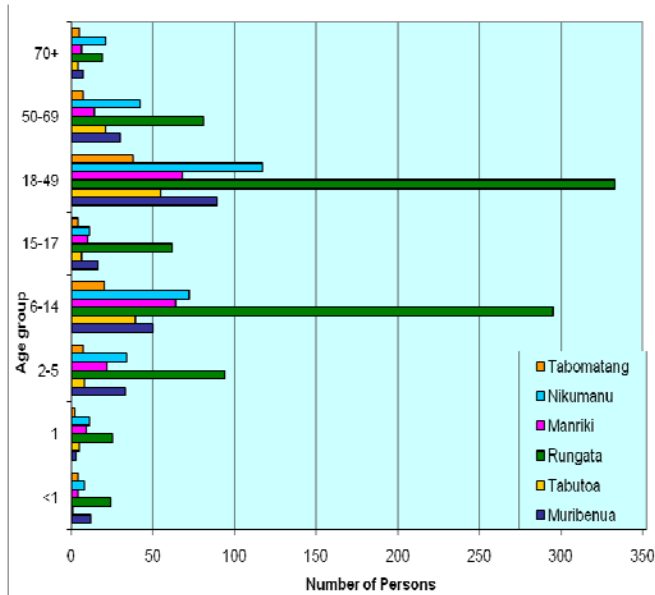
Population Density
(people/sq km)



Map created by MISA with data sourced from 2005 Kiribati National Census of Population and Housing

Nikunau has a total land area of 19.08 sq. km of which approximately 0.98 sq. km (PopGis 2005) comprises the village areas therefore 18.1 sq. km is freely owned individual arable land. The figure for the total village land area gives the idea that the people are congested which the population in Rungataa

Fig 3: Population distribution by age



are. However, it is not due to lack of space that the people are living in dense conditions but rather is a voluntary action by people to live in those conditions. Compared to South Tarawa and Betio, people are living in congested conditions as there are no other options for them whereas those on the outer islands including Nikunau is of their own choice. Rungataa also accommodate the Government station (Nikunau Island Council) and thus the rest of the Government services such as communication, health, financial and others.

Concurring with the slowly increasing trend in population, so has the density and where there were 91 people living on a square kilometer of land in the 2000 census, the density for Nikunau increased in the 2005 census to 100 people living on a square kilometer of land.

3.1.4 Breakdown of Population

The majority of the island population in the statistical year was between the ages 0-14 numbering 846 out of the population 1912 with the highest number residing in the village of Rungataa. Those aged between 15-49 numbered 809 with the most residing again in the village of Rungataa. There are 100 elderlies over 70 years of age who are receiving the Government's elderly pension.

Portrayed at the right is a picture of the oldest person on Nikunau in 2008 according to the old pension records of the Council (T. Tambura). According to Riibine, she has maintained her health by keeping up with her daily work of weaving; collecting pandanus leaves for her weaving, cleaning around the house and walking to her destinations. She is well known on the island for her refusal to be transported by

vehicles and would rather walk to wherever her destination was, no matter how far it was.

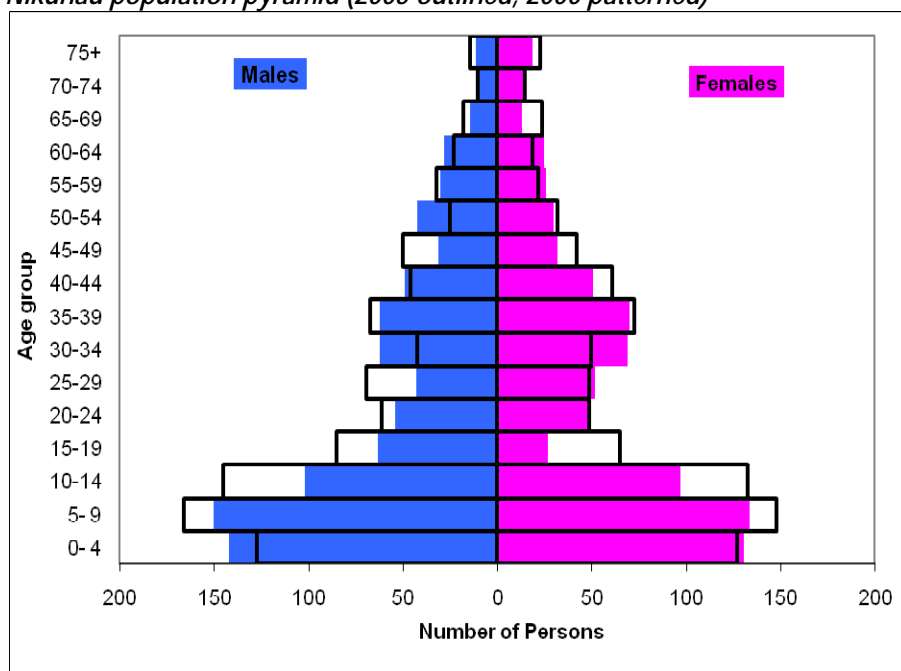


There are 950 (49.7%) of people in the age dependency group (age dependency group defined as those below 15 years and those over 64 years of age). 846 (44.3%) of these are those younger than 15 and 104 (5.4%) are elderlies older than 64 years old (PopGis 2005).

(b) Population by Gender

Statistics indicate that in 2005, females were outnumbered by the males by 48 (980-932) and as depicted in the population pyramid in Fig 12 for Nikunau, (*Kiribati 2005 Census2: Analytical Report, SPC, Noumea, 2007*), the sex ratio for Nikunau is 105 males to 100 females – (total number of males/total number of females * 100 => 980/930*100).

Fig. 4: Nikunau population pyramid (2005 outlined, 2000 patterned)



Source: based on the 2005 Census Analytical Report, SPC, 2007

Nikunau like the rest of the islands has got a young population with the majority aged between 0 and 19 years old at 996 (52%) of the total 1912 population. Apart from the slight increase in the number of females aged 5-19 year olds and those in 40-49 age group, there has been a noteworthy decline in those aged 30-34 years of age.

Interestingly, the greatest increase is evident in those within the 10-14 age groups who are generally those old enough to attend junior secondary schools. The improvement of the education system in the establishment of a JSS and provision of qualified teachers to both primary and junior secondary schools could be an attribute to 12-14 year olds staying back in the outer islands which in Nikunau's case must have worked as there is a considerable increase of those in the JSS age group.

(c) Population distribution by religion

The 2005 census showed that out of the 1912 Nikunauans, 986 (51.6%) are Protestant, 870 (45.5%) are Roman Catholic followers, 8 (0.4%) belong to the Seventh Adventist Church, 39 (2%) are Baha'is, 7 (0.4%) belong to some other unstated church while one does not have religion and the other is a Mormon.



The Protestant church followers represent 3% of the overall 33042 total national KPC congregation; the Roman Catholic on Nikunau represents 1.7% of the national 51144 RC followers, Baha'is representing 1.9% of the 2034 national Baha'is with the rest denominations of SDA and others making up the rest of other different minority church followers on the island. The 6 villages of Nikunau each have a KPC church contrasting to the Roman Catholic who's only church can be found in Rungataa, Mwanriiki and Nikumanu. The most imposing structures on the island are the KPC churches especially the one in Rungataa that was initially built by Vola in the early 1900s and completed by his son Turuman in 1980 (pictured above).

Made from limestone, this church is however breaking down and has been planned by the KPC congregation in the village of Rungataa to be re-built.

Table 2: Nikunau Population by Religious denomination 2005

Religion	Number	% Religion of Nikunau Population	% National Church Representation
Kiribati Protestant Church	986	51.6	3.0
Roman Catholic	870	45.5	1.7
Seventh Day Adventist	8	0.4	0.5
Baha'i	39	2.0	1.9
Church of God	Nil	Nil	Nil
Mormon	1	0.1	0
Other	7	0.4	0.6
None	1	0.1	4.3
NS	Nil	Nil	Nil

Source: 2005 Census of population, NSO/MFED

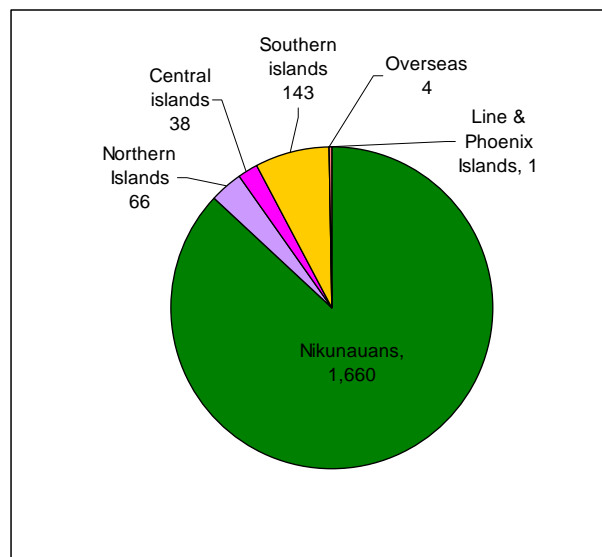
According to the Davies of the *Royalist* diaries, the religious population of Nikunau in 1892 was predominantly KPC who out-numbered the 158 Roman Catholics at 1621 from the 1779 total population. The Roman Catholics have steadily increased over the years to nearly half the population of Nikunau while the villages of Tabutoa in the northern part of the island and Tabomatang in the southern part of the island are still all KPC followers.

Fig 5:

3.1.5 Migration

The population of Nikunau has been fluctuating since 1931 over the years. If these fluctuations are taken as an indication of in and out migration from Nikunau over the years, then it would appear that migration has also been fluctuating since 1931 to the last census report when the population again increased after decreasing in the 2000 census.

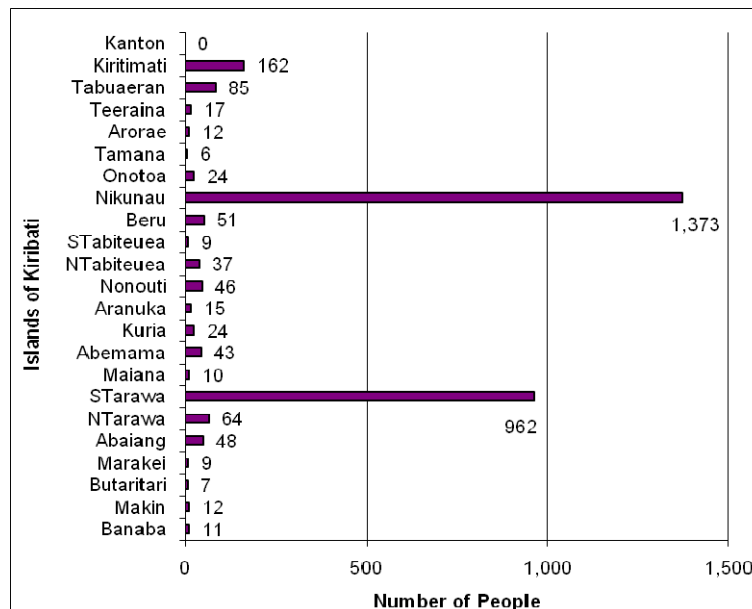
Statistics as illustrated in the chart left, showed that of the 1912 population in Nikunau at the time of the 2005 census, 1,373 (72%) were from Nikunau itself while the rest 252 (13%) of the population were from other islands in the country and including 4 foreigners.



A recorded 4886 (5%) Nikunauans make up the Kiribati population of 92,533 and where 1373 reside on the island itself, the rest 252 are scattered all over the rest of the Kiribati islands as depicted in the chart (above). Those scattered amongst the islands of Kiribati are there as Government employees working on these islands, through marriage to people from these islands, adopted to these islands, and general family visiting amongst other reasons.

Statistical records show that there are of the 3027 Nikunauans scattered over the country 1,373 are residing on the island itself, with a considerable 962 residing in South Tarawa, again implying the trend of migration from the outer islands to South Tarawa in search of better opportunities and services.

Fig 6: Nikunau distribution on islands



Where North Tarawa is counted as an outer island, the congestion in South Tarawa has compelled people to purchase lands in the nearby north Tarawa villages especially Buota and Abatao.

264 are recorded as residing in the Line group, a most probable attribute to the Line group of islands re-settlement in the early 1990s. Unfortunately, data is not available and the census does not indicate when these people arrived on the individual islands for a more detailed expression of in and

out migration from individual islands.

3.2 Land Resources

The island's main resources like the rest of the islands are its limited tree resources predominantly coconut trees, pandanus and its limited marine resources. Due to its wide land feature, Nikunauans state that drought does not seem to affect the island and vegetation that badly that can go for months and even years.

3.2.1 Terrestrial flora:

Plant life plays a great role in livelihood of the islanders and as limited as they are, they all have significant uses as sources of:

- a. Subsistence and commercial materials and products
- b. Ingredients for medicines
- c. Symbols of individual welfare
- d. Ingredients in traditional cultivation
- e. Soil improvement
- f. Provision of shade and groundcover
- g. Materials for toys

Coconut trees (*Cocos nucifera*) are generally the trees of life for islanders as all parts of the tree provide their mainstay of food, shelter, medicine and income for the people in Kiribati including the people of Nikunau. Coconuts have adapted well to atoll and dry conditions and will still remain standing after years of drought even though they may not be producing fruit. However, without fruits, these trees during drought times can still provide toddy spathes that have provided the people for centuries with their initial source of vitamin C found in the toddy.

The pandanus tree (*Pandanus tectorius*) comes second after the coconut as one of the very important tree crops on the islands that people hack their living out of. There is a Pandanus variety that is said to be native to Nikunau that also has a legend attached to it. This variety is called 'te iri roroo' (the black pandanus) and is said to have been brought from a land under the sea called 'Tekiroro'. An outstanding feature of this pandanus is the color which is dark green bordering on black thus named as such. Unfortunately, island visits have been poorly timed with the ripening of this variety as the pandanus itself cannot be told apart from the other varieties except by the fruits. Pictured above is another pandanus variety.



There are two distinct species of breadfruit, the common breadfruit (*Artocarpus altilis*) and the Mariannas breadfruit (*A. mariannensis*) plus a hybrid of the two. The breadfruit tree comes third after the pandanus as the popular fruit trees in the islands but unfortunately the most vulnerable to prolonged droughts (R.R. Thaman 1990). These are therefore cultivated and looked after carefully around the homes where it is easier to look after and rarely found inland and away from homes.



Cultivating 'bwabwai' in Nikunau is very difficult as prevalent in the southern islands due to the southern islands being prone to drought. 'Bwabwai', requiring a great amount of water to grow, is grown in pits dug to the water table. This has made 'bwabwai' a luxury food item in the southern islands including Nikunau, and is not included in the daily staple food but instead cultivated and reserved for very important functions. Bwabwai pits in the southern islands have to be dug to the water lens in order for this root crop to grow contrasting to the northern and central islands where the water table is quite high

and 'bwabwai' crops grow all over the island. So where 'bwabwai' pits in the southern islands are guarded, rarely seen as all are located in the bush, and very private properties, the Northern island bwabwai pits can be seen in abundance alongside the road and in the extreme northern islands, are known to be community owned. The location of the 'bwabwai' pits deep in the forest is because its cultivation is surrounded in traditional secrecy and intensive care. As such, it is exclusively reserved by the islanders for ceremonial purposes only (R.R. Thaman 1990).

Other general flora comprise papayas, local fig, bananas, uri (*Guettarda speciosa*), casuarinas, leucaena, non (*Morinda citrifolia*), saltbush (*Scaevola sericea*), heliotropes (*Tournefortia argentea*), Alexandrian laurel (*Calophyllum inophyllum*), sea trumpet (*Cordia subcordata*), iron tree (*Pemphis acidula*), beach almond (*Terminalia samoensis*), great lettuce tree (*Pisonia grandis*), privet (*Clerodendrum inerme*) and a variety of ornamental plants, grass and weeds. The flower of the *Guettarda* locally called 'te uri' is the national flower of Kiribati. Individually, all these plants play a great role in the subsistence and economic life of the people on Nikunau and Kiribati as a whole.

3.2.2 Terrestrial fauna:

Like the rest of the Kiribati islands, Nikunau is not rich in its land fauna and comprises the common pigs, chickens, dogs, cats, birds and island insects such as rats, lizards, ants and crabs amongst others. The marine fauna on the other hand, has its share of fish, octopus, flying fish, tuna, sharks, lobster, and oil fish to name a few.



The local pigs and local roosters are generally priceless domestic animals that all households have to own and these are kept and managed intensively (pigs) or free ranged (chickens). Introduced breeds of pigs, chickens and other livestock (goats and ducks) have been introduced to the islands by the Division of Agriculture but have limitations and thus are not that popular on the outer islands and Nikunau. Dogs are also kept domestically and to a lesser extent cats. Where dogs are kept as pets because of their role in guarding territories, cats are kept to control rats around the home as rats are abundant throughout Kiribati and in some places such as in the northern islands, they are devouring more coconuts and pandanus fruits than can be harvested for consumption and copra.

3.2.3 Land Tenure, Use and Ownership

During colonial times, people of all the Kiribati islands were brought together for easier census and administration resulting in the formation of villages throughout the islands in the country. The rest of the island, not used for settlements or infrastructure (airport) is, individually owned agricultural land where coconuts, pandanus, and bwabwai are cultivated. All land tenure is catered for under the laws of the 'Native Lands'.

Some acres of freehold land are leased by the Island Council to accommodate its administrative buildings, schools and health centers. Disputes over land ownership and boundaries are settled in Lands Court. The areas where the churches stand were freely given away during the initial establishment of the LMS on the island in the early 1900s. Individual land plots are marked by stones, boulders, trees and specific land marks such as beachrocks, lakes, pits or shrines.

Land is owned by individual landowners and inheritance is as willed by the parents. However, land can also be conveyed as gifts especially when one has done the landowner a big assistance such as in looking after an elderly till death because he was neglected by his own next of kin. Some can be given away to adopted ones who also can inherit lands from their own biological parents. Some lands have been disposed off by sale but is not a common pursuit in Nikunau or in the Southern islands contrasting

to the central and northern islands where sale of lands is quite a common pursuit of both the landowners and the buyers.

Due to the increasing population, lands on the outer islands are as precious as they were in the olden days with some preferring to leave their lands as family lands for all members to utilize as required for reasons such as:

- a. Division of parental lands would mean that some would get the best lands while others could get barren ones
- b. Division of lands could leave one with as few as 2 plots of land or less

Nowadays, anybody can inherit lands regardless of whether they are sons or daughters but this depends on the parents, the landowners. In cases where a parent ceased without a leaving a will, his or her children will divide the lands between themselves in court if they so wish to get individual shares otherwise, the lands are left as family lands. In family lands, all the children and grandchildren of the parent whose land it is are free to harvest or use the land as necessary however, one cannot give it away or sell it without prior consent of all the family members.

Table 3: Land cases 2008

	Case	Number
1	Erasing names from land ownership	3
2	Sale of lands	1
3	Correcting land boundaries	10
4	Land naming (katoka ara)	20
5	Agreement	3
6	Land lease	5
7	Return of lands	2
8	Willing of lands	10
9	Prevention of building, agricultural activities	3

3.3 Marine Resources

3.3.1

Table 4: Size of reef and Lagoon area

Island	REF(sq/km)	REF base (sq/km)	LGN (sq/km)	LAND (sq/km)
Tamana	7.06	18	Nil	19.08

3.3.2 Fish resources and status:

It is difficult to quantify the fish resources of Nikunau, or any island for that matter. However, it is generally accepted that the bigger the reef area the larger the fish resource, particularly reef fish. It could therefore be concluded, that due to its vast reef but absent lagoon area, Nikunau has limited marine resources as well.

However, free migratory fish such as skipjacks and yellow fin tuna



(*Katsuwonus pelamis*, *Thunnus albacores*) flying fish (*Cypserulus sp.*), shark (*Ginglymostoma ferrugineum*), oil fish (*Ruvettus pretiosus*) and lobsters (*Panurillus sp.*) etc are always abundant. Like the other islands that have no lagoons, Nikunauans have easy access to deep ocean resources. Another important feature of the island is the tendency for schools of small fish ('ika buti') and octopus to be found in great abundance around the island on the reef every now and then. These times of abundance in such marine resources are locally said to occur during times of drought or extreme heat which is a common climatic feature of Nikunau. Visiting schools of small fish include the 'kwariki' (pictured below), 'nikuauau' (pictured above) and the 'kiraati'.

These small fish that come every now and then are normally caught using a 'riena', a kind of net that looks like a blown up handled sieve but with the sieve part made of strong fishing line. Some of the fish however are sometimes too small to catch in these narrow nets whence mosquito net material is used to harvest the small fish.



The main and major source of protein to atoll islanders is ocean and reef fish as hardly any other animal apart from pigs and chickens can live and survive in the atolls with their limited vegetation. Pigs and chickens on the other hand take time to grow and are kept for special functions or family celebrations.

3.3.3 Pattern of fishing

The proportion of fresh fisheries resources caught and locally consumed in Kiribati ranks amongst the highest in the Pacific region (Frank R. Thomas 2003). Fishing is largely a man's responsibility even though women are not restricted from fishing. Not every man owns a canoe or boat but the most households own a canoe or have access to one. Having access to one implies that one can borrow a neighbor's or a family's canoe.

Canoes are highly priced items as they are hard to make and equally hard to get materials to construct one. The frames and



Boat (above) and canoe (below) are the main means of accessing the ocean surrounding the island



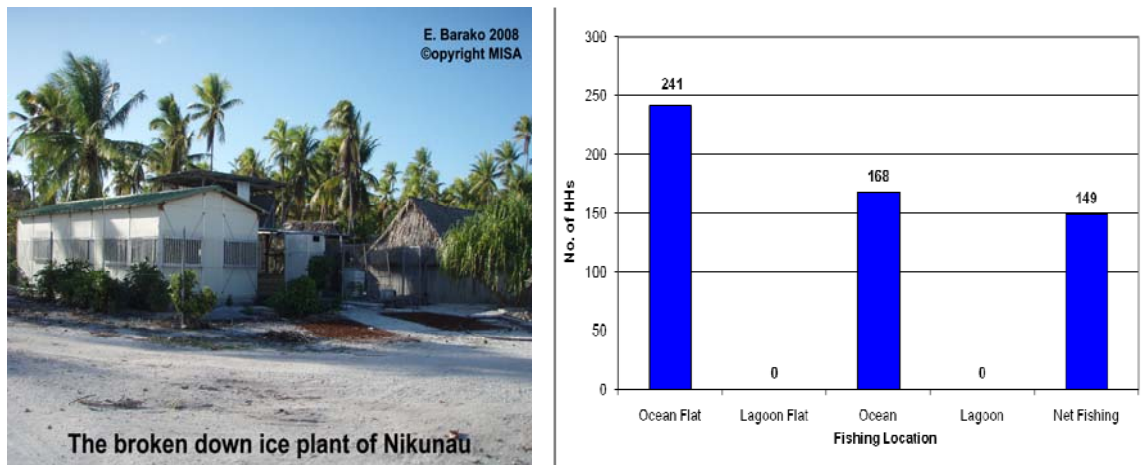
E. Barako 2008
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planks are made up from imported timber obtained from Banaba, Nauru and South Tarawa while the outrigger is made from local wood mostly those that are light most of the time breadfruit, sea trumpet ('kanawa') and the great lettuce tree trunks.

There is limited shellfish on the reef there seasonal times for the shutter shellfish (*Turbo setosus*) and another (pictured bottom center in the above resource illustration) that has allowed women to fish as well on the reef leaving fishing in the ocean as a man's job even on the island of Nikunau. Shutter shellfish come out during the full moon onto the rocks and are easily picked up when found. The introduction of fishing nets has provided another alternative for women to participate in fishing. Consequently, women either fish with nets or collect shellfish on the reef for their subsistence living.

The chart below right categorizes fishing locations by the 335 households. 241 (72%) households normally fish on the ocean flats while 168 (50%) households fish in the ocean and the other 149 (44%) fish by nets on the reef/ocean flats. Fishing in the ocean flats include spearing, net fishing, shellfish collection, night fishing (kibee) and octopus diving.

Fig 7: Fishing location

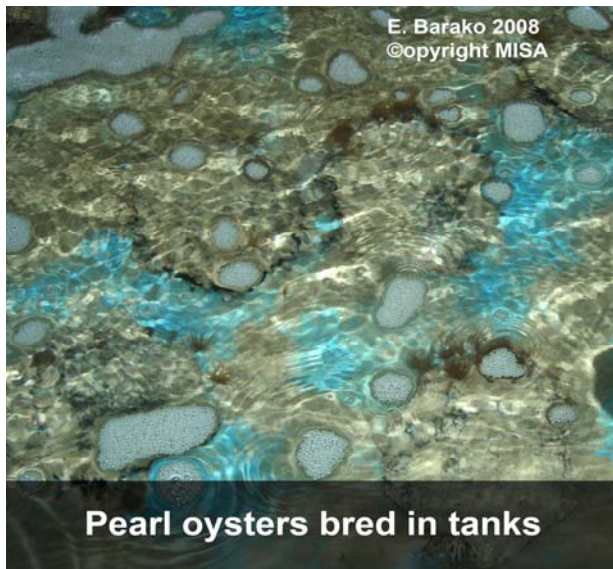


The fishing catches are normally used for subsistence living only and where surplus, they are either shared with neighbors, sold to local consumers, mostly Government council staff or salted and preserved for later consumption, sale and sending to relatives outside the island specially those in South Tarawa. The breaking down of the ice-plant has greatly limited the marketing opportunities for fishermen on the island however, fish are never wasted as the traditional sharing and preservation systems of salting and sun drying are still practiced when the fish cannot be sold.

There is only one boat channel and sea port in Nikunau located in Rungataa near the Cooperative and about 10 minutes walk from the Island Council Office.

3.3.4 Marine Developments

The Ministry of Fisheries & Marine Resources Development is responsible for marine development nevertheless; Island Councils on individual islands have their own marine developments. The most recent popular development by the Ministry of Fisheries & Marine Resource Development (MFMRD) is the promotion of sea cucumber harvesting for income generation purposes. The small size of its reef area has limited the opportunities for the Nikunauans to be part of this development in sea cucumber export.



The Fisheries Department in Tanaea is also carrying breeding trials of some marine resources for dissemination throughout the islands of Kiribati as fitting. Mother pearl oysters are being bred in artificial tanks in Tanaea and are presently supplying young oysters to Butaritari, Abemama and Onotoa for pearl oyster farming trials on these islands. The first island to have undergone this kind of pearl oyster farming trial was Abaiang and having been a success, it is now being taken to the other islands of Kiribati as required by the Island Council and island community. The white teat-fish (*Holothuria* sp.) is also being bred in the artificial tanks for further deployment in the outer island waters (sea) as stocks are

slowly depleting on the outer islands with the increase in export of sea cucumbers from Kiribati. A shellfish locally known as the 'bwaraitoa' is also being bred simply because it is not abundant in Kiribati waters but has great export potential as the shell is usually processed into buttons.

3.3.5 Issues facing fishing and development of marine resources

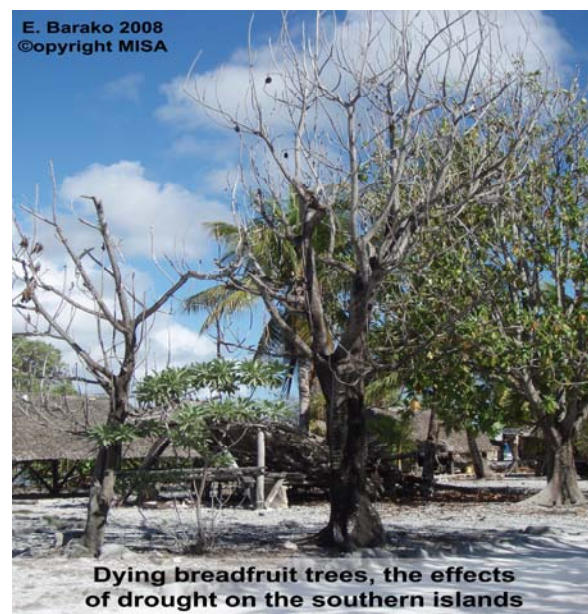
Even with the decline in population, there are still minor marine resource issues on Nikunau such as:

- a. Lack of fishing equipment
- b. Remoteness of the island makes it hard for them to access fish markets in South Tarawa
- c. Absence of an ice-plant has made salting, their only way of preserving fish
- d. Depleting ocean resources in the nearby ocean area (sea cucumbers)

3.4 Status of Environment

Consistent with climate change, the most threatening environmental issue on the island is soil erosion, and flooding of land during high sea surges. Other issues also exist in the form of safe dumping of rubbish and lack of proper sanitation facilities that will not affect the water lens.

Drought is an ever-present threat to the Southern islands of Kiribati including Nikunau. Drought kills off land vegetation and where it does not, the fruits are affected in size and thus production. Wells providing the main source of water for the islanders turn brackish and the dry vegetation makes the bush vulnerable to bushfires. However, since Nikunau is quite wide compared to the islands in Kiribati, potable water is always available towards the centre of the island.



Kiribati has been assessed and considered as being at relatively low risk from cyclones, but storms can create major damage to food crops on the islands that are mostly mere strips of rocky coral land between the ocean and a lagoon (*SPDRD Case studies of the Pacific 2002*).

These storms concur mostly with the rainy seasons which are towards the end of the year until the early months of the year and most experienced as strong winds that could uproot or break coconut trees and even known to blow roof houses off. Otherwise, Nikunau is perfectly sheltered from cyclones just as the rest of the islands in Kiribati apart from Tamana and Arorae in the extreme south of the Gilbert group of islands that have experienced tremors and momentary tornado or strong whirlwinds which the islanders experienced in the early 1990s. The strong whirlwind experienced in Tamana left a huge dent in the ground and buildings without roofs.

Rubbish however, now includes a lot of un-degradable commodities that are not easily disposed of and as such provide environmental issues. These include plastic in a lot of forms as well as batteries, aluminum cans and most of the time commodity wrappings such as in noodles, snack foods and nappies amongst others. Without proper disposal systems in place, all these household wastes are being dumped around the house but most of the time in the sea. Where before household wastes such as noodle wrappings and plastic bags were publicized as being best when burned is not so anymore in the bid to decrease greenhouse gases. Burying the plastic on the hand could suffocate soil fauna and flora alike and thus this was also not encouraged.

Without any other options, it is generally a common practice throughout the country for people to dump such wastes on the beach or just leave them lying around and blowing in the wind. Those unable to stand such rubbish still burn them.

Coastal erosion is a fast rising major environmental issue for the islands of Kiribati including Nikunau. The change in climate has also a rising change the coastal and terrestrial environment of the islands, further compounded by establishment of coastal infrastructure. Many locations on the island have been seriously eroded, resulting in the relocation of infrastructure (road, buildings, etc.) or the recurrent high efforts and expenditure on constructing and maintaining seawalls.

Nikunau is one of the islands that do not have any causeways or bridges but nonetheless, it is still suffering greatly from erosion problems. There are however, numerous seawalls that are at times nearly twice the height of a 5-6 foot man. Needless to say that these high seawalls would require lost of coastal boulders and rocks, not to mention the sand required to fill the reclaimed area of the seawalls. The following table shows areas that are eroding, accreting and being flooded. Flooding during high tides is not common on the island as it is higher than other islands considering that it is a reef island, without a lagoon and therefore tends to be higher than islands with lagoons. The whole capital village of Rungataa seems to have had seawalls erected over the

