



BUTARITARI ISLAND



2008

SOCIO-ECONOMIC PROFILE

PRODUCED BY THE MINISTRY OF INTERNAL AND SOCIAL AFFAIRS,
WITH FINANCIAL SUPPORT FROM THE UNITED NATION DEVELOPMENT PROGRAM,
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



BUTARITARI ANTHEM

ABARA AE TANGIRAKI AE BUTARITARI

Abara ae tangiraki
Ae Butaritari
Boni ngaia n nera ao mwengara
Te Atua ti butiko
Karaoiroa abara
E na maiu ao e na rikirake

Ai rabwara te Uea
Bwa e anganira abara
Ae moan te tikiraoi
Butaritari abara are tibungiaki iai
//E na maiu ao e na rikirake//

BON TE ABA TEUANA NI KAOKORO AROARONA

Ai tikara rereina abau ae tangiraki irou,
Butaritari are ngaia maten nanou
Bwa I bungikiaki iaona mani
Bweberake naba iai
Bwa bon rikiaia au bakatibu
Ma ngkoangkoa

Cho: Bon te aba teuana ni kaokoro aroarona
,Ma kateina ibuakioia aba nako (ni kabane)
Bwa bon tiaki kanoan te Bo-ma-te-maki
Bwa bon te aba a e anaki mai nanon
waerake

Bane mai ao nakomai ba kam na nora ana
bon riki
Are ngaia moan rikin abau oo (ae Butaritari)
Bwa bon ti ngaia matawa, ko roko i moa ma i
nukan te waa
Ma ko roko rimwii iaon abaia ae Buariki iaoni
Makin

I amamauri oh, bwa e toka man ewe raoni Niin
abara
Man aki kan eweaki n arona nako (ni kabane)
Be raraure uen te tangira iaona te kukurei ni
karianako
Ibuakoni kain aona aika a manguroro.

BUTARITARI OUR BELOVED ISLAND

Our island much beloved
Butaritari
Our island and home
We beseech you Lord
Bless our island
Make it grow and develop

Thank your Lord
For giving us our island
The best of all
Butaritari where we have been born
It will grow and develop

AN ISLAND ON ITS OWN

So pleasing and exquisite is my beloved
island
Where I was born and grew up on
Since the days of my ancestors
From long ago

Cho: An island on its own
In its traditional differences
Because it was not part of
the initial Cleaving
For it was an island that came
up on its own

So come all ye so you can see
How my island was born (my Butaritari)
Where everything is easy, getting to the
Front or to the centre of the canoe
For you came later to their land, Buariki on
Makin

I be blessed for my cultivations are well
grown on my land
That will stand the forces of time (each one of
them)
Their flowers shall bloom and love and
happiness shall abide
Amongst its evergreen woodland

FOREWORD

*By the Honourable 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 Butaritari 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, recommends the incorporation of valuable data and information, and generously offered to publish the profiles. The Kiribati Adaptation willingly came on board after the SDGiK ended, to continue funding completion of the outer island profiles and to incorporate Climate Change and Sea level rise information in the profiles that were otherwise non-existent. Without all the above 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 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 their collective work.

Ultimately the greatest contribution and sacrifice in the production of these revised Island Profiles is 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, Nei Buraieta Tekabwaara who worked hard to collect and update data required for the profiles as well as the GIS data maps. Nei Ruta Ioata, 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. Tebwania Taateri came in later and assisted in data collection and compilation. 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 island councils 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.

Table of Contents

CHAPTER 1: INTRODUCTION.....	- 10 -
1.1 Summary of Main Socio-Economic Indicators.....	- 11 -
CHAPTER 2: GENERAL BACKGROUND.....	- 12 -
2.1 LOCALE	- 12 -
2.1.1 Location, Size and Land Area	- 12 -
2.1.2 Physical features	- 12 -
2.1.3 Climate	- 13 -
2.1.4. Soil.....	- 14 -
2.1.5 History and Culture	- 16 -
CHAPTER 3: TE MAURI – ENVIRONMENT, RESOURCES AND SOCIAL SERVICES.....	- 18 -
3.1 DEMOGRAPHY	- 18 -
3.1.1 Total population	- 18 -
3.1.2 Growth rate	- 18 -
3.1.3 Population Density.....	- 19 -
3.1.4 Breakdown of Population.....	- 21 -
3.1.5 Population by Gender.....	- 22 -
3.1.6 Population distribution by religion	- 23 -
3.1.7 Migration.....	- 24 -
3.2 LAND RESOURCES.....	- 25 -
3.2.1 Terrestrial flora	- 25 -
3.2.2 Terrestrial fauna.....	- 26 -
3.2.3 Land Tenure Ownership	- 27 -
3.3 MARINE RESOURCES.....	- 28 -
3.3.1 Size of reef and Lagoon area	- 28 -
3.3.2 Fish resources and status.....	- 28 -
3.3.3 Pattern of fishing.....	- 29 -
3.3.4 Marine Developments	- 30 -
3.3.5 Issues facing fishing and development of marine resources	- 30 -
3.4 THE ENVIRONMENT	- 31 -
3.4.1 Environmental Issues.....	- 31 -
3.5 SOCIAL SERVICES/INFRASTRUCTURE.....	- 34 -
3.5.1 Education.....	- 34 -
3.5.2 Number of school age children, proportion enrolled in schools	- 35 -
3.5.3 Breakdown of school enrolment at different levels.....	- 36 -
3.5.4 Teacher:Pupil ratio.....	- 39 -
3.5.5 Percentage of pupils completing Primary and JSS	- 39 -
3.5.6 Number of schools, type and state of facilities	- 40 -
3.5.7 Performance of Pupils in national tests/exams	- 41 -
3.5.8 Community involvement to improve standard of education.....	- 43 -
3.6 HEALTH	- 44 -
3.6.1 Health Facilities & Staff	- 44 -
3.6.2 Most Common Health Problems.....	- 44 -
3.7 HOUSING.....	- 45 -
3.7.1 Total number of residential houses, type and status	- 45 -
3.8 WATER	- 46 -
3.8.1 Water Supply Sources.....	- 46 -
3.8.2 Status of Water Supply.....	- 47 -
3.9 ENERGY	- 49 -

3.9.1 Lighting	- 49 -
3.9.2 Fuel	- 50 -
CHAPTER 4: TE RAOI – SOCIAL CAPITAL, COMMUNITY LIFE AND GOVERNANCE	- 51 -
4.1 LOCAL INSTITUTIONS AND SOCIAL CHANGE	- 51 -
4.1.1 The Mwaneaba System and 'Unimwane' Association	- 51 -
4.1.2 Women Organizations	- 52 -
4.1.3 Youth and Sports Associations	- 52 -
4.1.4 Main religious denomination	- 53 -
4.2 POLITICAL AUTHORITY AND GOVERNANCE	- 54 -
4.2.1 Traditional political system – description and status	- 54 -
4.2.2 Local government system – Butaritari Island Council	- 54 -
4.2.3 Interface between Local Government and Traditional Political System	- 57 -
4.2.4 Crime and Justice System	- 58 -
CHAPTER 5: TE TABOMOA – ECONOMIC ACTIVITIES, INFRASTRUCTURE AND UTILITIES....	- 60 -
5.1 ISLAND ECONOMY	- 60 -
5.1.1 Subsistence Economy	- 60 -
5.1.2 Copra cutting	- 61 -
5.1.3 Employment	- 62 -
5.1.4 Trade and Commerce	- 63 -
5.1.5 Local Finance	- 64 -
5.1.6 Remittances	- 65 -
5.2 ECONOMIC ACTIVITIES	- 67 -
5.2.1 Agriculture	- 67 -
5.2.2 Livestock	- 70 -
5.2.3 Fisheries	- 72 -
5.2.4 Handicrafts	- 73 -
5.3 INFRASTRUCTURE	- 74 -
5.3.1 Land Transport	- 74 -
5.3.2 Sea Transport and Shipping	- 77 -
5.3.3 Air Service	- 79 -
5.3.4 Issues facing Transportation	- 80 -
5.3.5 Communication	- 80 -

LIST OF TABLES AND FIGURES

TABLES

Table 1	Population density by village
Table 2	Population by religion
Table 3	Reef and lagoon size
Table 4	Senior Secondary schools
Table 5	Primary enrolment by age, gender and class
Table 6	JSS enrolment by age, gender and class
Table 7	Teacher:Pupil ratio
Table 8	Population education level
Table 9	Outer island solar systems
Table 10	Council priority projects
Table 11	Butaritari projects 2008
Table 12	Businesses and fees
Table 13	Services and fees
Table 14	Butaritari VB grant
Table 15	Agricultural product prices
Table 16	Air tariff
Table 17	Flight schedules
Table 18	Telephone costs

FIGURES

Figure 1	Geographical map of Butaritari
Figure 2	Population trend 1931-2005
Figure 3	Population distribution by age
Figure 4	Population pyramid
Figure 5	Population make-up
Figure 6	Population distribution on islands
Figure 7	Household location of fishing
Figure 8	Primary enrolment
Figure 9	JSS enrolment
Figure 10	Level of education
Figure 11	Types of households
Figure 12	Household ownership
Figure 13	Sources of water
Figure 14	Sources of light
Figure 15	Fuel supply 2005-2009
Figure 16	Structure of traditional authority
Figure 17	Island denominations
Figure 18	Council staff structure
Figure 19	Copra production
Figure 20	Access to food trees
Figure 21	Households owning pigs
Figure 22	Households owning chickens
Figure 23	Households owning bicycles

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
JSS	Junior Secondary School

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.

1.1 Summary of Main Socio-Economic Indicators

	NATIONAL			BUTARITARI		
	Total	Males	Female	Total	Male	Female
Total population (November 2005)	92533	45612	46921	3280	1621	1659
Urban population	40311	19435	20876	NA	NA	NA
Percent of national population				3.5	3.6	3.5
Percent urban (%)	43.6			NA	NA	NA
Rate of Growth (%) of total population 2000-2005				NA	NA	NA
Population density	127			243	NA	NA
South Tarawa population density	2558			NA	NA	NA
% population younger than 15years	37	38	36	44	46	42
% population 15-24 years	21	21	20	31	33	30
% population 15-59 years	58	57	58	50	49	51
% population 60 years and older	5	5	6	6	4	7
Age dependency ratio	74			75	77	74
Households						
Number of private households	13999			561	NA	NA
Number of persons in private households	88644	43749	44895	3279	NA	NA
Average household size	6.3			5.8	NA	NA
Number of institutions (non-private)	43			NA	NA	NA
Number of persons in institutions	3889			NA	NA	NA
Labor market activity	36969	20013	16956			
Employed population	34715	18883	15832	1,836	870	966
Cash workers	13133	8095	5038	168	109	59
Village workers	21582	10788	10794	1,305	603	702
Unemployed	2254	1130	1124	9	7	2
Non-labor market	21069	7926	13143			
Students	7323	3496	3827	95	52	43
Persons engaged in home duties	6077	793	5284	115	36	79
Inactive persons	3662	1996	1666	47	29	18
Retired persons	3227	1179	2048	75	18	57
Disabled or sick persons	709	398	311	17	13	4
Prisoners	71	64	7	0	0	0
Labor market participation ratio	63.6	71.5	56.3	81	83	79
Employment-population ratio	22.6	28.9	16.7	NA	NA	NA
Unemployment rate (%)	6.1	5.6	6.6	89	NA	NA
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	NA	NA	NA

CHAPTER 2: GENERAL BACKGROUND

2.1 LOCALE

2.1.1 Location, Size and Land Area

Butaritari is one of the northern islands in the Gilbert group, its nearest neighbour is Makin located 18.39 km northeast of it. It lies 199.29 km north of Betio in Tarawa, the capital island in Kiribati and is amongst the longest atolls of Kiribati.

Alternative Names:	Makin Atoll, Pitt Island
Area / Country:	Northern Gilbert group, KIRIBATI
Coordinates:	Latitude (DMS): 3°09' 30.29" N Longitude (DMS): 172° 49' 09.45" E (Degrees, minutes and seconds)
Area:	Total land area: 13.49 sq.km Widest width: 2.60 km Narrowest width: 0.26 km Length: 69.27 km

Its widest area can be found in Ukiangang and narrowest width at Kuma. It is located north of the equator and is prone to rainier climate when compared to the central and southern islands. Accordingly, its terrestrial fauna is unlike the rest of the islands in the country, more diverse and greener.

2.1.2 Physical features

At 13.49 sq. km, Butaritari is the 15th biggest island in the country with Kiritimati the biggest atoll in the country and the world having a land area of 388.39 sq.km and Tamana island the smallest at 4.73 sq. km. Butaritari is an atoll made up of several islets of which the mainland is connected to the northern villages of Keeuea and Kuma by a causeway, Nan Teibo causeway. It has a lagoon that is abundant with a variety of marine resources of which there is a fish that is locally said to be unique to the island and called 'te kimokimo'.



The wharf and council area (opposite left of wharf)

The mainland accommodates the main service infrastructures such as the Council offices, airstrip, seaport or boat harbor and the majority of the villages namely Ukiangang, Onomwaru, Temwanokunuea, Taubukinimeang, Antekana, Tabonuea, Tanimaiaki, Tanimainiku, Keeuea and Kuma that are linearly located alongside the lagoon. Where the latter two villages are connected to the mainland by Teibo Causeway, Bikaati islet, is too far from the mainland and remains unconnected to the mainland. Other than Tarawa, Butaritari has one of the best wharfs (pictured above) that can be found on the outer islands of Kiribati, reportedly built by the Japanese during their occupation of the island during WWII.

The airport on the other hand was built by the Americans during their occupation of the island after they had captured Butaritari (Makin atoll) in 1943.

Temwanokunuea accommodates the council offices and other government service facilities for communication purposes, offices, the junior secondary school and living quarters for Government seconded employees. Villages either have their own medical and primary school facilities or share it between two or three villages. As an islet on its own, Bikaati has its own medical and primary school. JSS students from Bikaati however, have to stay with relatives on the mainland to attend the junior secondary school.

Butaritari, like most of the outer islands has one main road that run along the island and sidetracks into the bush and other areas of the island. Due to its narrow width when compared to Nikunau, the road that can accommodate trucks runs linearly to the island on the lagoon side only thus accessing the bush is by pushbike, motorbikes and walking. Apart from Tanimainiku, the rest of the villages are located linearly alongside the road on the lagoon side. Tanimainiku is located north of Tanimaiaki and is where the Teibo causeway starts.



2.1.3 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.

Butaritari like the other islands scattered astride the equator, has a tropical climate but unlike the southern islands, experiences a lot of rainfall throughout the years and rarely, if at all, suffers from drought. 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, due to its high rainfall, the humidity is great and according to the locals, the most humid island of the Kiribati 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 even though Butaritari is no exception, Where the southern islands are adversely affected during El Nino events, Butaritari experiences a lot of rain and vice versa during La Nina events. The 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>).

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. Research has not been able to turn up any documented record of a drought ever occurring on the island of Butaritari, which by Kiribati standards proves Butaritari to be one of the best islands to live on.

2.1.4. 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).

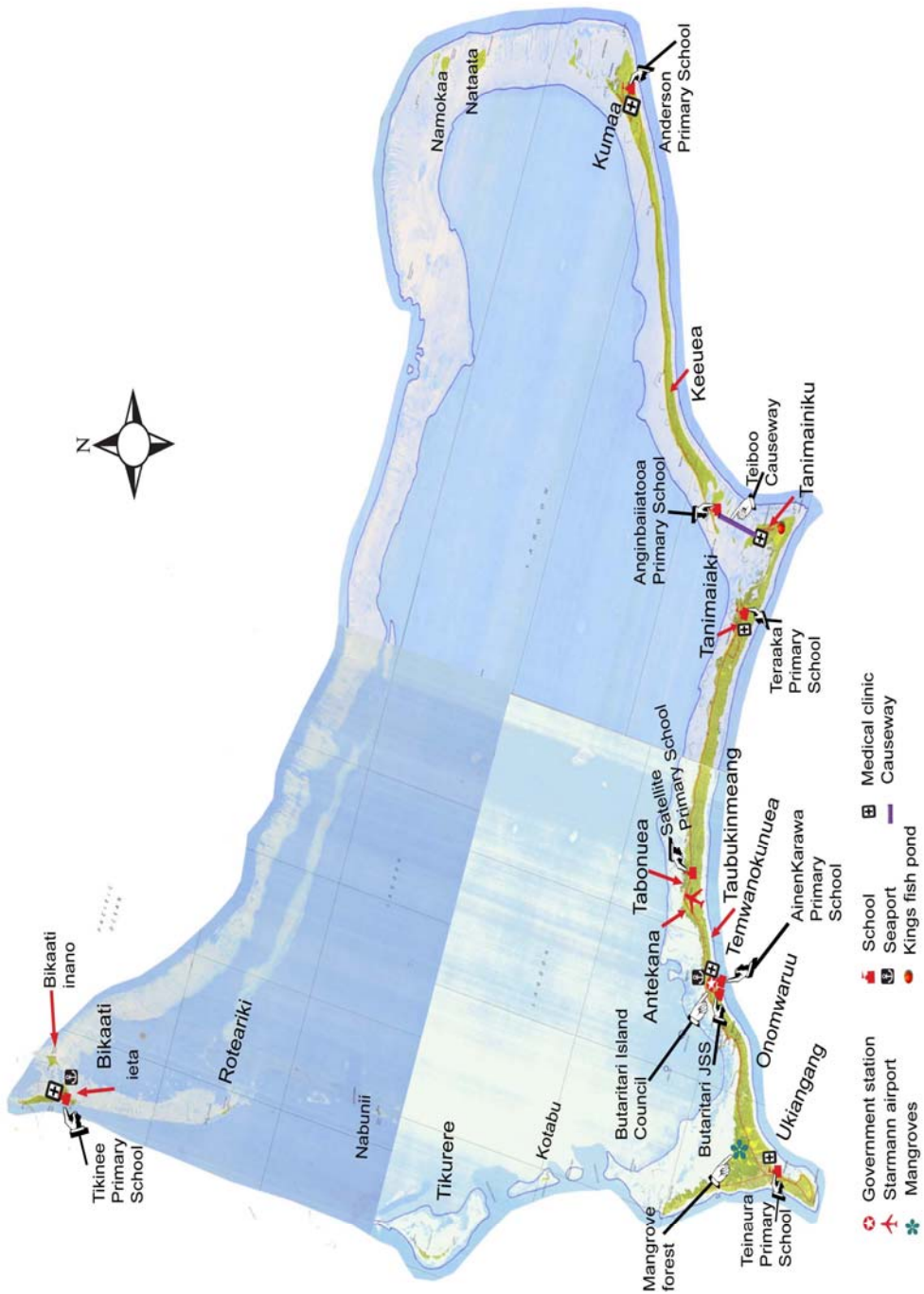


The soils encountered in Kiribati are described as having an AC type profile. The A-horizon consists of sand containing a variable quantity of humus. It is usually about 25 cm deep, has a pH of 7.6-8.0, and is dark grayish to black in colour. This rapidly gives way to coarse white and pink gravelly sand 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.

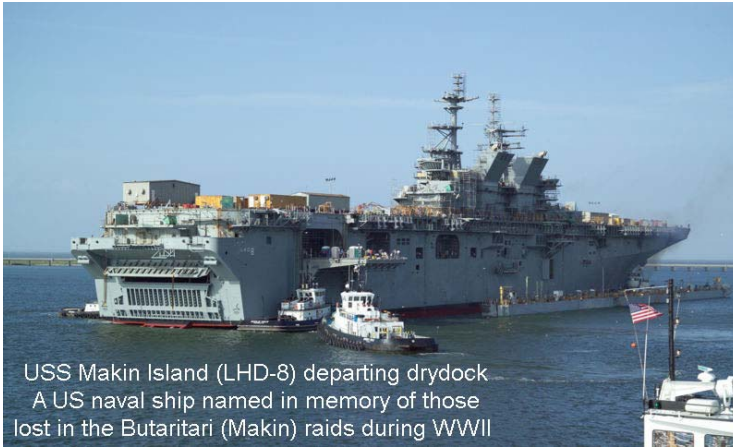
<http://www.fao.org/ag/AGP/AGPC/doc/Counprof/southpacific/kiribati.htm>

Fig 1: A geographical map of Butaritari



2.1.5 History and Culture

Butaritari was called Makin Atoll by the US military during their occupation of the island in WWII when Makin was then known as North Makin or Little Makin to distinguish the difference. Butaritari (a village of Makin Atoll) later became the preferred name for the larger atoll to this day while Little Makin has had



USS Makin Island (LHD-8) departing drydock
A US naval ship named in memory of those
lost in the Butaritari (Makin) raids during WWII

the 'little' dropped and is now known as Makin and both are now different islands on their own.

Discovery of the Kiribati islands has not been that well documented with discovery dates having been argued by researchers such as Maude and Sharp. However, according to Kiribati historical literature, Kiritimati island was said to be sighted in 1537 by Spanish explorers while Butaritari was the first island in Kiribati to be

discovered in 1606 by Spanish explorer, Pedro Fernández Quirós followed by Nikunau in 1765 by Captain Byron. Traditionally, where most of the islands were orally told to have been created by different gods, Butaritari was an underwater land that was fished out of the ocean by one of the Kiribati mythical Gods. The name 'Butaritari' meaning 'Scent of the sea' further describes how the land was created and named.

It was one of the first islands to be occupied by the Japanese on 9th December 1941 during WWII. The primary strategic object of the Japanese expansion to Butaritari war was the occupation and development of the southern resources area which they considered vital to Japan's economic welfare as it contained most of the essential raw materials and also because the island made an excellent base for its war activities in the Pacific. The force consisted of 200 to 300 troops from the 51st Guard Force based on Jaluit. At Butaritari, the troops landed at the village of Ukiangang. The Gilbert Islands Resident Commissioner, Mr. H. C. Williams, had gone to meet them and had been taken prisoner and sent to Tokyo. The troops advanced north from Ukiangang and settled at Butaritari village where they chased the traders away and turned On Chong's (Chinese trader) store into their barracks.

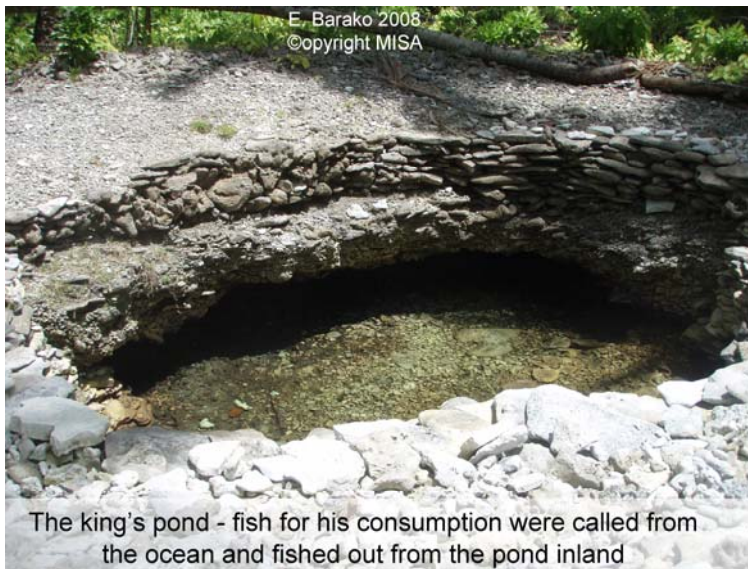
The Americans, in an attempt to get the Japanese to divert forces off their planned invasion route to the Guadalcanal in the Solomons, destroy communication and other war installations on the island, carried out a raid on the Japanese in August 1942. They were forced to evacuate in the face of Japanese counter attacks. Later in November, 1943, the Americans again raided, took and secured Butaritari from the Japanese.



During the initial Japanese occupation of Butaritari in 1941, they built a seaport for their naval ships and submarines and later the Americans built the airport in December, 1943 after they had driven the

Japanese out. These two infrastructures are still being used to this day. The airport is documented as being called Antekana or Starmann Airport.

The people of Butaritari are exactly the same as the people of Makin but this is not surprising considering that both islands used to be one island and one people, now independent of each. There is a marked difference in their accents and dialect when compared to those from the Southern islands. Some of their words go beyond the meaning of the word itself as generally understood in the islands e.g. 'toro' in human context in their dialect means relative or family whereas 'toro' to the rest of the islands means 'slave'. Life on the island is a lot more relaxed when compared to life in the southern islands who cannot afford to idle away the time. The lifestyle reflects the easiness for the people to get food as the island is lush, rainy and abundant in land and marine resources that not only men can harvest but basically anyone including the children.



Like the rest of the Kiribati islands, they are friendly, hospitable and generous but compared to the southern islands, their traditions are not as restrictive as those in the southern islands.

Once governed by kings and chiefs, the people of Butaritari are now governed by the Government of Kiribati through the Butaritari Island Council. The king's pond pictured left is a standing legacy of the once upon a time king who was said to

demand different kinds of fish to eat daily. Through his magicians and fishermen, the fish were called from the ocean and into the pond whence they would be fished out for the king's meal. A passage is said to exist from this pond to the ocean that has a history of its own.

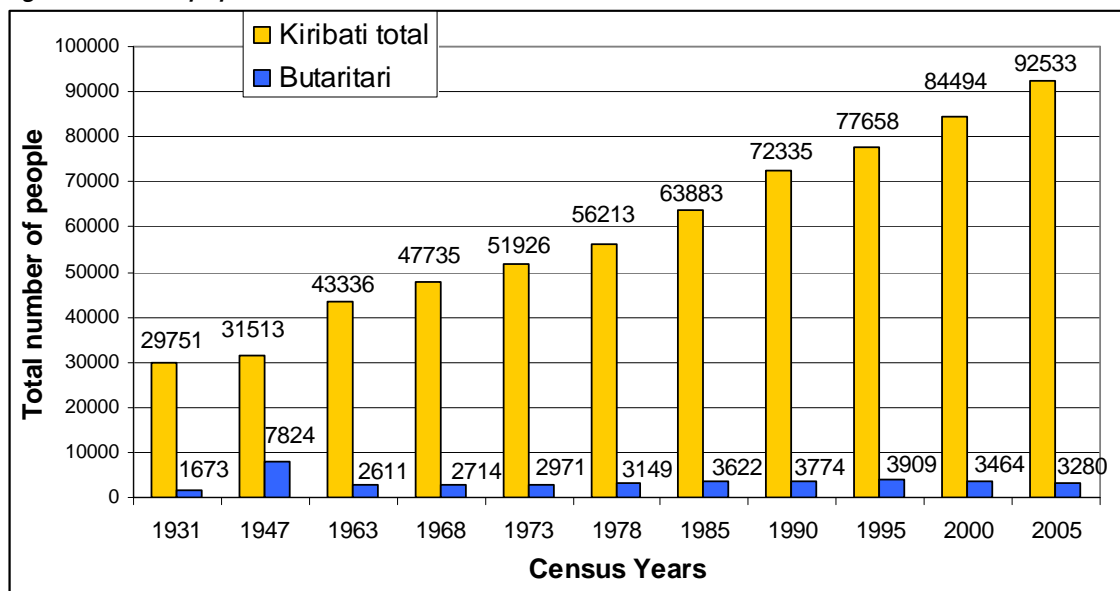
CHAPTER 3: TE MAURI – ENVIRONMENT, RESOURCES AND SOCIAL SERVICES

3.1 DEMOGRAPHY

3.1.1 Total population

The 2005 statistics recorded a total population of 3280 people on the island, a decrease of 184 people since the 2000 census when the population was 3464. Of this 3280, there are 1621 males and 1659 females scattered throughout the island's eleven (11) villages of Kumaa, Keeuea, Tanimainiku, Tanimaiaki, Tabonuea, Antekana, Taubukinimeang, Temwanokunuea, Onomwaruu, Ukiangang and the islet of Bikaati.

Fig 2: Butaritari population trend since 1931-2005



The population of Butaritari represented 3.5% 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 Butaritari declined by 184 (5.3%) people since the 2000 census. Its population trend has been fluctuated mostly between 1600 and 4000 since 1931 except for the year 1947 when its population reached a peak of 7824 only to decline to 2611 people 13 years later. In 1947, WWII had just ended two years earlier and at this time, Butaritari, then called Makin accommodated people from both Makin and Little Makin and probably soldiers from the war had not yet left. Documented events for that specific year have not been found in the research for information but it is most likely that the high number of people is an attribute of the aftermath of WWII as Butaritari was one of the first islands in the Gilbert group to have been targeted during the stated war initially by the Japanese and later the Americans. Around this time, Butaritari and Makin were still counted as one island and thus, the high count could have been an attribute of the total population of both islands including the Americans.

3.1.2 Growth rate

The population of Butaritari for the last census years of 1995 and 2000 has been declining initially by -11.4% (1995-2000) and recently by -5.3% (2000-2005). Statistics showed that in 1995, the population

was at a count of 3,909 and in 2000, it declined by 445 people to 3,464 and further declined in 2005 by 184 people to 3,280.

Consequently, corresponding to its population changes between 1995 and 2005, its annual growth rate in 2000 was at -2.4%, with the most recent statistical record in the year 2005 of its growth rate being at -1.1%. 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 while Kanton, also documented as Abariringa had the slowest growth rate at -7.9%. (*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 Butaritari throughout the years since 1995 has been declining thus less people living on a given square kilometer of land. The recent density for Butaritari stood at 243 people per sq. km, a density change of -5%, further illustrated in the following table.

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

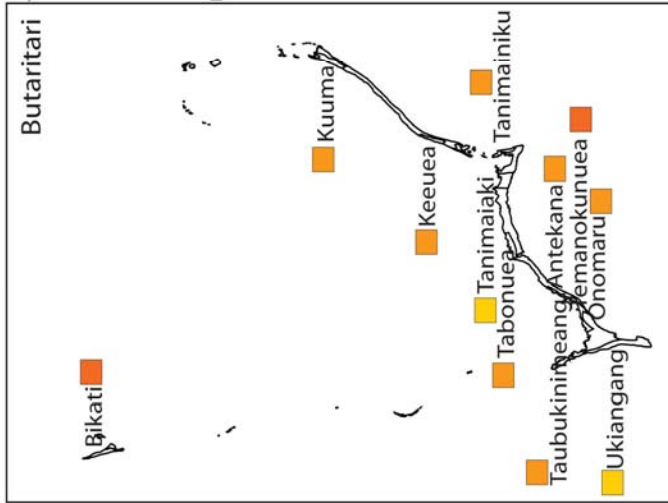
Villages	Village Land Area	Population 2000	Density 2000	Population 2005	Density 2005	Density Change %
Kuumaa	0.54	368	681	635	1176	73
Keeuea	0.24	181	754	221	921	22
Tanimainiku	0.14	245	1750	229	1636	-7
Tanimaiaki	0.59	279	473	250	424	-10
Tabonuea	0.46	297	646	244	530	-18
Antekana	0.11	222	2018	161	1464	-27
Taubukinimeang	0.15	255	1700	266	1773	4
Temanokunuea	0.15	330	2200	386	2573	17
Onomaru	0.21	412	1962	347	1652	-16
Ukiangang	1.18	674	571	338	286	-50
Bikaati	0.1	201	2010	203	2030	1
Total	3.87	3464	895	3280	848	-5
Butaritari	13.49	3464	257	3280	243	-5

Source: PopGis 2005 SPC Noumea

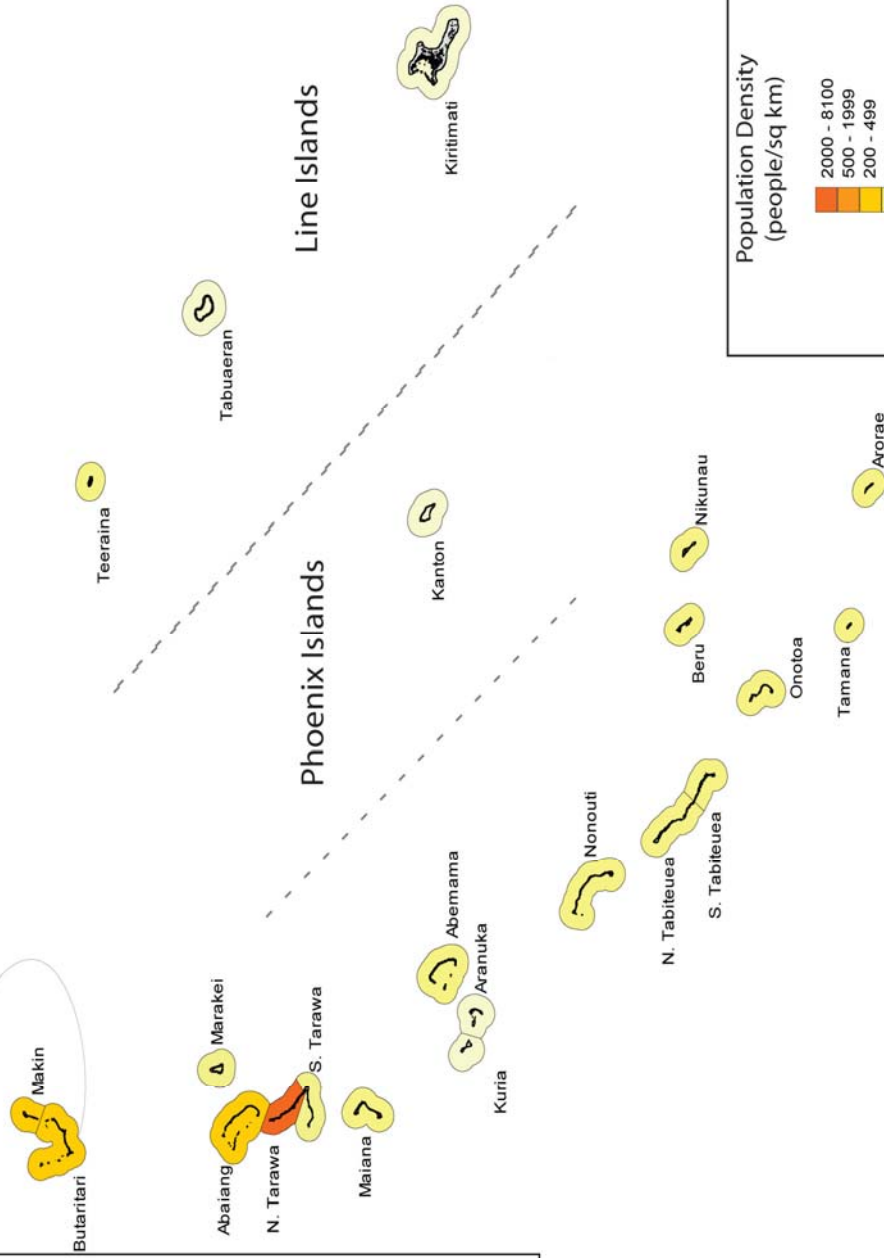
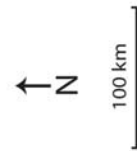
Butaritari has a total land area of 13.49 sq. km of which approximately 3.87 sq. km (PopGis 2005) comprises the village areas leaving 9.2 sq. km. as arable agricultural or coconut woodland. The figure for the total village land area gives the idea that the people are congested which is not so, however, it is not due to lack of space that the people are living in dense conditions but is rather 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 Butaritari are living in the small village areas of their own choice. The highest density at Temwanokunuea concurs with Temwanokunuea being the central village that accommodates the Government station (Butaritari Island Council) and thus the rest of the Government services such as communication, health, financial services and a spacious boat harbour.

Kumaa has the second largest village area of 0.54 sq. km after Tanimaiaki who has a village area of 0.59 sq. km., but is the most lived in village having the highest count of 635 people living on it while the closest figure was that of 386 people living in area of 0.15 sq.km. at Temwanokunuea.

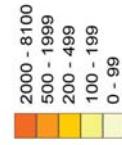
Population density by Island, Kiribati 2005



Gilbert Islands



Population Density
(people/sq km)

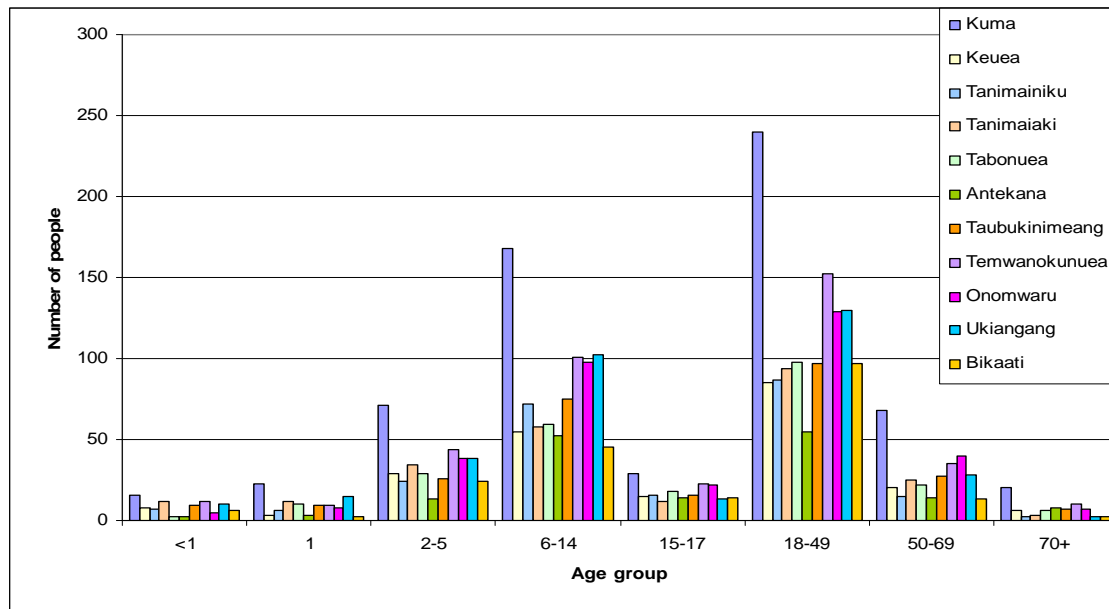


Map created by MISA with data sourced from 2005 Kiribati National Census of Population and Housing

3.1.4 Breakdown of Population

The majority of the island population in the statistical year was between the ages 18-49 numbering 1,264 (39%) out of the 3,280 population with the highest number residing in the village of Kumaa. Those aged between 6-14 numbered 885 (27%) with the most residing again in the village of Kumaa. There are 73 elderlies over 70 years of age representing 2% of the total population who are receiving the Government's elderly pension AU\$40.00/month. Again, 20 (27%), the highest number of these 73 elderlies over 70 years of age are found in the village of Kumaa while the rest are scattered throughout the rest of the villages.

Fig 3: Population distribution by age



The age dependency group is defined as those below 15 years and those over 64 years of age, too young as yet or too old to manage or survive on their own and therefore have to depend on others for their livelihood.

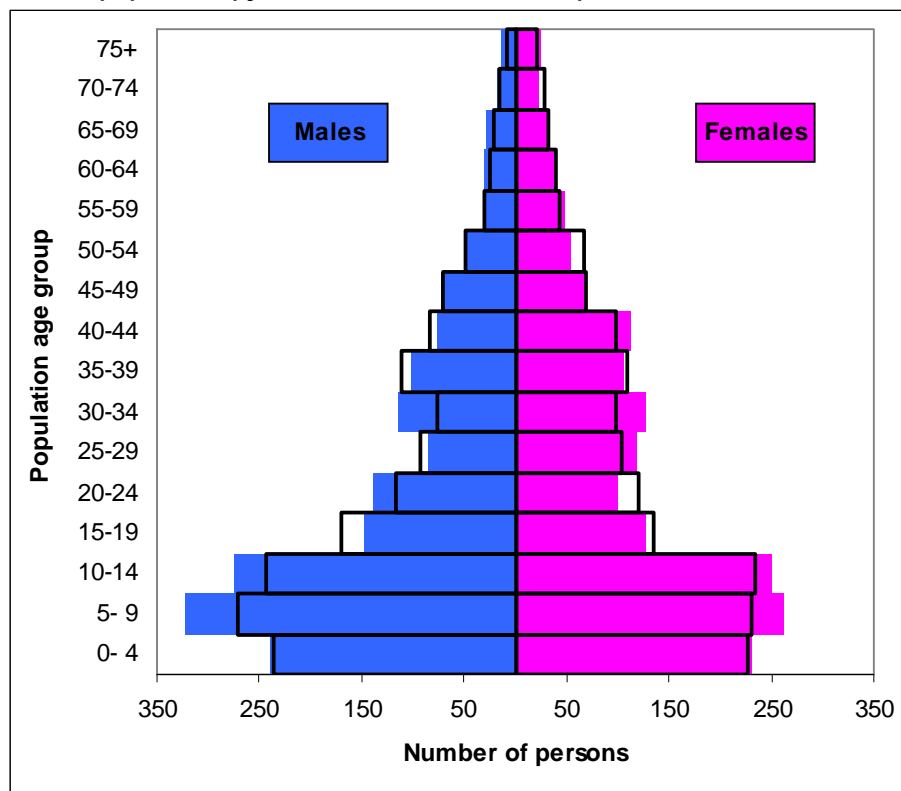
Of the 3280 population, there are 1571 (48%) of people in the age dependency group, nearly half of the total population. 1444 (92%) of these are those younger than 15 and 127 (8%) are elderlies, those older than 64 years old (PopGis 2005).



3.1.5 Population by Gender

Statistics indicate that in 2005, females were outnumbered by the males by 48 (980-932) and as further illustrated in the population pyramid (chart below) for Butaritari, (*Kiribati 2005 Census2: Analytical Report, SPC, Noumea, 2007*), the sex ratio for Butaritari is 98 males to 100 females – (total number of males/total number of females * 100 ==> 1621/1659*100).

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



Source: 2005 Census Analytical Report, SPC Noumea

Butaritari like the rest of the islands has got a young population with the majority being those aged between 0 and 19 years old at 1,749 (53%) of the total 3280 population. The decline in population has mostly been experienced from those in the age groups 5-9, 10-14 and 30-34 years of age even though there are other age groups that have also declined, their decline is slight when compared to the significant declines of the young ones. On the other hand, increases in the population are evident in males aged 15-19, 25-29, 35-39 and 40-44 while increased in females can be seen in those aged 15-19, 20-24, 50-54 and 70-74.

The improvement of the education system in the establishment of a JSS and provision of qualified teachers to both primary and junior secondary schools on the outer islands was one of the attempts of the Government to provide quality education to the outer island community that were also expected to stem the flow of junior secondary school students from the outer islands to South Tarawa. This seems to be working on most of the outer islands, however, those old enough to attend junior secondary on Butaritari seems to have decreased posing reservations as to attendance of the junior secondary school on Butaritari. The decline in this age group could be attributed to those completing junior secondary and transferring to the senior high schools in other parts of the country specifically to South Tarawa.

3.1.6 Population distribution by religion

The 2005 census showed that out of the 3820 Butaritarians, 407 (12.4%) are Protestant, a majority 2751 (83.9%) are Roman Catholic followers, 66 (2%) belong to the Seventh Adventist Church, 28 (0.9%) are Bahais, 11 (0.3%) belong to the Church of God, 1 (0.03%) is a Mormon while 16 (0.5%) others belong to other unstated churches.

The Protestant church followers represent 1.2% of the overall 33042 total national KPC congregation, the Roman Catholic on Butaritari represents 5.4% of the national 51144 RC followers, Seventh Day Adventist followers represent 3.8% of the national 1756 followers, Bahais represent 1.4% of the 2034 national Bahais, with the rest denominations of the Church of God, Mormon and those unstated making up the rest of other different minority church followers on the island. The 11 villages of Butaritari each have a KPC and Roman Catholic church, while the SDA has a church located in Onomwaruu. The most imposing structures on the outer islands including Butaritari are the churches and the 'mwaneabas'. Pictured above is a Roman Catholic church in the village of Ukiangang.



Table 2: Butaritari Population by Religious denomination 2005

Religion	Number	% Religion of Butaritari Population	% Island national representation
Kiribati Protestant Church	407	12.4	1.2
Roman Catholic	2751	83.9	5.4
Seventh Day Adventist	66	2.0	3.8
Bahai	28	0.9	1.4
Church of God	11	0.3	3.0
Mormon	1	0.03	0.03
Other	16	0.5	1.3
Total	3280	100	

Source: PopGis SPC Noumea 2006

It is obvious that the predominant church in Butaritari is the Roman Catholic with the KPC followers following but nowhere near the number of Roman Catholics on Butaritari. Generally, the Roman Catholics are predominant in the northern and central islands of Kiribati including Nonouti and Tabiteuea in the south, while most of the southern islands of Tamana, Arorae, Onotoa, Beru and Nikunau are predominantly Protestant.

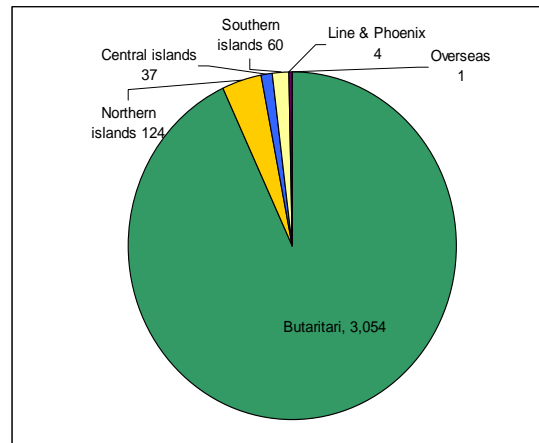
Churches not stated in the statistical records include the Assemblies of God, Pentecostal Church, Jehovah's Witnesses and Islamic Muslim.

3.1.7 Migration

Labour migration has a long history for the *I-Kiribati* people. From the 19th century both men and women, single and as families travelled to plantations and mines within and beyond the Pacific region. For most of the 20th century, the major outlets for migration were the phosphate mines at Nauru and Ocean Island and German ships. In the 1930s, families from the Gilberts especially the southern drought stricken islands were resettled in the Phoenix Islands in an attempt to alleviate perceived land hunger. In the 1960s, the scheme was abandoned, more for administrative convenience and cost reasons than because of the non-viability of the settlement itself only to be re-taken up again in the 1990s. All of these experiences maintained the tradition of migration and, from the phosphate industry and seamen, the practice of remitting income to the home-island was maintained.

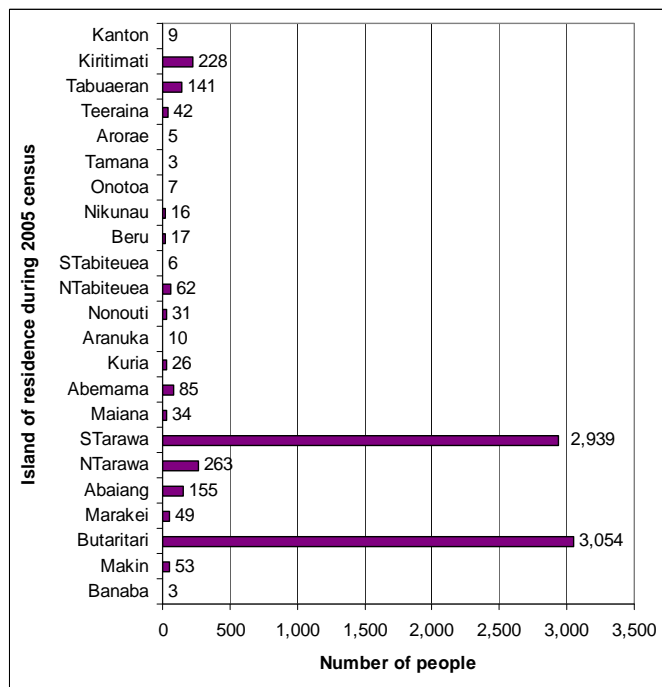
The population of Butaritari (as illustrated in Fig. 9: *Butaritari population trend*) has been fluctuating since 1931 over the years with its lowest count of 1673 occurring in 1931 and highest count of 7824 in 1947. Since 1947, the population has been fluctuating between 2600 and 4000. If these fluctuations are taken as an indication of in and out migration from Butaritari over the years, then it would appear that migration has also been fluctuating since 1931 to the last census report when the population again decreased after a decline of -2.2% in the previous 2000 census.

Fig 5: Population make-up



Statistics as illustrated in the chart on the right, showed that of the 3820 population on Butaritari at the time of the 2005 census, 3054 (93%) were from Butaritari itself while the rest 7% comprised those from other islands including those in the Line and Phoenix group and 1 foreigner.

Fig 6: Population distribution by island



A recorded 7238 (8%) Butaritarians make up the Kiribati population of 92,533 and where 3054 (42%) of this reside on the island itself, the rest 58% are scattered all over the rest of the Kiribati islands as depicted the chart (left). 41% (2939) of those scattered amongst the other islands of Kiribati were residing in South Tarawa at the time of the census. Generally, reasons for native islanders residing on islands other than their own include: their being Government employees working on these islands, through marriage to people from these islands, through adoption to these islands, attending higher education schools and general family visiting amongst other reasons.

With 3054 Butaritarians residing on

Butaritari itself, the rest 4184 are scattered over the country with a notable number, 2939, residing in South Tarawa, again confirming the trend of migration from the outer islands to South Tarawa in search of better opportunities and services.

420 (6%) are recorded as residing in the Line and Phoenix group (Kiritimati, Teeraina, Tabuaeran and Abariringa), a most probable attribute to the Line group of islands re-settlement in the early 1990s. Unfortunately, data is not available on the re-settlement scheme 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

Butaritari differs from the rest of the islands in the country in its land or terrestrial resources. Where some islands may have too much of one resource or too little of another, Butaritari has a rich biodiversity of land resources. As with the rest of the islands in Kiribati, the most resourceful trees on the island are also coconuts but where other islands are making a living out of it, the Butaritari people are to a lesser extent making a living instead out of bananas. The location of the island in the convergence zone where it is not affected by El Nino has allowed Butaritari a high rainfall pattern throughout the years, reflected in the lush vegetation that has been a major feature of the island for 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 amongst others as sources of:

- Subsistence and commercial materials and products
- Ingredients for medicines
- Symbols of individual welfare
- Ingredients in traditional cultivation
- Soil improvement
- Provision of shade and groundcover
- 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 Butaritari. 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 and local brew 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 an abundance of pandanus and thus an abundance of materials for handicrafts particularly mats. The northern islands in general are not

well known for utilizing the pandanus fruit into other food products that can be preserved for years when compared to the southern islands. In the southern islands, it is a popular routine for the women to boil the ripe fruit and process them into a paste that is later dried ('tuae) under the sun before preservation or skewer the fruit before processing it into a slab that is also dried under the sun, baked and later pounded into a powder ('kabubu') that can also be preserved for months and years.



There are several varieties of breadfruit on the island including the common breadfruit (*Artocarpus altilis*) and the Mariannas breadfruit (*A. mariannensis*). The breadfruit tree comes third after the pandanus as the popular fruit trees in the islands and though unfortunate for the southern islands as it is the most vulnerable to prolonged droughts (*R.R. Thaman 1990*), it grows wildly on Butaritari.

However, just as the high rainfall allows the breadfruit trees and other vegetation to grow abundantly without extra hard work, the breadfruit fruits are prone to rotting before they are mature and thus fall off before they are ripe enough to be harvested for consumption.

Bananas are providing a steady means of income for the people on the island as it grows very well and has a popular market in South Tarawa. Banana agents normally travel to the island to buy bunches of bananas which are then transported to the mainland South Tarawa and re-sold at a higher price. Bwabwai has always been a staple food for those on the island as the water lens is so high, it does not take one to dig deep to get to the lens where bwabwai are best grown. Where bwabwai pits in the southern islands are deep and found in the centre of the island, the bwabwai pits of the Butaritari are found everywhere one goes including beside the road.

Compared to the other islands, Butaritari has rich biodiversity due to its high rainfall and it is the only island in the country that has 4 types of mangroves in its dense mangrove forest found in Ukiangang. Simply put, 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,



An exotic crossed progeny, bigger than the general local pigs and smaller than the exotic breeds

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. According to a local, the rats are devouring 75% of the coconuts than are harvested for copra or other household consumption.

3.2.3 Land Tenure 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 colonial government attempted to reorganize the land tenure system to encourage the codification of individual land holdings, in part to reduce land disputes. As a result, lands and land transfers are now registered. The rest of the island, not used for settlements or infrastructure (airports etc) 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'.

Land ownership is family based and thus nobody individually owns a piece of land, similar to Makin. Anybody therefore of any family can go and harvest coconuts and pandanus etc from any family owned land. In some cases, because the lands have been divided amongst the families instead of individual siblings, most are taking turns in harvesting the land such as in weekly or monthly rotational turns. This however, has not worked for some and issues arise when organization of turns (rotational basis) are not adhered to and with others when their week or month is over to fetch coconuts from the land. Then there are others who harvest all the coconuts including those that are still green thus the next ones turn will turn up no coconuts! Unlike it's neighbouring Makin, the land use has been planned with the population living on a given area while the rest not lived on is used for family use to collect coconuts for copra etc.

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. On some islands such as in Onotoa, land plots are also taxed whether one lives on the island or not.

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. However, in family owned lands, the approval of all family members has to be acquired before the land can be given away in such cases. Some can be also given away to adopted ones who can inherit lands from their own biological parents as well effectively getting inherited lands from both adoptive and biological parents. Some lands have been disposed off by sale and lease to the Council or Government.

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:

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

Even though nowadays, anybody can inherit lands regardless of whether they are sons or daughters, Butaritari is still holding on to its family based land ownership and as such, will be difficult to inherit a piece of land individually. 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.

3.3 MARINE RESOURCES

3.3.1 Size of reef and Lagoon area

Table 3: Reef and lagoon size

Island	REF(sq/km)	REF base (sq/km)	LGN (sq/km)	LAND (sq/km)
Butaritari	82.61	11.7	295.77	13.59

3.3.2 Fish resources and status

It is difficult to quantify the fish resources of Butaritari, 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 and lagoon area, Butaritari should have an abundance of marine resources as well.



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 but are normally difficult to access by those living away from the ocean however, the lagoon provides a great variety of edible resources such as the common mojarra, 'kimokimo' and 'koikoi n anti'. Blessed with a huge lagoon, Butaritarians have easy access to

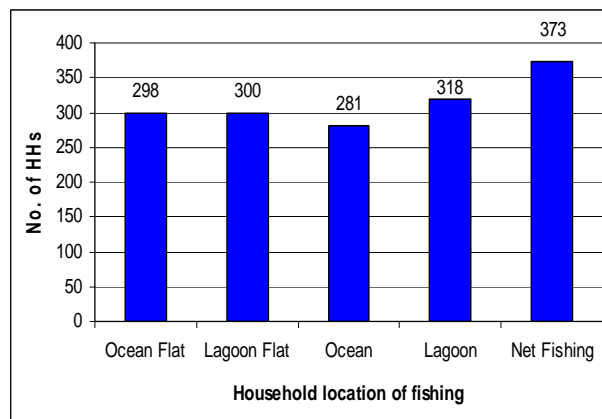
deep ocean resources as well as a diverse range of lagoon resources that are still plentiful. The 'kimokimo' is said to be unique to the island and can be found in abundance in the lagoon. The 'koikoi n anti' is a shellfish that lives on lagoon coral and therefore require that one harvest them using a hammer or heavy utensil of some kind to get them off the rocks. These shellfish cause quite a racket at night during low tides with their opening and shutting so it will be clicking all the time until the tide again comes in. Of course there are other shellfish on the island including the shutter shellfish, the 'koumwara' or 'kouramwa' as they call it in Beru etc. 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 or in the lagoon for their subsistence living.

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 but for fish and other marine resources, these are available every day for harvest and consumption.

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 neighbour's, a family's or a friend's canoe or boat. The above chart

Fig 7: Household location of fishing



depicts the pattern of fishing for the 561 households on the island. 298 (53%) of the households fish on the ocean flats, 300 (53%) on the lagoon flats, 281 (50%) fish in the ocean meaning that they have own or have access to a boat or canoe, 318 (57%) fish in the lagoon also meaning that they have access to a canoe or a boat while 373 (66%) households engage in net fishing. The normal catches on the ocean flats are by net fishing, picking (shellfish), night fishing using a pressure lamp and diving. Catches comprise surgeon fish, lobsters, octopus, red margined sea perches, scarlet squirrel fish, blue lined snappers and shuttle fish amongst others.

Lagoon flat fishing involves collection of seaworms and a variety of shellfish while lagoon fishing includes diving and spearing for shellfish and other lagoon fish. Ocean fishing comprises long and short lining with catches such as tuna and sharks. Net fishing is carried out during low tides on the ocean and lagoon flats and also setting and leaving nets overnight at certain locations in the lagoon. The common catches in the nets depends to a great extent on where the net fishing was laid out but the common catches include the 'kimokimo', mullet, sea perches, common mojarra etc.



Canoes are highly priced items as they are hard to make and equally hard to get materials to construct one. The frames and planks are made up from imported timber obtained from Banaba, Nauru and South Tarawa while the outrigger is made from local wood particularly those that are light most of the time breadfruit, sea trumpet ('kanawa') and the great lettuce tree trunks.

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.

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 vastness of its reef and lagoon area has allowed extra earning opportunities for the Butaritarians to be part of development in sea cucumber export and oyster cultivation.

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 oyster shells 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.

Oyster farming (bred in tanks – pictured above) commenced in Butaritari in 2002 in which 3 month old oysters are transferred from the hatchery (pictured above) in Tanaea (South Tarawa) are grown on the island for 4 years. At 4 years, the oysters are expected to have reached a diameter of 110 millimeter at which time they are ready to have the pearls imbedded. However, implantation of pearls are not carried out on the island but instead, the oysters are again transferred to Abaiang where the implantation takes place. Once implantation has taken place, the oysters are kept for another 18 months on Abaiang before they are again transferred back to Butaritari for final farming before the pearls are harvested.

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 'bwaraioa' 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 abundance of marine resources, there are still resource issues on Butaritari such as:

