



MAKIN ISLAND



2007

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.



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MAKIN ANTHEM

MAKIN ABAU MA NGKOE

*Bon nneu ni kukurei abau aio
Boni mamaten nanou
I bon aki mwaninga taekana
Bwa I bungiaki iaona.*

*Makin abau ma ngkoe n aki toki
Tabetabekia i eta
Bwa e na aki bwaka n arona nako
Ngkana ti ururingnga.*

*Ngkana ko bura ni mwamwaenako
E bon titiku imwaim
Ngkana ko bura ni manga oki
E bon tauraai ibukim.*

MAKIN OUR HOMELAND

*This is my home of happiness
The jewel of my heart
I will never forget it
For this is where I was born.*

*Makin is our homeland forever
Lift it up high
So it will not lack in anyway
If we keep it in our minds.*

*If you should travel away
It is there to greet you
If you happen to return
It is ready to welcome you.*

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 Makin 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 more importantly, useful for education, planning and decision making. The profile is meant to be used as a reference material for leaders both at 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.

One of the new features of the revised profiles is the incorporation of Millennium Development Goals indicators (MDGs). The importance of working with MDGs is that it keeps Kiribati on track in its commitment towards the Millennium Declaration of 2000. Secondly, the issues embodied in the MDGs are the same issues contained in the Operational Plans of various ministries, and therefore are important national concerns. While the National Development Strategy 2004-2007 does not incorporate MDGs, the current NDS review exercise is placing the MDGs high on its agenda. As far as the island profiles are concerned, they will serve the purpose of being a monitoring and evaluation tool both for Kiribati and relevant agencies of the United Nations, since the MDG indicators will be updated, biannually at the most.

The island profiles are useful development documents for individual islands and the nation as a whole. Whether they are used by students, businessmen, 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 everyone.

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 are 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, and 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. Without their assistance the profiles as you see it now will 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 is 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, worked very hard to collect the updated statistics which now appear in the current profiles. A lot of times she had to work extra hours to input and analyze these statistics. Nei Ruta loata, who took over this task when the profiling exercise was transferred from RPD to SDGiK, was similarly forced by the heavy load and limited time to work overtime and in many instances well into the evening when everyone has gone home. Most of the initial analysis and graphic representations that appear in the profile are her design.

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 of 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 have 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, Karibaiti Taoaba, and Rikaua Takeke, the current Secretary.

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 TEMAURI TERAOI AO TETABOMOA.

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, 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			MAKIN		
	Total	Males	Female	Total	Male	Female
Total population (November 2005)	92533	45612	46921	2385	1200	1185
Urban population	40311	19435	20876			
Percent of national population				2.58	1.29	1.28
Percent urban (%)	43.6					
Rate of Growth (%) of total population 2000-2005						
Rate of Natural Increase (CBR-CDR)	1.8			41.04		
Population density	127			302		
South Tarawa population density	2558			372		
% population younger than 15years	37	38	36	38	38	38
% population 15-24 years	21	21	20	23	27	19.16
% population 15-59 years	58	57	58	50.18	58.17	55.7
% population 60 years and older	5	5	6	5.79	4.26	7.29
Age dependency ratio	74			76	72	80
Households						
Number of private households	13999			328		
Number of persons in private households	88644	43749	44895	1,858		
Average household size	6.3			5.7		
Number of institutions (non-private)	43			43		
Number of persons in institutions	3889					
Labor market activity	36969	20013	16956	936	531	405
Employed population	34715	18883	15832	1921	521	400
Cash workers	13133	8095	5038	148	95	53
Village workers	21582	10788	10794	773	426	347
Unemployed	2254	1130	1124	15	10	5
Non-labor market	21069	7926	13143	541	213	328
Students	7323	3496	3827	107	57	50
Persons engaged in home duties	6077	793	5284	116	1	115
Inactive persons	3662	1996	1666	266	138	128
Retired persons	3227	1179	2048	39	10	29
Disabled or sick persons	709	398	311	13	7	6
Prisoners	71	64	7	0	0	0
Labor market participation ratio	63.6	71.5	56.3	63.3	71.4	55.2
Employment-population ratio	22.6	28.9	16.7			
Unemployment rate (%)	6.1	5.6	6.6			
Education						
School enrolment rates 6-15 year olds (%)	91.0	89.1	93.0	88.7	47.2	52.1
Proportion of population 15 years and older with secondary or higher education	50.5	51.6	49.5	12.3	12.4	12.2
Proportion of total population with secondary or tertiary qualification	19.4	18.2	20.5			

CHAPTER 1: GENERAL BACKGROUND

1.1 Location, Size and Land Area

Makin is the second smallest island in the Gilbert Group, situated 190 km away north of Tarawa, and 3 kilometers northeast of Butaritari. It is located at Latitude 3 degrees 20 minutes North and Longitude 172 degrees 59 minutes East. It has a land area of 7.89 square kilometers with a width varying from 50 m to 2 km. There are five main islets, the largest two of which namely Makin and Kiebu are inhabited. The five islets are arranged in linear formation from north to south, atypical of small coral islands which do not have lagoons.

It is evident from the islands structure and from local sources that the largest islet of Makin used to have a small lagoon, though the lagoon has now become shallow, most probably due to the construction of a causeway and later on, in the late 1990s, a bridge across the mouth of the narrow passage that links the shallow lagoon with the open sea.

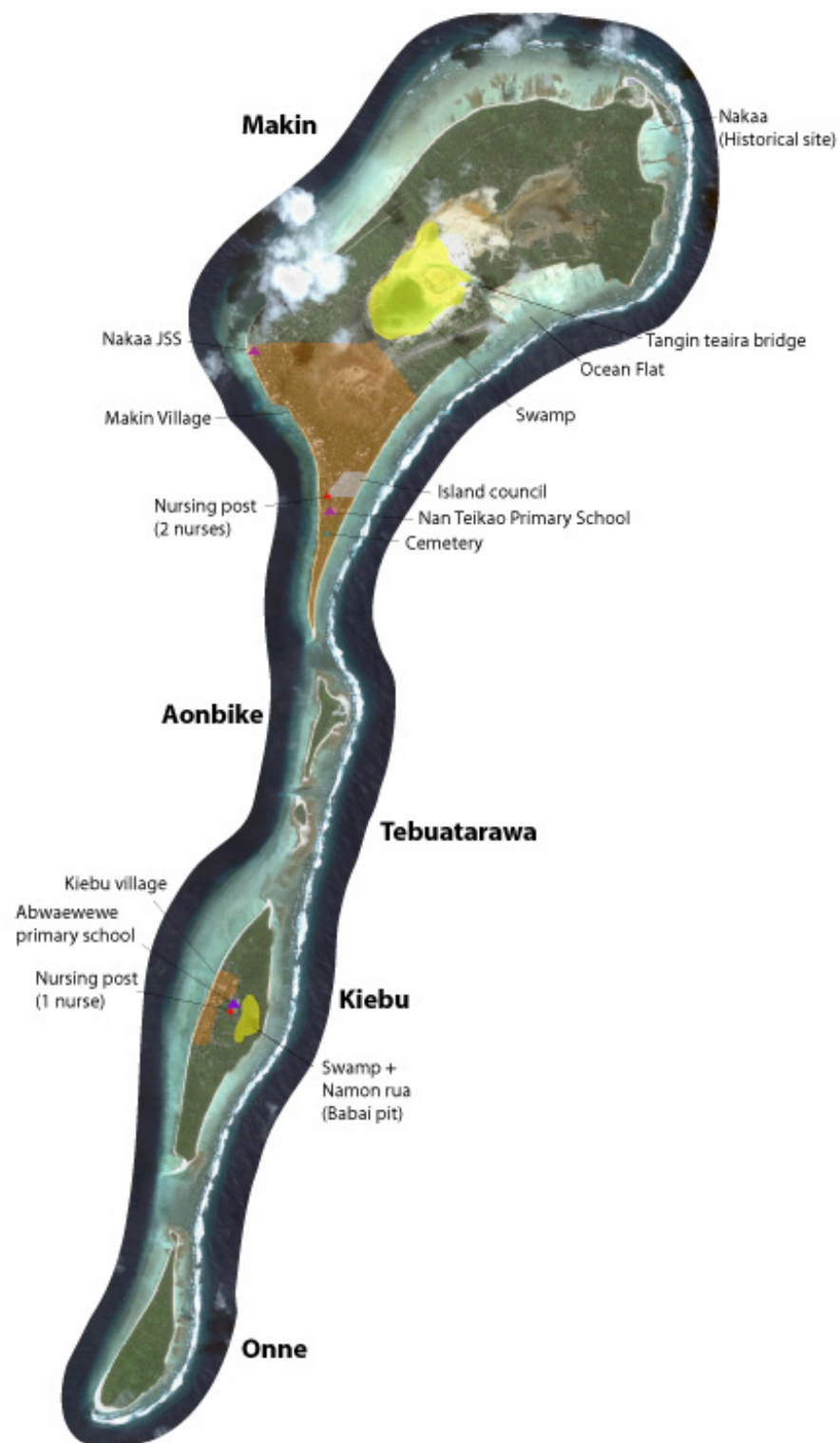
1.2 Physical features

Makin is a lagoon-less small coral island which is divided into five islets by shallow ocean passages. The island resembles a large exclamation mark, with the largest islet, Makin, located in the northernmost tip of the island. The island is protected from the ocean by a narrow strip of fringing reef which encircles the land. Some parts of Makin and Kiebu islets are swampy and are used by the villages to grow bwabwai, banana, and other food crops. Unfortunately these swampy areas are vulnerable to seawater intrusion which occurs once in a while during excessive high tides.

Makin is one of the smallest islands in Kiribati, but also the wettest and hence the most fertile. One of its most beautiful features is Tanginteara bridge, a concrete beam bridge with concrete support pillars. The passage over which this short bridge was built is quite narrow and deep, resulting in strong tidal currents. A maneaba has been built near the bridge to provide shelter to the islanders and visitors who wish to enjoy swimming and picnicking in the location.

Typically, coral islands and atolls are small, averaging 2 meters above sea-level, with sandy and porous soil. However, due to its high annual rainfall, vegetation grows well on Makin, resulting in good fertile soil. Most of the important food crops such as coconut, giant taro, pandanus and breadfruit grow well without much need of cultivation.

The main source of drinking water is the groundwater reservoir which can be tapped by digging wells 3-5 meters into the ground. The quality of groundwater is easily affected by droughts and heavy rains. There are over 70 wells on Makin and 17 rainwater catchments. Most of the open wells are close to *bwabwai* (a local root crop similar to taro) pits and therefore prone to contamination. At Kiebu islet, one communal *bwabwai* pit is located very close to a saltwater pond. When it rains the pond overflows causing damage to the *bwabwai* plant. More recently, the increasing incidences of unusually high tides have caused the intrusion of saltwater into the communal pit, resulting in salt contamination and damage of food crops. This is becoming a source of grave concern to the people of Kiebu, who have depended on the *bwabwai* as a source of food for many generations.



1.3 Climate and Soil

Like other islands in Kiribati, Makin has an equatorial climate where temperatures are high all year round and there is a distinct wet and dry season. The dry season, according to records, falls between the months of September to February, while the wet season begins in March and ends in August. The temperature ranges between 28° Celsius at dawn to 31° Celsius in the early afternoon. Cool ocean breezes play an important role in keeping the temperature down during hot days. Due to its geographic position Makin is generally wetter than most islands in Kiribati.

With the exception of Tarawa which 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 the outer islands including Makin. Government has future plans to establish and equip meteorological stations on some selected outer islands but it is not certain at this stage if Makin is going to be one of them.

1.4 History and Culture

Makin, according to oral tradition, was the final destination for the dead. After the separation of the sky and land there was a tree called "*Te Uekera*" on Tarawa. Nakaa was one of the inhabitants of "*Te Uekera*" who left the tree and went to Makin. Nakaa took with him a basket (*kuaroung*) containing a variety of diseases that fell from the sky. Nei Aibong at the invitation of Nakaa joined him at Makin. Nei Aibong is goddess of Lightning and her duty was to show the path to be taken by the dead to Nakaa. It is generally believed that lightning coming from the west of Makin means death and that some dead person is on its way to Nakaa at the northern end of the island. A rock lying at this point is said to represent the body of Nakaa (refer to main map)

Tradition also tells of a canoe voyage from Tarawa. On the canoe were Nei Nikauki, Terautibe, Nei Temawanai and Nautonga. During their northward journey they saw an island that appeared to keep a distance and moving away from them. Strong winds were blowing directly at them and that made it more difficult to reach the island. In the end Nautonga threw out his line and hooked and managed to get hold of the island. They named it '*Abaewewe*' which means a movable island. Nei Nikauki and Terautibe stayed on the islets of Kiebu and Onne while Nei Temawanai and her son Nan Teikao stayed on Makin. These were the first inhabitants of Makin.



(The rock embodying Nakaa; picture by Ruuta Ioata, June 2007)

In the old days Makin was ruled by '*Te Uea*' (or Chief). To this day the Makin land tenure recognizes '*Te Uea*' and a quarter of the land comes under his title. The first Europeans to sight or set foot on Makin probably did so towards the end of the 1700s. The actual date of first European contact was uncertain, however in the late 1800s there was some trading activity in which neighboring Butaritari was an

important center. Early trading companies active in Butaritari and Makin were the Hamburg-based DPHG with Pacific headquarters in Samoa, and On-Chong, a Chinese company with connections in Australia.

World War II

August 1942 was an important date for the US Marines, who staged a faked invasion of Big Makin from the submarine USS Nautilus II and USS Argonaut. It was estimated that 160 Japanese were killed during this raid. Makin atoll was at this time under Japanese control, who used the island as a base for seaplanes. In November 1943 elements of the 27th Infantry Division captured the island in the *Battle of Makin*. 58 years after the raid, 19 remains of killed US Marines were found and identified from Big Makin. They have been returned to the United States. The Battle of Makin was one of the highlights of the war in the Gilberts Islands, though not as vicious and bloody as the Battle of Tarawa. To remember this important event, the United States Navy has christened one of its most advanced battleships "Makin Island", launched in September 2006.



USS Makin Island before launching 2007 (Source: USS Makin Island (LHD 8) Homepage)

It is interesting to note that during the war Butaritari and Makin were known collectively as Makin Atoll, whereby Butaritari island is referred to as Big Makin and Makin island as Little Makin. The Battle of Makin between the US Marines and the Japanese Forces was actually fought on Butaritari island. Even nowadays the Americans still consider Makin and Butaritari as a single island and refer to Butaritari as Big Makin.

CHAPTER 2: TE MAURI – ENVIRONMENT, RESOURCES AND SOCIAL SERVICES

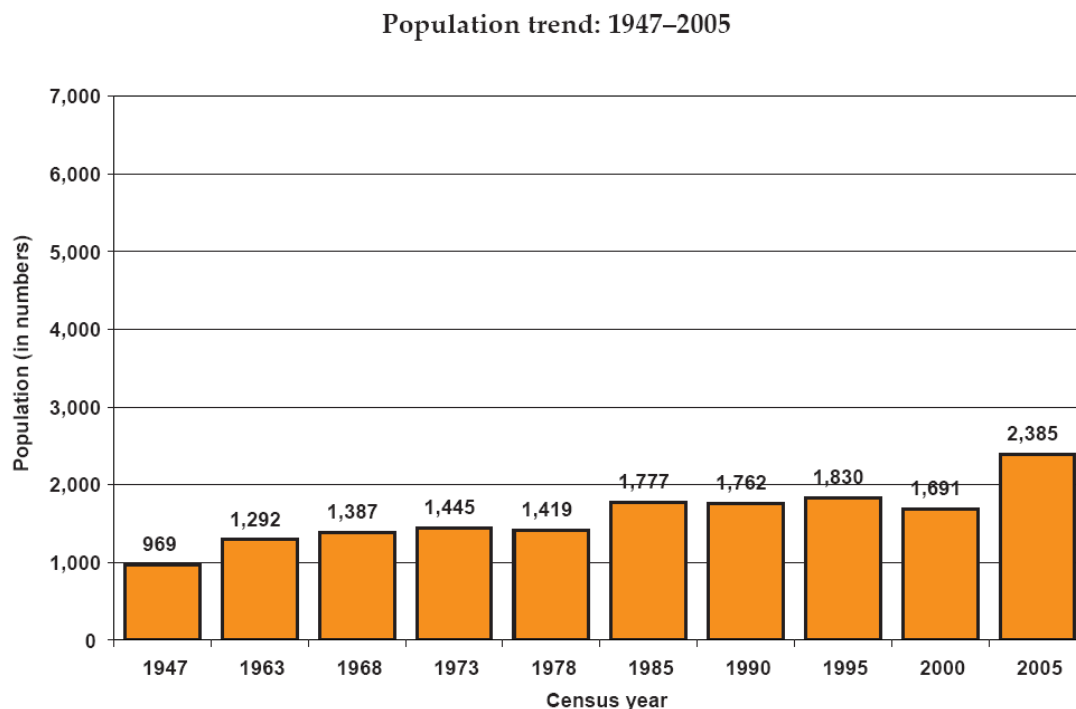
A. ENVIRONMENT AND POPULATION

2.1 Demography

2.1.1 Total population

The 2005 census recorded a total population of Makin of 2,385. Of this number Makin village constitutes 1,834 and Kiebu village 551. This means that more than 75% of Makin's population live on the largest of the 5 islets, also called Makin. This is due to the fact that Makin islet has more land hence food crops, plenty of freshwater, a larger fishing zone, and is the main administrative and commercial centre of the island. The Island Council is located here, as well as the health center, the Junior Secondary School, the post office, satellite telecommunication center, police outpost and branch of the main wholesalers that provide the island with essential supplies.

Figure 1: Population of Makin 1947--2005



In general the population trend shows a low yet steady increase of Makin's population between 1931 and 1973, falling off a little in 1978. Seven years later in 1985 there was a significant increase, followed by a constant slow increase until the 2000 census when the population again dropped. Then during the last census in 2005 there was a jump from the previous census figure of 1691 to 2385. The increase of nearly 700 people within a period of only 5 years is unusual. This reason could be attributed to the temporary return of Makin islanders based on Tarawa to the island, to celebrate the opening of two *maneabas* one belonging to the Island Council and the other to one of the major religions on Makin. These events took place during the week of the census, when many people from Tarawa were still on Makin island.

2.1.2 Growth rate

The annual population growth rate for Makin between 2000 and 2005 is 6.9%. Compared to the previous inter-censal annual growth rate of -1.6% this is surprisingly unusual, especially since the trend over the past years suggests a tendency for the population to decline (refer to Fig. 1 above). As already explained earlier, many visitors of Makin origin were coincidentally on the island during the census to celebrate the completion of major island projects.

Compared to other islands, Makin recorded the third highest annual growth rate after Kiritimati and Tabuaeran who had 8.0% and 7.4% respectively. These annual growth rates are well above the national rate of 1.8%.

2.1.3 Population Density

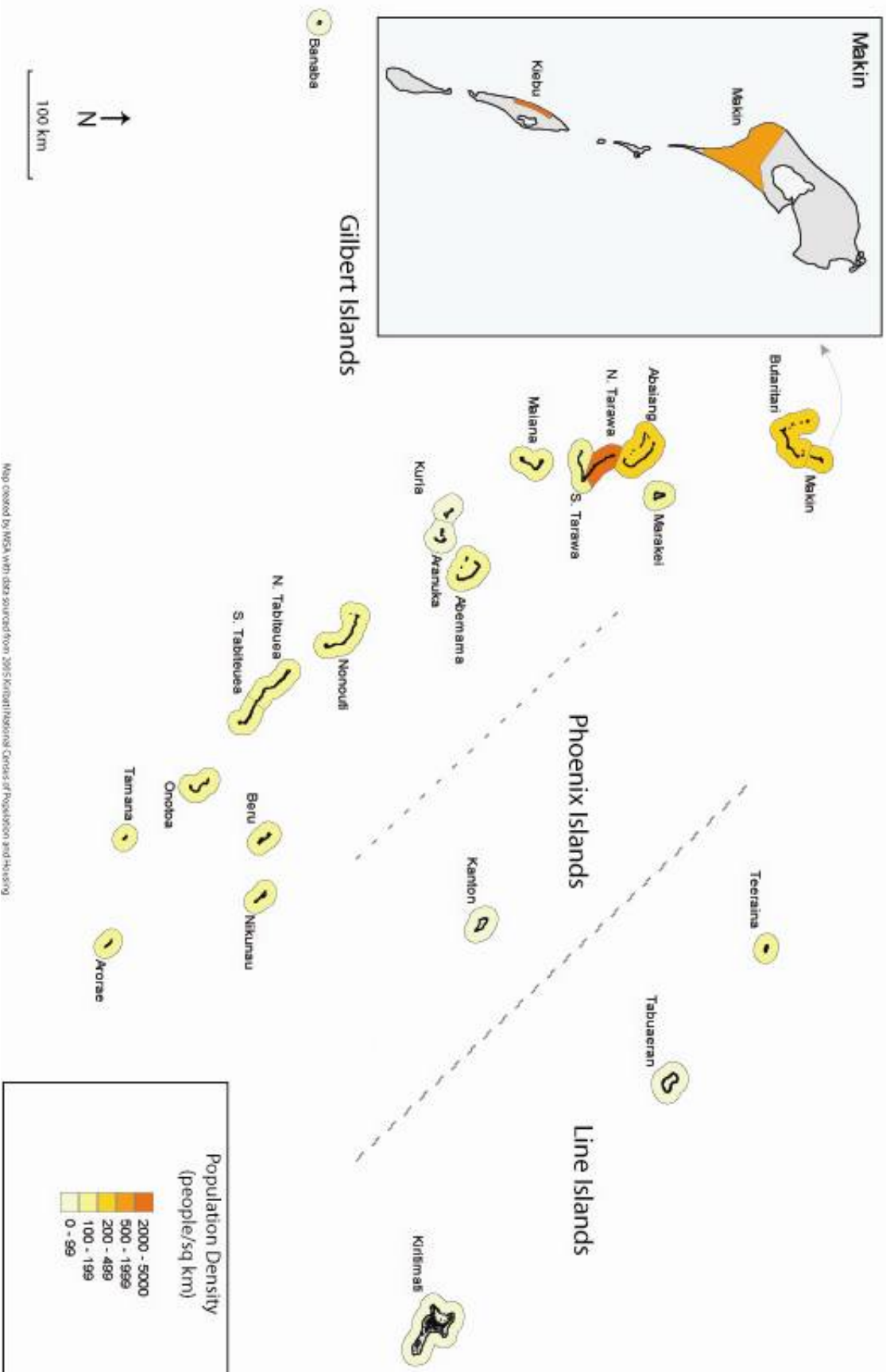
Population density is defined as the number of people living within a square kilometer of land. This is calculated by dividing the number of people in a given location with the area of land. Table 1 below presents the population density by village, showing that Kiebu is over three times overcrowded compared to Makin village. This density is calculated based on the size of the village boundary.

Table 1: Population Density by village

Village	Village Land Area	Population 2005	Density 2005
Makin	1.28	1834	1433
Kiebu	0.11	551	5009

Map 1: Population Density – Makin island.

Population density by Island, Kiribati 2005



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

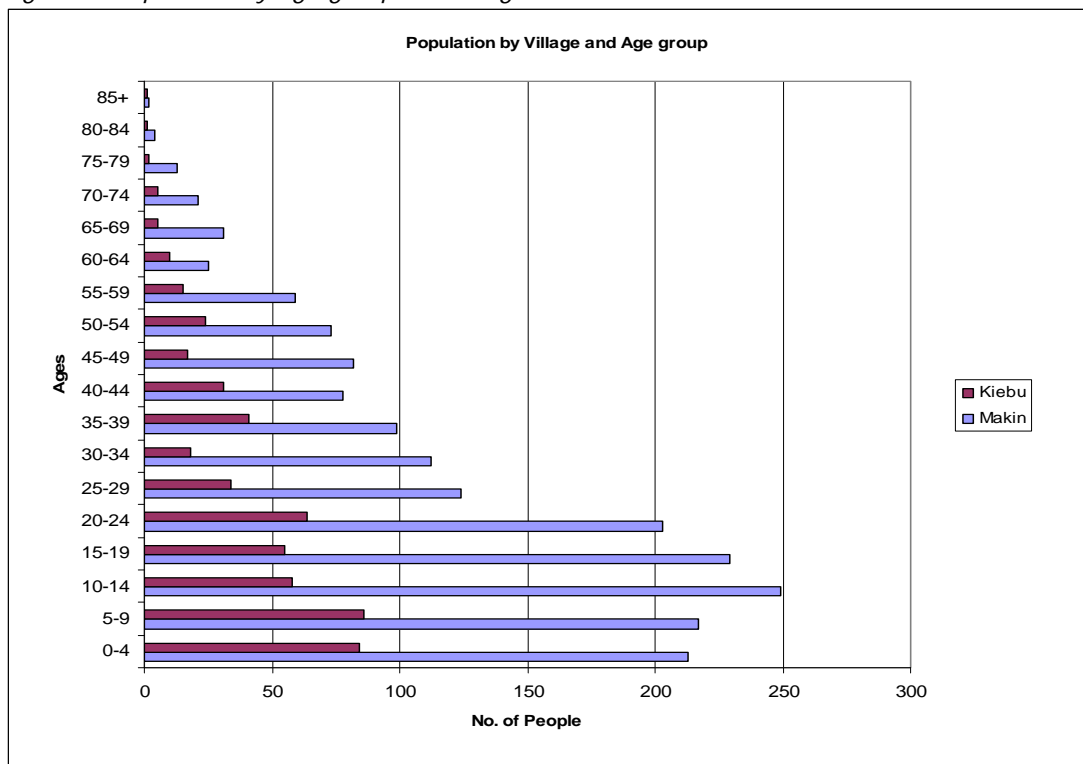
At the island level, Makin has a combined land area of 7.89 square kilometers and a population of 2,385 (2005 census), giving a population density of 302 people per square kilometer. Compared with other outer islands in the country, Makin is the third most densely populated island after North Tarawa and Abaiang. Furthermore it has the third most rapidly growing population (growth rate of over 7% per year) after Kiritimati and Tabuaeran.

2.1.4 Breakdown of Population

The following is the breakdown of the population of Makin, looking at its age, sex, village and religious composition.

(a) Population by Age groups and Village

Figure 2: Population by age group and village



Source: 2005 Census of Population, NSO/MFED, 2007

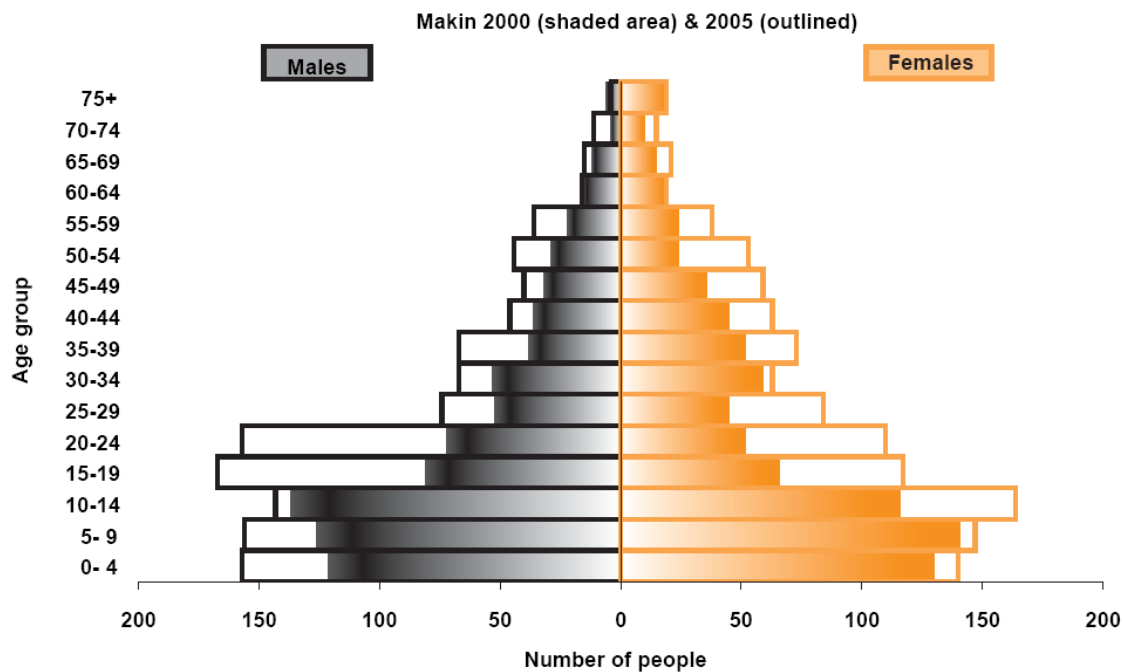
The population chart shown in Figure 2 compares the distribution of population by age group between Makin and Kiebu villages. It is clear from the chart that a large proportion of the people on Makin, particularly Makin islet, is in the young age groups of 0-24 years. It is also with these age groups that Makin and Kiebu show a marked difference, with Makin having an unusual large number of young people whose ages are between 10-14 and 15-19. This is due to the fact that the Junior Secondary School is located on Makin islet, and children from Kiebu seasonally migrate to Makin to attend school. Furthermore, Makin village is the administrative centre of the island and as such has better infrastructure and facilities. Records show that 1834 (76.9%) of the island's population live in Makin village while 551 (23.1%) reside on Kiebu.

(b) Population by Gender

Statistics indicates that in 2005, out of Makin's total population of 2385, males constituted 50.3% (1200) and females 47.3% (1185). In terms of ratio there are roughly 101 males per 100 females, a trend that differs from the national ratio of 97 males per 100 females (*Kiribati 2005 Census, Vol. 2: Analytical Report*, SPC, Noumea, 2007, page 8).

Fig 3: Population pyramid, Makin 2000 (shaded area) and 2005

Population pyramid by five-year age group and sex, 2000 and 2005



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

(c) Population distribution by religion

Table 2 below illustrates the population distribution by religion for Makin in 2005. The two most dominant churches on the island are the Roman Catholic Church (RC) with 1827 (76.6%) followers, and the Kiribati Protestant Church (KPC) with 517 (21.68%). Other religious denominations are the Seventh Day Adventist Church (SDA), the Bah'ai Faith, the Church of God (COG) and the Church of Jesus Christ of Latter Day Saints (LDS). Altogether these other denominations constitute only 1.13% of the island's population.

Table 2: Population by Religious denomination 2005

Religion	Population	%
Kiribati Protestant Church	517	21.68
Roman Catholic Church	1827	76.60
Seventh Day Adventist	2	0.08
Bahai Faith	9	0.38
Church of God	3	0.13

Mormon (LDS)	13	0.55
Other	14	0.59
Totals	2385	100.00

Source: 2005 Census of population, NSO/MFED

Except for the Bahai Faith, SDA, and Church of God, all other religious groups have their own compounds that normally consist of a chapel, a pastor's residence, and a *maneaba* (a meeting house).

2.1.5 Out-migration

In 2000 the population of Makin was 1691, as compared to 2,385 in 2005. This results in an increase of 694 persons in the last five years. Such a high increase is believed to be caused by the coincidental influx of people to the island during census day, resulting in the covering of the real trend of population. Unfortunately information relating to the migratory movement of people from and to Makin is not available at the time of writing. Nevertheless, analysis of the 2005 population census shows that 1725 people who were elsewhere in the country during the day of counting claim that their home-island is Makin. A very large proportion of these people, 61.4%, live on South Tarawa while 12% are on Kiritimati in the Line islands.

Reliable records show that in 1988 a total of 84 persons migrated to Tabuaeran (Fanning) and Teraina (Washington) under the Northern Line Islands Resettlement Scheme. Since then, many people from the Gilbert Islands have moved to the Line Islands where there is greater opportunity to earn income and the benefit of free access to state-owned land and marine resources. Kiritimati and Tabuaeran now have the highest population growth rates in Kiribati, while most islands in the Gilbert group are experiencing either very slow or negative growth. In addition, there were absentees at the time of the 2005 count, working in South Tarawa and as seamen on overseas ships, while every year a small number of young people leave Junior Secondary School to attend Senior Secondary Schools (SSS) or other technical institutions on South Tarawa or other islands.

2.2 Land Resources

2.2.1 Land and Marine Tenure

Land is owned by the families of former chiefs and the people in general. About a quarter of the land area is leased by the Island Council for its clinics, health center, schools, airfield runway and its administrative station. A small area is also leased by the various religious groups and the Cooperative Society.

Two of the uninhabited islets – Onne and Tebuatarawa are owned by a number of people who use them for copra cutting and raising of pigs. Settlement on these islets is prohibited to preserve their natural state. The island of Nakaa which is another uninhabited islet in the north is known and used as an important historical site. Nakaa's well and his body (in the form of a rock) are located here, and are still preserved for sightseeing.

In the past the reef and offshore were owned by families. The head of the family had a right to distribute and prohibit access to the reef (Lambert B: Land Tenure in the Pacific 1971). This practice no longer exists and the people are free to fish in any part of the reef and offshore.

2.2.2 Land Ownership and Land Use

Land use on Makin, like other islands in Kiribati, is not planned. A substantial portion of the island is occupied by village settlements (refer to Table 1 on page 14). These are normally located on the lagoon side and at the center of the island (leeward side). The villages consist of lines of houses that are built in linear formation following the general pattern of the island. The main-road is built through the village and runs along the length of the island. Each village contains individual family households that consist of a separate kitchen, toilet, and a sleeping house. At the center of the villages, households are closer to each other with a distance of about 2-3 meters between them. At both ends of the villages households are more sparsely distributed.

Map 2: Landuse map of Makin island

Refer to topo/landuse map

A large portion of the land is used up by wild bush and cultivated *bwabwai*. The dominant tree in terms of numbers is the coconut, which grows everywhere. Other plants include pandanus (*te kaina*), breadfruit trees (*te mai*) and bananas that grow mostly in village area. The vegetation grows well because of high annual rainfall and good soil. Occupied houses are well built and clean but unoccupied houses have deteriorated with tall grass and fallen leaves everywhere. On Kiebu islet, the only *bwabwai* pit (Namonrua) that provides *bwabwai* to the community overflows during heavy rainfall.



(On the left, the *bwabwai* plants in the Namonrua on Kiebu islet, and the right picture shows land used for buildings like the maneaba. Picture by Ruta Ioata)

There are two types of land ownership on Makin. The first system is where land is communally owned by the islanders, and everyone has the right to harvest the produce of the land. To ensure that everybody has equal access to the resources, no one is allowed to establish residence on the community land outside the village boundary. The second system is where individuals own small plots of land and only they and their immediate families have the right to their land.

2.3 Marine Resources

2.3.1 Size of reef and Lagoon area

Table 3 shows the size of Makin's reef, lagoon and land area in square kilometers. Makin has 5.97 square kilometers of reef. This is a small reef area compared to other larger islands in Kiribati. The island is of simple coral formation and therefore has no real lagoon, however one of the larger ocean passages which cuts through the island had become shallow at one end, creating a small mud flat which is still linked to the ocean by a narrow passage. Shell fish could be found on the mudflat at low tide, and abundant schools of small fish live among the roots of the mangrove during high tide. These resources provide an important source of food to the people of Makin village where the mudflat is located.

Table 3: Size of Reef/Lagoon Size

Islands	REF(sq/km)	REF base (sq/km)	LGN (sq/km)	LAND (sq/km)
Makin	5.97	5.40	0.34	7.89

2.3.2 Status of Fish Resources

It is difficult to quantify the fish resources of Makin, 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. Therefore it could be concluded that due to its small reef area Makin has a limited reef fish resource. Free migratory fish such as tuna (*te ati*, *te baiura*, *te ingimea*) flying fish (*te onauti*) and shark (*te bakoa*) are always available, and an increasing number of people are engaged in ocean fishing, compared to a very small number using the ocean and lagoon flats.

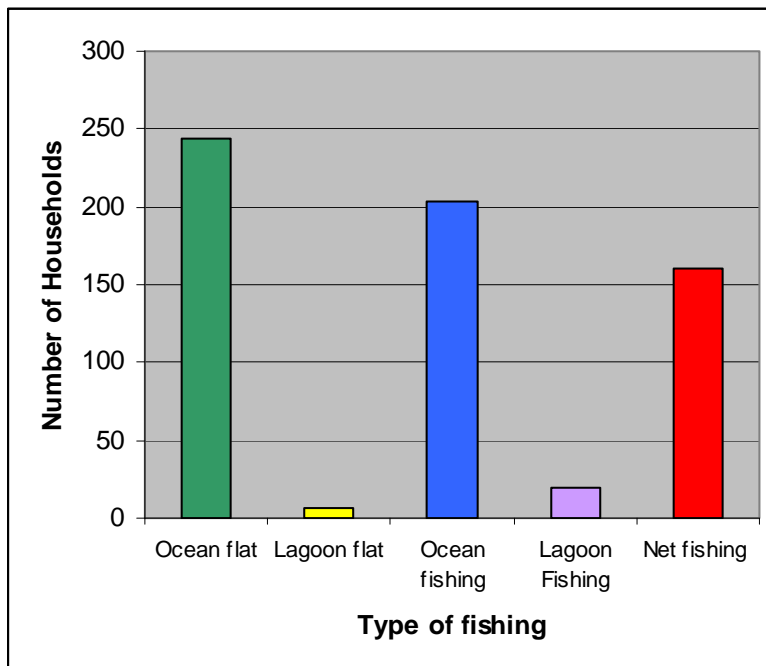
The smallness of the reef area, combined with the fact that Makin by origin does not possess a lagoon, pose a challenge to the people whose major source of protein is fish. As in other small lagoon-less atolls,

the people of Makin are forced to rely mainly on deep ocean fishing for their livelihood. In times of rough seas people simply do without fish, and are forced to purchase tinned foods from the shops.

2.3.3 Pattern of fishing activities

Figure 4 categorized fishing activity generally by area and method. The chart shows that the most frequented area for fishing is the ocean flat. This is the reef area surrounding the island which becomes accessible at low tide. Fishing methods commonly used on the ocean flat include, among others, collection of shellfish, hooking of octopus, sea-snake and other small fishes, rod fishing (*roaroa*), spear-fishing (*katebe*), torch fishing (*kibe*), and more. The reason that most people use the ocean flat for fishing is that the area is the most accessible and the methods of fishing used are simple and cheap. Also, the ocean flat is normally rich in marine resources, which range from seashells obtained right from the beach to small and large fishes that live in the waters at the edge of the fringing reef.

Figure 4: Households by Location of Fishing



Source: 2005 Census of Population, NSO/MFED 2007

The second most important fishing area is the deep ocean, where reef and deep ocean fish are often plentiful. Unfortunately roaming beyond the safety of the reef requires more complicated fishing methods and much more expensive fishing gear. Outboard motors and local canoes are the main mode of transport for ocean-going fishermen. According to a survey undertaken by the Fisheries Division of the Ministry of Fisheries and Marine Resource Development in 2005 it shows that on Makin island there were 142 canoes, 26 skiffs, and 64 outboard motor engines.

The third, and probably fastest growing method of fishing is net-fishing. The reason for its popularity is the fact that very little skill is involved in this method, and the cost of a fish net is not as high as those of an outboard engine and boat or locally made canoe. Naturally, with a very small lagoon (not really a lagoon in the strict sense of the word), hardly any fishing is done in the lagoon area.

2.3.4 Current Developments

In an attempt to improve fish availability and commercialization, Government is embarking on a program to equip outer islands with cold storage facilities. The construction of such a facility is envisaged to provide fresh fish for Makin people during times of rough seas, as well as allow storage of exportable fish before arrival of boats to transport them to Tarawa, the capital. On Tarawa, fish imported from Makin and the other outer islands will either be sold to the urban population, or processed for overseas export.

2.3.5 Issues facing fishing and development of marine resources

Owing to its size, one of the future threats facing Makin is the impact of population growth on the supply of fish and other marine resources. Generally speaking the more the population grows the higher the pressure on fish and other marine resources. This is particularly true in the case of Makin where the reef and mudflat are comparatively small. It is likely that as more and more people are engaged in ocean flat fishing, the volume of catch will decrease. In turn this will lead to more people turning to ocean fisheries,

however with the high capital cost of equipment and anticipated increase in rough weather (there has been a marked increase in strong westerlies), peoples dependency imported food to satisfy their daily food requirements is likely to increase.

The ocean is still rich in migratory fish (especially tuna) and other exportable marine resources such as lobster, pet fish, and more. However the main constraint that had prevented commercial fisheries operations in the past is the lack of storage and transport facilities to enable harvesting of these resources.

2.4 Status of Environment

2.4.1 Environmental Issues

Coastal erosion is a major environment issue for the people of Makin. Many locations on Makin have been seriously eroded, resulting in the relocation of infrastructure (road, buildings, etc.) or the recurrent high expenditure of maintaining seawall protection. Makin is among those islands whose topographical structure makes it particularly vulnerable to high tides and storms. In addition to being small, the reef flat is also narrow in many places, offering minimal protection against powerful ocean waves that are often generated by strong winds.

Whether it is true or not, the people of Makin do strongly believe that the construction of causeways on the neighboring island of Butaritari is the cause of serious coastal erosion on Makin. This despite the fact that there is a causeway/bridge on Makin itself, which has caused erosion and land accretion in the areas located within the immediate proximity of the structure.

Makin and neighboring Butaritari are the wettest islands in Kiribati and as such they support a wider variety of fauna and flora. Many plant species that grow well here are not found anywhere else in the country. But if climate change should become a reality it may jeopardize this natural advantage and result in many problems including the occurrence of droughts and the intrusion of saltwater into the groundwater lens. In the unlikely event that these happen, Makin's small groundwater reservoir will be affected, with negative consequences on the inhabitants.



*The Namonrua, the main bwabwai cultivation area on Kiebu is threatened by seawater pollution
Photo by Tete.and Pita 2007*

The island's limited land area and resources will face increasing pressure as the population continues to grow. Coconut, which is one of the main commercial agricultural produce used in the production of copra, is now scarce, as more and more people compete to harvest it. This problem is particularly noticeable around Makin village, where coconut collection at night using flashlights has become a preferred method of harvesting.

B SOCIAL SERVICES/INFRASTRUCTURE

2.5 Education

The data used in this section are derived from the Educational Statistical Yearbook for the years 2004 to 2006. The data are compiled by head-teachers and submitted to the Statistical Unit of the Ministry of Education at the end of every year.

2.5.1 Number of school age children, proportion enrolled in schools

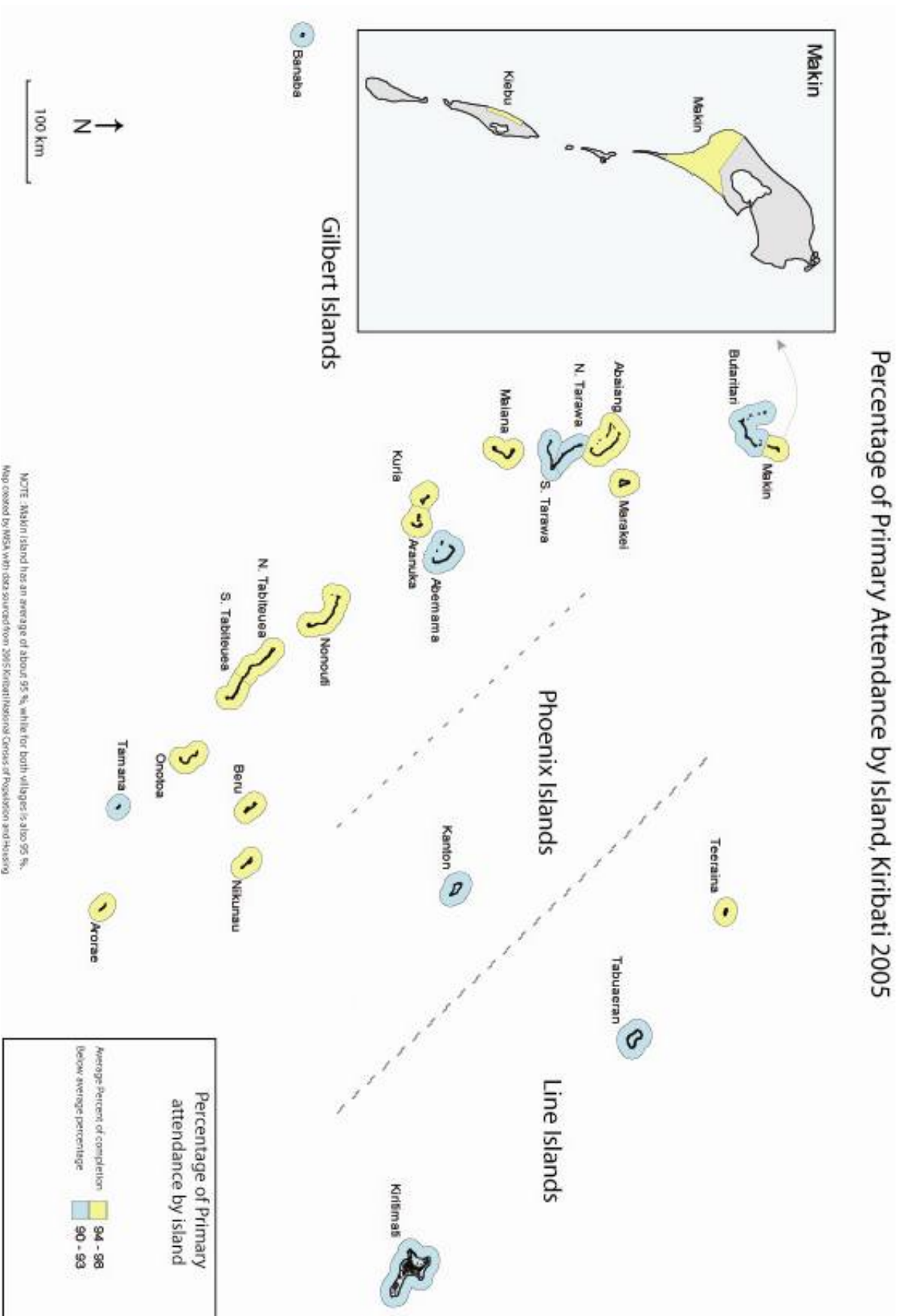
There are 4 types of schools within the formal education system in Kiribati, namely primary, junior secondary, combined junior/senior secondary, and senior secondary. The first 2 types of school, primary and junior secondary, are normally located on every island for accessibility by all children of school age.

Formal education officially commences at Class 1 in the primary school for children who have reached the age of 6 years. Primary education continues for 6 years before children enter Junior Secondary School at age 12. They remain in JSS for 3 years before they finish and compete for a place in one of the various Senior Secondary Schools located mostly in South Tarawa.

2.5.1.1 Proportion of Primary school attendance

Of the total number of children in the primary school age of 6-12 years, 95% were enrolled in primary schools, 2% dropped out of school for various reasons, and 3% were never enrolled in school. This is reflected in Figure 9 below. Among others the reason for non enrolment in primary schools was the higher priority accorded to subsistence activities such as fishing, bwabwai cultivation, copra cutting and handicraft making. In some communities, especially those living on islets, it is common to see boys and girls of school age attending to subsistent activities rather than to be learning in the classroom.

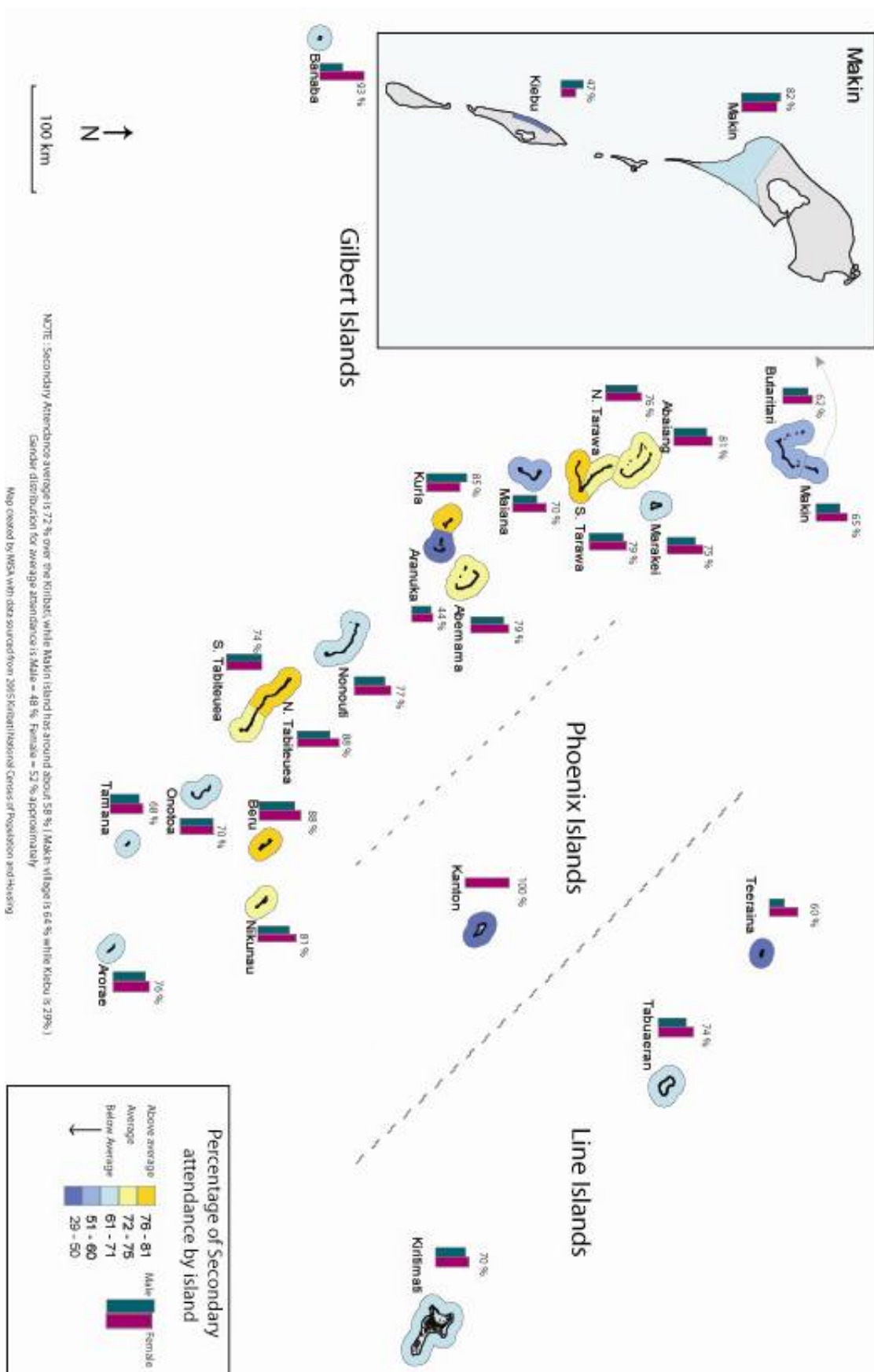
Percentage of Primary Attendance by Island, Kiribati 2005



2.5.1.2 Proportion of Junior Secondary School Attendance 2005

Figure 10 shows the proportion of children attending JSS, those who left, and those who never attended JSS from the start. From the total number of teenagers aged 13-15, 77% attended JSS, 17% left school for personal reasons or due to disciplinary issues. The remaining 6 % have never attended JSS due to early marriage or other unknown reasons.

Percentage of Secondary Attendance by Island gender distribution, Kiribati 2005



2.5.2 Breakdown of school enrolment at different levels

In 2006 a total of 327 pupils were enrolled in two primary schools, namely Abaewewe and Teikao. Of this number 171 were girls and 156 were boys. The total number of teachers in both primary schools was 11, out of which 3 were based at Abaewewe and 8 at Teikao.

For the whole island there is only one Junior Secondary School, Nakaa Junior Secondary School (named after the legendary guardian of the gateway to the place of the dead). As of 2006 the number of pupils enrolled in all forms totals to 192. Of this figure 70 were in Form 1, 49 were in Form 2, and 73 were in Form 3. With a teaching staff of 13, the Teacher to Pupil ratio at JSS was 1 teacher to every 14 pupils.

2.5.3 Percentage of pupils completing Primary and JSS.

The number of pupils who were in class 5 of primary school in 2005 was 58. This is the same number that we would expect to enroll for class 6 in 2006. Surprisingly the figure increased to 61 in 2006, reflecting a difference of 3 over the previous year's figure. Assuming that no major changes occurred before the end of 2006, we could conclude that the percentage of pupils completing primary education on Makin in the year 2006 was 105%. Using the same method for JSS we observe that there were 55 pupils in Form 2 in 2005, who went on to Form 3 in 2006. However in 2006 the number was 72, showing a variance of 13. Again, assuming that no major changes occurred before the end of that year, the percentage of pupils who completed JSS in 2006 was 131%.

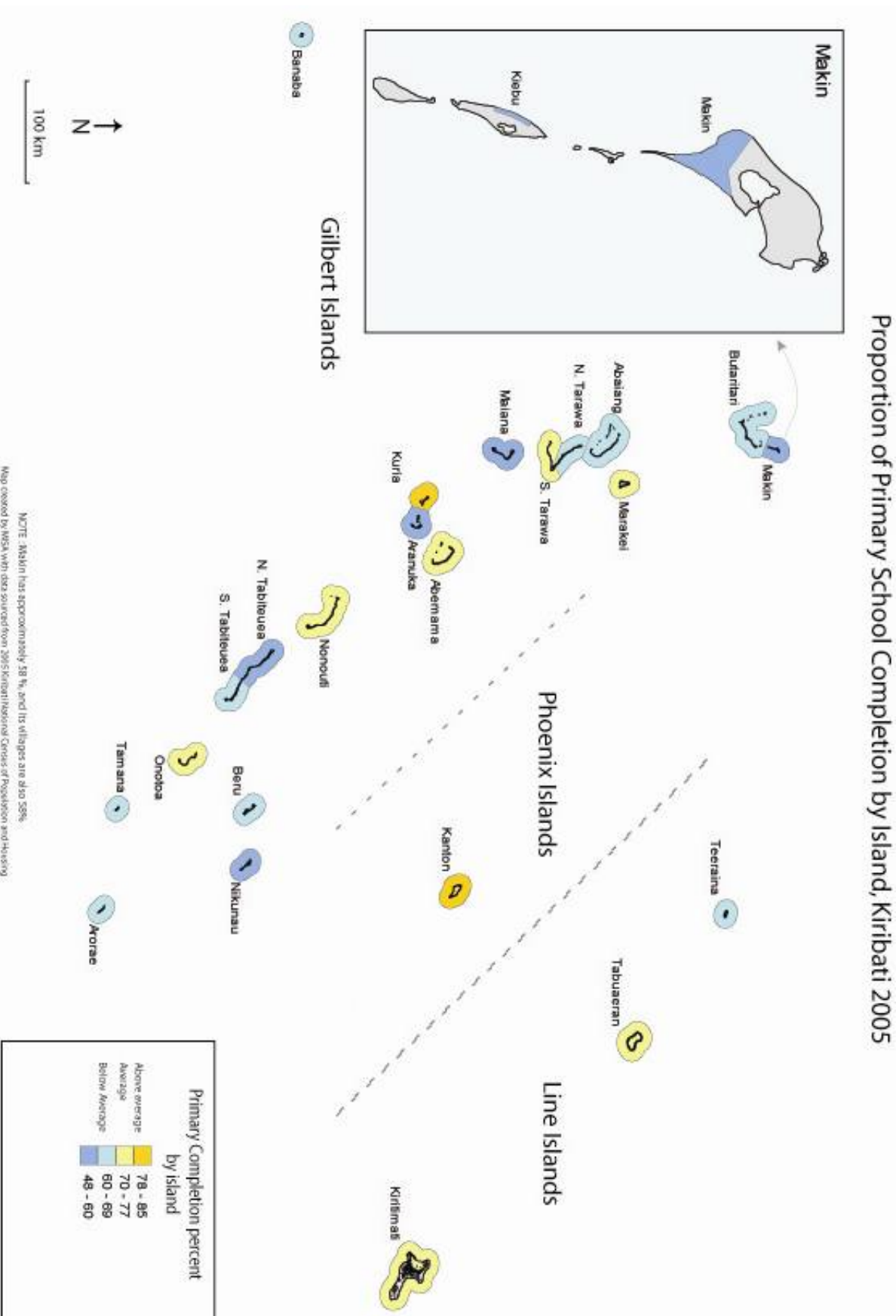
Table 4: Enrolment in Primary and Junior Secondary Schools, Makin 2005 and 2006

Primary School								Junior Secondary School			
Year	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	TOTAL	Form 1	Form 2	Form 3	TOTAL
2005	88	59	47	40	58	68	360	38	55	79	172
2006	80	68	35	50	33	61	327	70	48	72	190

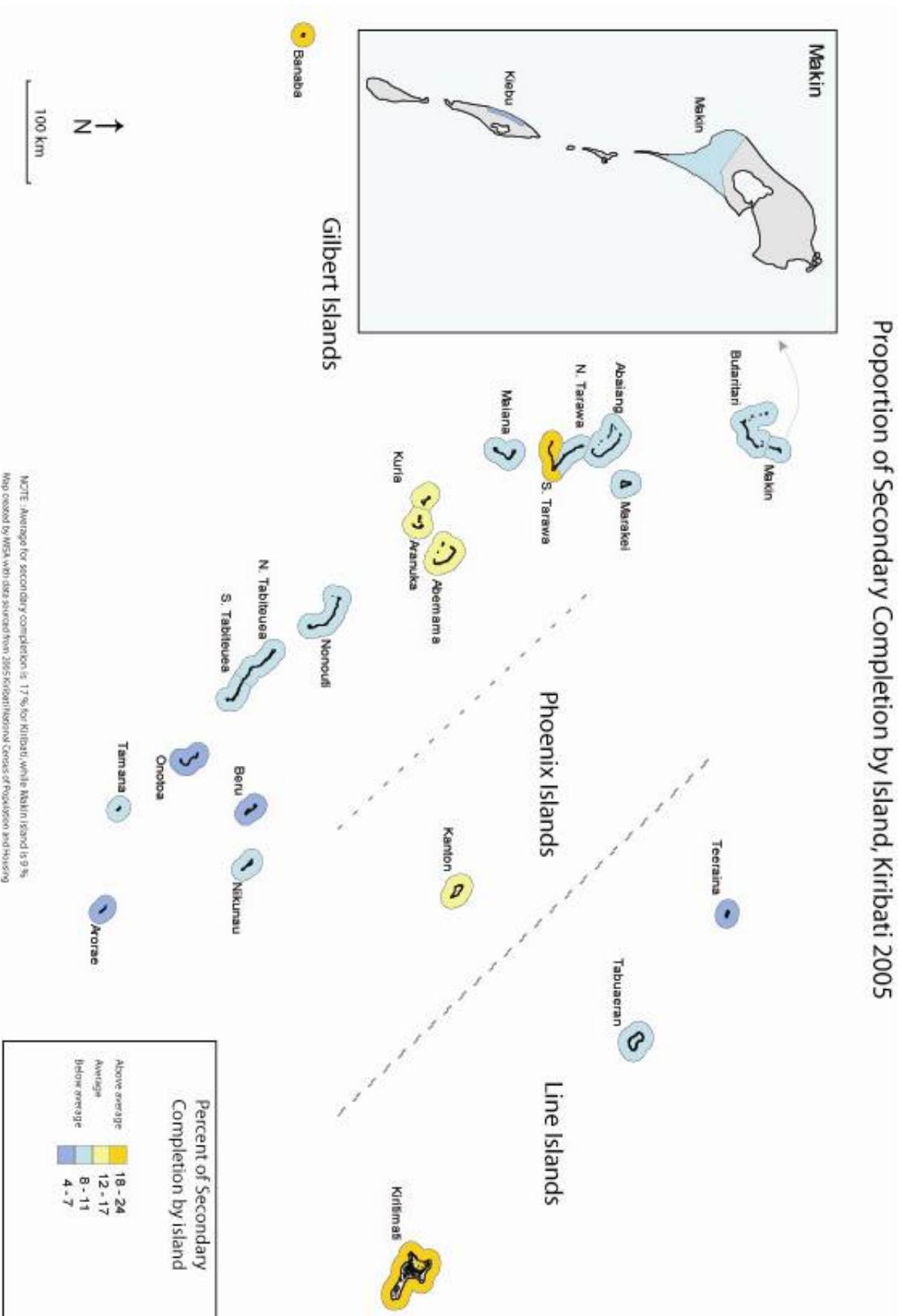
Source: Compiled from the Digest of Education Statistics, MOE, 2005 and 2006.

The surplus in enrolment at the higher levels of primary and JSS may be attributed to the transition between different levels of schools, prompting some pupils to repeat either Class 6 or Form 1 in order to improve their performance especially in national-level examinations. It is also likely that some pupils changed schools sometimes in 2005 without their movements recorded in the school report when it was submitted to the Ministry of Education. As a result their presence was noted but could not be explained.

Proportion of Primary School Completion by Island, Kiribati 2005



Proportion of Secondary Completion by Island, Kiribati 2005



2.5.4 Number of schools, type and state of facilities

Makin island has 3 schools comprising of 2 Primary Schools and one Junior Secondary School. On Makin village is located Nakaa Junior Secondary School and Teikao Primary School. Abaewewe Primary school is located in Kiebu village. Schools are small due to the size of the Islands population.



A collapsed classroom at Nan Teikao Primary school - photo by Tete and Pita, 2007

The condition of classrooms, teacher living quarters and other school buildings is generally poor. School buildings are of the local and permanent type and, as such, one would expect that local buildings will be better serviced due to the availability and low cost of materials. While repair and maintenance work on local buildings is more frequent, there is often insufficient funding to address full maintenance requirements at any one time. On the other hand, permanent buildings (see above photograph) have not received any maintenance work for many years. As a result some permanent buildings had deteriorated so badly that local authorities are forced to use local materials to patch up damaged walls. At Nan Teikao Primary School, negligence of a simple repair work to the roofing of a classroom complex has resulted in the collapse of full sections of the building – the cost of which may now run in tens of thousands dollars. At the time of review, Government is still looking for funds to undertake major repair works on permanent buildings all across the country.

School furniture is generally lacking, and it is not unusual to find pupils learning while sitting or lying on the ground. To try to provide much needed funds the school administration and parents sometimes launch fundraising activities in order to generate income to meet the cost of teaching materials and stationery. Some significant development assistance have been offered by resident diplomatic missions (such as Australia and New Zealand) who have provided rainwater tanks and school furniture to both the primary and JSS schools on Makin.

2.5.5 Number of Teachers and Teacher/Pupil Ratio

In 2006 Teikao Primary school had 221 students with 9 teachers while Abaewewe Primary School had 95 students with 3 teachers. By individual school Teikao had a ratio of 1 teacher for every 25 pupils while

Abaewewe had 1 teacher per 32 pupils. Combined the ratio for the two schools was 1 teacher per 26 pupils. This is the same with the national ratio for all primary schools in Kiribati which was 1 to 26 in 2006.

Table: Number of Pupils, Teachers and Ratio

School	Pupils	Teachers	Ratio
Teikao	221	9	25
Abaewewe	95	3	32
All schools	316	12	26

Source: Digest of Education Statistics 2006

Nakaa Junior Secondary School had 13 teachers with a total number of 300 students. The Teacher to Pupil ratio is 1:35 on average.

2.5.6 Performance of Pupils in national tests/exams

In the formal education sector, children at pre-school and primary school levels transit to primary and JSS respectively without having to sit entrance examinations. This policy supports the concept of compulsory and accessible education for every child, especially at the early stages of formal education. However at the end of JSS pupils must compete with each other for the limited places available in one of the few Senior Secondary Schools in the country. Therefore pupils of Nakaa JSS on Makin must compete every year to secure places in one of the 20 or so senior secondary schools, 3 of which are state owned while the rest are run by various religious denominations.

The Digest of Education Statistics does not provide information on the performance of pupils in national examinations, however the Ministry of Education has been requested to provide this important information for inclusion in the profiles when they are ready.

2.5.7 Community involvement to improve standard of education

Normally the community does not interfere with the school syllabus as it is the responsibility of Government to design them and ensure their effective implementation. However the community, through the school committee, often takes the initiative to address a wide range of other issues, such as children and teachers comfort, security, staffing, sports, and many more.

Over the past years the community had assisted both the primary and junior secondary schools especially in performing critical maintenance work on classrooms, offices and teacher residences. These buildings are by right the responsibility of Government who, in many cases have been very slow in providing the financial support needed to keep school infrastructure in good shape. On Makin, the community had constructed new classrooms and repaired old buildings using locally available materials.

2.6 HEALTH

"The Ministry of Health and Medical Services will provide optimal level of health to the people of Kiribati using a Primary Health Care (PHC) approach that promotes both prevention and curative services to improve outcomes through accessible, affordable, integrated, and quality services at every level of the health delivery system" This is the mission statement of the Ministry of Health and Medical Services contained in its Operational Plan for 2004-2007, which reflects the overall responsibility of the Ministry of Health and Medical Services for the nation as a whole.

2.6.1 Health Facilities & Staff

There are two clinics and one health center on Makin. The clinics are located each in the villages of Makin and Kiebu, while the health center is located in the island's administrative center. There is one Medical Assistant (MA) who is the highest ranking medical staff on the island. The MA is in charge of 2 nurses and 4 nursing aids. The MA and nurses are paid by the central government while the nursing aids are the responsibility of the Island Council of Makin.

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

- *Health Center:* 1 health center, 3 wards, 3 cooking houses and 3 toilets
- *Anrawa Dispensary/clinic:* 1 clinic, 3 wards, 3 cooking houses, and 3 toilets
- *Kiebu Dispensary/clinic:* 1 clinic, 2 wards, 2 cooking houses, 2 toilets and 1 maneaba.



Locally made housing of the Health Center on Makin – photo by Ruta Ioata and Erimeta Barako, 2007

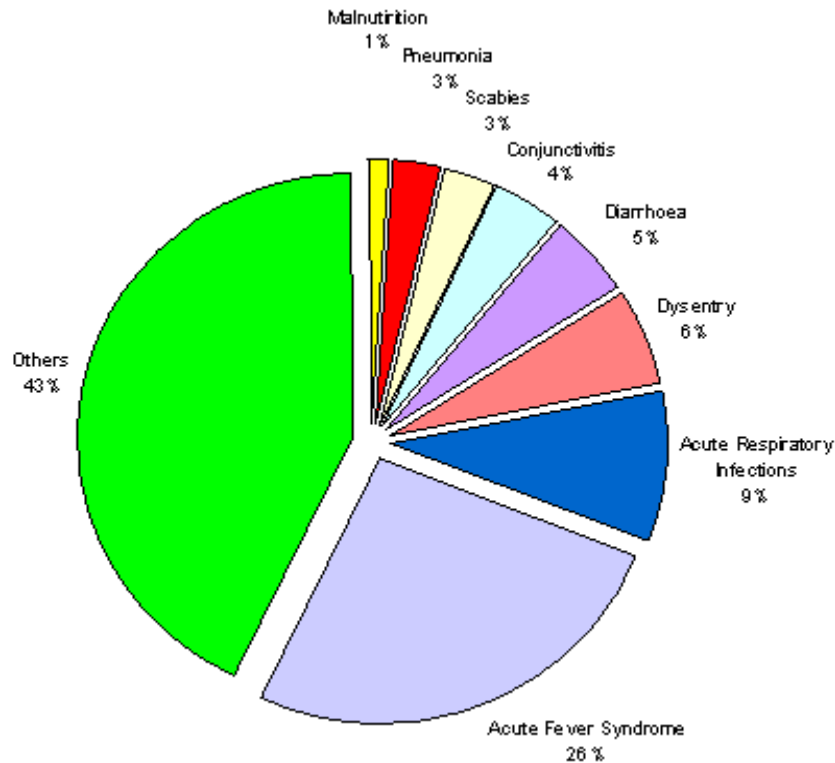
The health center and clinics are built from permanent construction materials, while the wards, cooking houses and toilets are of local material. Various surveys on the condition of medical facilities undertaken over the course of the past few years show that maintenance of medical facilities on Makin have been neglected, resulting in the deteriorating condition of both local and permanent buildings. The main cause of this problem is the lack of maintenance funds.

2.6.2 Most Common Health Problems

Records show that the most common diseases on Makin island are fever, cough, headache, stomach-ache and diarrhea. As Figure 12 shows, these diseases were the most prevalent among the patients who visited or were admitted to the clinics and health center on Makin in 2006. On the other hand, chicken pox, meningitis, fish poisoning and sexually transmitted infections (STI) were the least important causes of illness on the island, for which no cases were reported in 2005. In relation to sexually transmitted infections the Ministry of Health and Medical Services believes that due to fear of social

rebutke STIs are usually difficult to detect since people keep them secret. Therefore while there may be no record of patients with such diseases, it is likely that there are actually people infected and living with STIs on Makin.

Figure 12: Most common health problems



2.6.3 Cases of malnutrition, HIV/AIDS, TB, etc.

According to medical records from Makin island, no cases of HIV/AIDS or Tuberculosis were reported or treated for the year 2006. However malnutrition accounted for 1 % of reported cases for that year.

2.7 HOUSING

2.7.1 Total number of residential houses, type and status

There were 241 private residences on Makin village and 87 on Kiebu islet. The majority of homes are built from local materials using pandanus leaves for roofing, coconut fiber for lashing, pandanus trunks for posts and coconut frond stalks for floorings and walls. A common type of traditional house is one with an elevated floor about three or four feet above the ground and has no walls. In terms of modern permanent buildings, there were 20 buildings with galvanized roofing, including the Island Council, health center, all of the maneaba, and a number of private houses. All private residences on Kiebu islet are built from local materials, with the only permanent buildings being the Roman Catholic chapel and maneaba, one primary school building, and the village's medical clinic. The Ministry of Health and Medical Services is promoting the collection of rainwater for drinking. In this regard many of the buildings on Makin which have galvanized roofing are connected to plastic tanks which store rain for drinking purposes. Many families now prefer to have galvanized roofing in order to collect and store rainwater, and the Island

Council is assisting in seeking external funding to purchase water tanks for this purpose.

2.7.2 Other issues

Local materials are the most suitable for the construction of residential houses, since they are cool and cost nothing. However roofing which is made from pandanus leaves does not last very long in Makin where annual rainfall is high. In the southern Gilberts where the climate is drier, pandanus thatch can last as long as 7 years, but on Makin it needs replacement every 3-5 years. The run-off rain from locally thatched buildings is considered unfit for drinking because it is normally dirty and brownish in colour.

2.8 WATER AND SANITATION

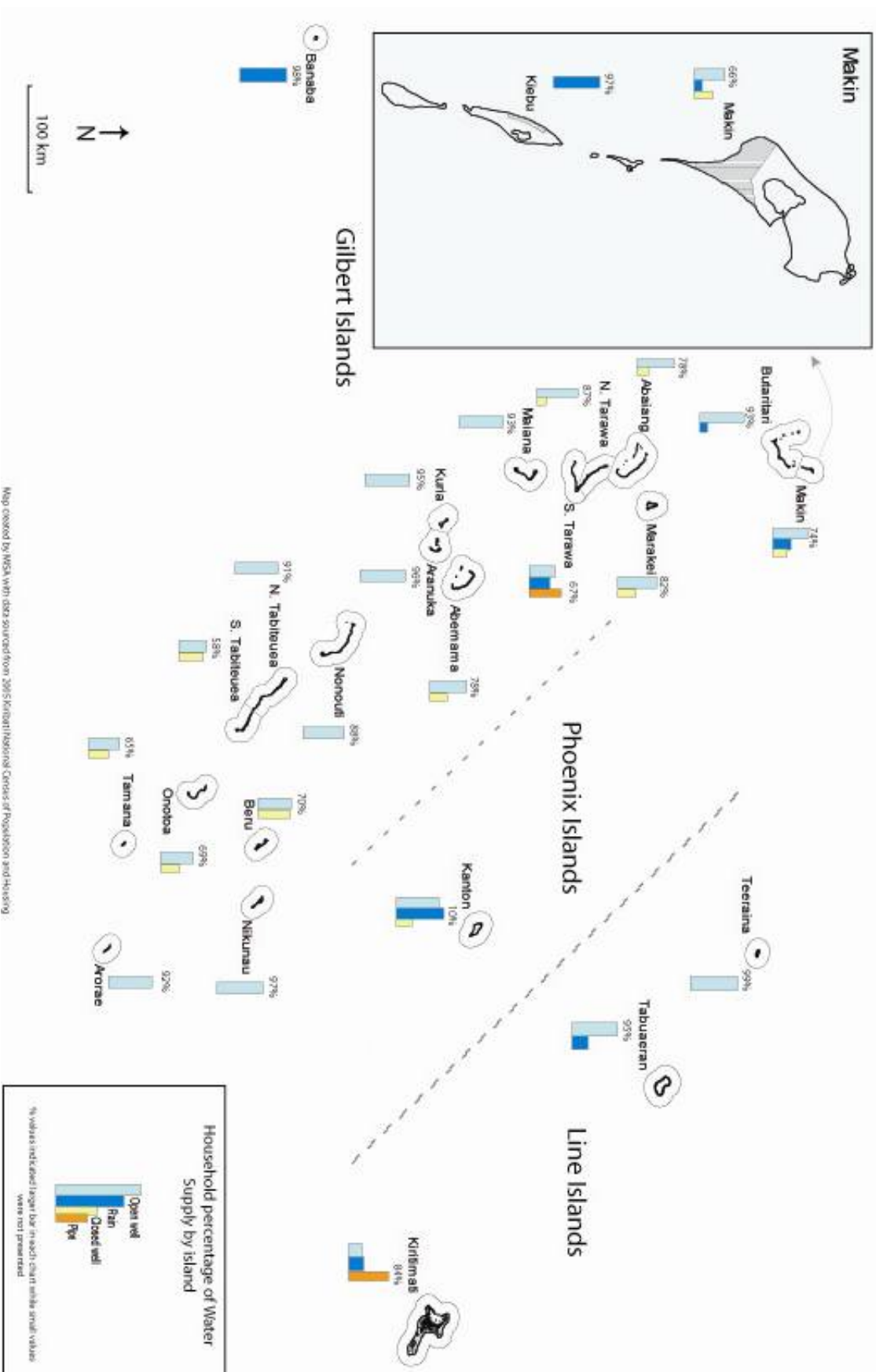
2.8.1 Water Supply Sources

The main water sources for drinking and sanitary purposes are rainwater and groundwater respectively. The groundwater drawn out from open wells is also used for drinking purposes, but due to the close proximity of some open wells to pit latrines, people are often advised to boil water before drinking.

The 328 households on Makin have access to one or more sources of water, for drinking and other domestic uses. The 2005 census recorded that 48 households have access to rainwater, 79 to piped water, 133 to open wells, 182 to protected wells and 235 have access to both open and protected wells.

According to records from the Ministry of Public Works (2007), Makin has benefited from various water development projects in the form of poly tanks, rainwater catchments, hand pumps and several solar pumps. The hand pumps were installed in the households, with solar pumps and water tanks installed in the schools, the churches and the community. In total there are 63 hand pumps, 44 poly tanks and 3 solar pumps. The purpose of these projects is to improve water accessibility and provide clean drinking water to the population. On Kiebu, a rainwater system has been installed to collect rainwater from a church building and distribute it to the entire village. The project was funded by Canada Fund.

Household percentage of Water supply by Island, Kiribati 2005



2.8.2 Status of Water Supply

The supply of water is dependent on a number of factors the more important of which are population, climate and topography. Fortunately for Makin island water shortage had never been a problem owing to the high annual rainfall. Rainwater serves as the major source of drinking water, which can be obtained by collecting it in poly water tanks or through open wells dug into the ground where rainwater accumulates after rains.

2.8.3 Other Issues

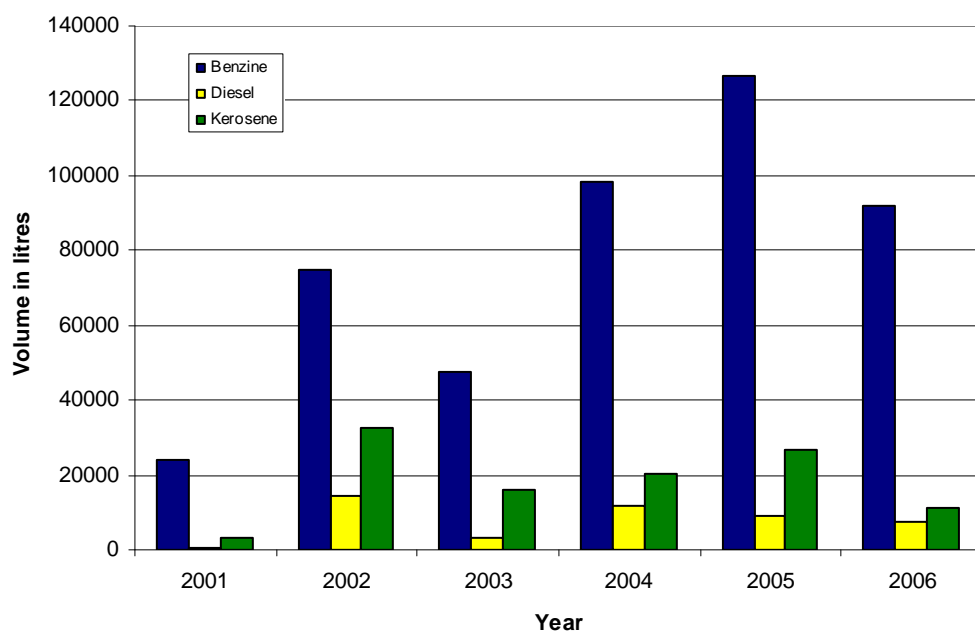
As far as water supply is concerned the groundwater reserve on Makin is threatened by saltwater pollution through surface intrusion. Already the freshwater pond which serves as an important food-producing area for the largest village on Makin has been overflowed with seawater several times, causing destruction to *bwabwai*, banana, coconut and other food crops. Surface intrusion of seawater leaves the groundwater reservoir completely vulnerable to pollution, which slowly spreads out to affect the entire island water supply.

2.9 Energy

The traditional form of fuel is firewood, mainly in the form of coconut husk, dry coconut leaves and common wood. In the olden days dried coconut meat was burned to provide lighting in the homes at night, while woven coconut leaves were used in night fishing. Nowadays people are resorting to the use of modern technology to provide energy to meet their private and public needs. The new technologies however use fuel which must be imported from overseas through the Kiribati Oil Company Limited (KOIL).

KOIL imports fuel from overseas and distribute it to all the islands in Kiribati. Kerosene, benzene and diesel provide energy for cooking, lighting and transport. The 2005 census recorded that out of 328 households 39 owned power generators and 283 have pressure lamps. There were also 2 trucks, 48 motorcycles and 20 outboard motor engines. Electrical appliances include 195 radios, 3 computers and 8 CB radios. All these equipment and machinery require fuel or energy for their operation. The chart below shows the volume (in litres) of three major types of fuel sent to Makin between 2001 to 2006.

Figure xx: Fuel distribution to Makin 2001-2006



Source: KOIL data 2006

In terms of volume, unleaded petroleum (commonly known as benzine) has been the most commonly used fuel on the island, followed by kerosene and diesel. The chart shows that the volume of fuel sent by KOIL to Makin island between 2001 and 2006 has generally increased, with unleaded petroleum constituting 76% of total requirements, kerosene 17% and diesel 7% (average of combined fuel requirements from 2001 to 2006). It is anticipated that the proportion of unleaded fuel will increase as the use of automotive machines and equipment (portable generators, outboard engines, motorbikes, etc.) becomes more widespread.

To reduce dependency on fossil-based fuel Government has been promoting the use of solar energy on the outer islands, through its company – the Kiribati Solar Energy Company Limited (KSECL). Over the last 3 years KSECL, with funding from the European Union, has installed more than 2000 stand alone solar photovoltaic systems throughout the country. The objective of this "*Outer Island Electrification Project*" is to enhance economic activity and improve children performance in school through the provision of affordable and efficient lighting, as well as to provide an alternative environment-friendly energy source that does not pollute the air. From the 2000 solar systems made available under this EU-funded project 75 of them were allocated to Makin island. More similar systems are expected to be made available under the second phase of the project which is presently being negotiated with EU.

CHAPTER 3: TE RAOI – SOCIAL CAPITAL, COMMUNITY LIFE AND GOVERNANCE

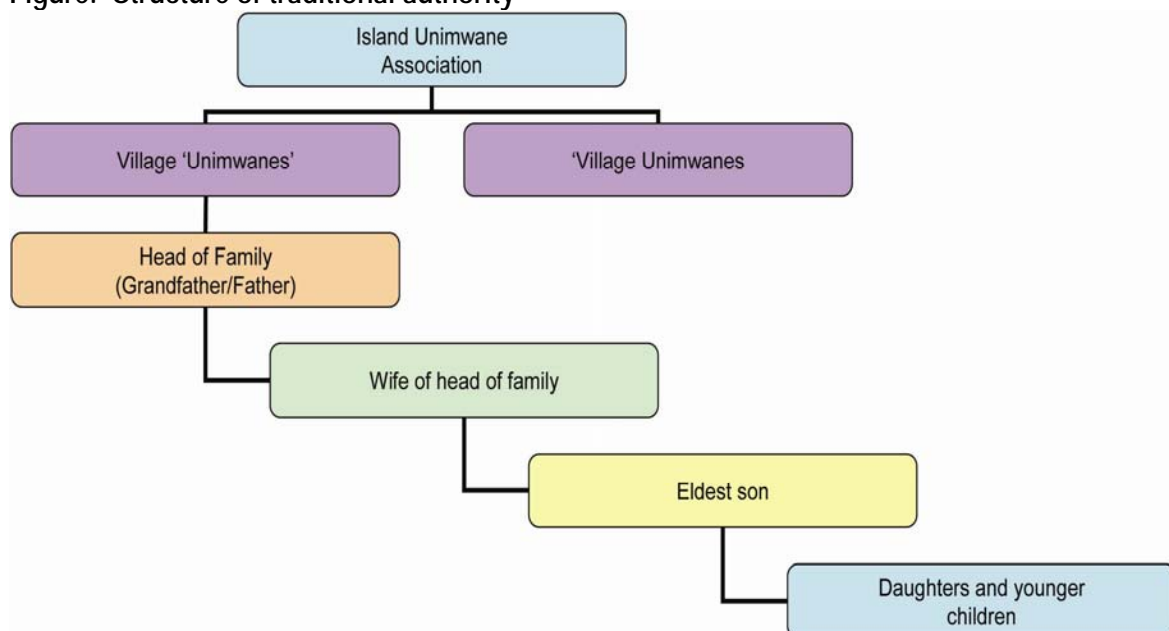
3.1 Local Institutions and Social Change

3.1.1 The Maneaba System and Unimwane Association

The *maneaba* was and remains the most important institutional symbol and foundation of community life in Kiribati. Its importance is related to its function as the center of social life, where matters pertaining to the social, economic and political life of the community are discussed and resolved with the leadership of the *Unimwane*.

Beside the traditional function as a community hall, court of judgment/reconciliation, and sanctuary for all, the purpose of the *maneaba* has considerably widened to include shelter for the sick, storage facility for copra, fundraising venue, and more. Despite the additional uses invented for this culturally important structure, the system of governance and leadership that developed with and revolves around the *maneaba* has remained largely intact. This was the result, first of colonial support, and later on of Government's recognition of the importance of traditional leadership vested in the *Unimwane*. In all Island Councils including Makin, there is a seat for a representative of the Unimwane Association, who embodies the highest traditional authority on the island.

Figure: Structure of traditional authority



The Unimwane Association on Makin has representatives from the different wards on the island, of which there are four, being Makin Meang, Makin Nuuka, Makin Maiaki, and Kiebu. The chairman for the Unimwane Association is elected on a rotational basis, starting from Makin Meang, for duration of 1 year. The Association meets once a month, also on a rotational basis among the four wards of the island. Membership of the Unimwane Association ranges from 30 to 40 at any time, and the Chairman represents the Association in the Island Council.

The Association discusses a wide range of issues relating to the welfare of the islanders. What is agreed

in the Association is brought to the attention of the Island Council, for further advice and/or assistance. Normally the Island Council will return to the Association issues which it cannot resolve, but will provide assistance to those which it or central government can resolve. Some of the things that the Unimwane association has been influential in implementing include the banning of alcohol import and the enforcement of clear village boundaries beyond which people are not allowed to build homes.

The Unimwane association is more powerful and respected compared to the Island Council, due to the fact that they are the head of their community and command the respect of their people. Because of this the decisions taken by the Unimwane, though sometimes may not be legal, are usually followed without question since going against such decisions will bring bad luck (*maraiā*). The central government appreciates the importance of the Unimwane as a powerful political institution which functions more according to customary rules.



(Kiebu Nuka Maneaba rebuild: picture shot by Ruta Ioata during trip to Makin)

3.1.2 Women Organizations

There are 3 main registered women associations on the island, namely *Reitan Aine ni Kamatu* (RAK), *Irekenrao* and *Itoiningaina*. The “Nikabubuti” is the umbrella women organization on Makin, with draws its membership from the three women associations named above.

Table xx: Women Associations on Makin

Name of Association	Membership	Coverage
Nikabubuti	Not specified	All women organizations
Itoiningaina	101	Catholic women
Irekenrao	32	
RAK	26	Kiribati Protestant Church women

Source: Makin Island Council 2007

In general the women associations on Makin share the following objectives:

- To enhance their skill, capacity, capability and understanding of both traditional and new knowledge;
- To promote the sharing of ideas and knowledge of traditional art and craft;
- To promote healthy living for all families;
- To work together to generate income, and lastly
- To enhance integration among women.

Some of the problems facing women associations on Makin include declining membership due to financial difficulties, lack of funds to implement their development plans, and the need for training to better equip women to cope with family responsibilities and to enable them to contribute positively to the development of Makin.

3.1.3 Youth Associations

For Makin as a whole there is an umbrella body known as the *Makin Youth Association*. This association represents various religious youth associations listed, with their membership and activities, below:

Table XX: Youth associations on Makin

Name of group	Members	Activities	Issues
Kairaken St. Bauro	18	Thatch-making, weaving and grass-cutting	Lack of commitment by members, Incomplete executive members.
Ueen te Atinraoi	17	Coconut husking, thatch making, bwabwai cultivation, cleaning wells, general cleaning	Lack of management skills by committee members,
Ueen Eten Youth	22	Re-thatching, selling of food and drink, laundry, cleaning of wells, bingo	Poor attendance of members who spend more time drinking alcohol and yagona.
Rotin Nei Wirara	15	Cleaning of wells, garlanding, thatch making, husking coconut.	Lack of management skills, poor attendance due to alcohol and yagona consumption.
Nakin te Raoi	36	Building of small traditional houses, firewood collection, others.	Lack of skills in conducting meetings.

Source: Makin Island Council, 2007

The 5 youth associations on Makin, as shown in the table, share 2 common issues which would require assistance from concerned authorities. These issues are (1) lack of management capability by the association's executive members and (2) poor attendance due to heavy involvement in alcohol and yagona drinking. Despite the fact that the commercial sale of alcohol is banned on the island, individuals are nevertheless allowed to produce sour toddy (fermented coconut juice obtained by regular cutting of the coconut's spade) for home consumption.

3.1.4 Sport Associations

The islanders are familiar with 4 types of sport – soccer, table tennis, volleyball and athletics. Of these soccer is the most organized, with 9 teams existing under the *Makin Football Association (MFA)*. The following soccer clubs currently exist on Makin:

- BKL
- Makin united
- Ueen Eten

- Ueen te Aitoa
- Itoin Kanaan
- Ueen Kiebu
- Waibiri
- Abaewewe
- Ueti.

Soccer is a male-dominated sport in Kiribati. As such all of the existing clubs on Makin are male, however the island is planning to establish a female team for island and inter-island soccer competitions.

3.2 Religion

3.2.1 *Main religious denominations*

Chapter 2 also discusses the composition of population by religious denomination. According to the 2005 population census 76.60 % of Makin's 2,385 inhabitants are Roman Catholic followers, 21.68 % belong to the Kiribati Protestant Church while 4 small religions share the remaining 1.13 %. It is clear that the population of Makin is predominantly Christian, and likely to remain so well into the unforeseeable future.

3.3 Political Authority and Governance

3.3.1 *Traditional political system – description and status*

The traditional ruling system differs from region to region, but based mainly on the chiefly ruling system and the Unimwane (maneaba) system. The chiefly ruling system was common in the central and northern Gilberts, while the Unimwane (maneaba) system was used in the southern Gilberts. In the chiefly system one person enjoys the powers and privileges over his subjects and resources. In pre-colonial times the islands from Makin to Abemama were ruled by families of "Uea" (high chiefs), who were based on Butaritari, Abaiang, Tarawa and Abemama. The southern islands from Nonouti to Arorae were ruled by councils of Unimwane who meets in the maneaba to discuss and address all kinds of social, economic and political issues. In this system the Unimwane, who consists of the head of each *kainga* (extended family), is the most powerful and sole decision-making body in the community. The decisions made by the Unimwane are believed to be the best because they are the outcome of careful deliberation among the oldest, wisest and most experienced members of the community.

The chiefly system of the central and northern Gilberts gradually disappeared because it was incompatible with the new Christian belief and democratic form of Government that were introduced into the country in the late 19th and early 20th centuries. On the other hand, the Unimwane (maneaba) system, due to its similarity with the western democratic model, was encouraged and has continued to be the dominant traditional form of authority throughout the country.

3.3.2 *Local government system*

The government system in Kiribati is made up of the central government, based in South Tarawa, and Island Councils based on each island. Makin Island Council was established on March 28, 1967 under a warrant which outlines the purpose, responsibilities, authority, powers and laws which governed the existence of Councils. The functions of the Island Council were spelled out in the Local Government

Ordinance 1966 which had been revised a few times, the most recent being in 2006.

The Island Council is made up of representatives from each village/ward who are elected every 4 years. There are also nominated and ex-officio members who, together with elected members meet every month to discuss matters pertaining to the operation of the Island Council and issues affecting the various wards and the island as a whole. Among its core functions as stipulated in the Local Government Act 2006, the Island Council is also responsible for the following general areas:-

- Agriculture, livestock and fisheries,
- Buildings and village planning,
- Education,
- Forestry and trees,
- Land,
- Relief of famine and drought,
- Markets,
- Public health,
- Public order, peace and safety,
- Communications and public utilities,
- Trade and industry

All Island Councils have management and support staff who are seconded by central government and stationed on the outer islands. These staff include the Council Clerk, the Treasurer, the Assistant Treasurer, the Island project Officer, and the Assistant Social Welfare Officer. In addition to this administrative and support team who work directly with Councils, there are also other government personnel who are placed on the islands to assist in other important areas, such as police officers, agricultural assistants, fisheries assistants, medical assistants, and teachers.

Makin Island Council has 8 elected members, 2 each from Makin Meang (North), Makin Nuuka (Central), Makin Maiaki (South), and the islet of Kiebu. There are 2 special members who represent the *Unimwane* and Women associations.

The concept of “small is beautiful” seems to work well with Makin, in the sense that the Island Council enjoys good relationship with communities and organized groups, most importantly the *Unimwane* association. In performing the similar role of providing leadership to the people of Makin, both the Council and the *Unimwane* have worked together quite well, supporting each other. As a result the Island Council of Makin has so far been one of the more functional and progressive Island Councils in the country.

The revised Local Government Act 2006 is aimed at transferring to Island Councils more autonomy and responsibility, to enable them to shoulder the burden of running the country with increased confidence and sense of stewardship. But the revision of the Act is just a part of the wider plan to improve services to people on the outer islands. In addition central government is committed to undertake, among others, the following:

1. improve key development infrastructures (transport, communication, health, education, etc.) through sustained development financing,
2. promote participatory planning and decision-making especially in relation to matters pertaining to the island as a whole,

3. streamline operation and output of Island Councils through human resource development and stricter management where appropriate,
 4. develop new income generation initiatives, and secure new employment opportunities overseas, etc..
- While Island Councils may welcome new initiatives of central government to assist them and their people, it may take a long time to build the financial capability of Councils so that they could operate with minimum support from central government.

Central Government still provides support to the Island Councils through what is known as "Support Grant". According to sources from the Local Government Division of the Ministry of Internal and Social Affairs, central government provided a total of \$1.24 million to Island Councils in 2007. From this grant Makin was given \$57,262.70 (about 4.61% of total grant) to assist its recurrent budget.

3.3.3 Interface between Local Government and Traditional Political System

The leadership role of the *Unimwane* is well appreciated and continues to be respected by the society and hence central government. The modern legal system is indeed crucial to the maintenance of peace and order in Kiribati, but there are many instances where modern law fails to provide a solution to certain situations, and this is where the community under the leadership of the *Unimwane* intervenes to provide the solution. To avoid confrontation between central government and the traditional leaders, it is therefore resolved that the *Unimwane* association must be represented in local government, not as an elected councilor but as a nominated member who assists, advises and in many instances instructs Council to make the required decisions.

Councils and other institutions cannot disengage themselves from the *Unimwane* who basically hold the power in his hands when it comes to community support and/or resources. On Makin island the *Unimwane* association is particularly strong and influential in decision-making. Although the *Unimwane* association is represented by a single member on the Council, such a member has the full support of the Unimwane Association of Makin.

3.4 Crime and Justice System

A Court Clerk from the Judiciary in Tarawa is also stationed on Makin to administer the court system on the island. Duties of the Court Clerk include recording minutes of the magistrate court proceedings, executing the order of the court, collecting court fees, and processing claims and appeals to the High Court located in South Tarawa. There are eight magistrates on Makin, including the presiding magistrate who must sit in all court sessions. The Chief Justice who is stationed in Tarawa visit the outer islands from time to time, to preside on cases which are beyond the ability of the magistrate court to resolve.

As mentioned earlier in this chapter the modern justice system sometimes fails to correct a situation, perhaps due to insufficient cause or because an act has not violated any law. This is where traditional authority may intervene to solve the issue, in many cases to the relief the whole community and the formal legal system

CHAPTER 4: TE TABOMOA – ECONOMIC ACTIVITIES, INFRASTRUCTURE AND UTILITIES

A. ISLAND ECONOMY

4.1 Subsistence Economy

A subsistence economy is one where people perform traditional activities to meet their individual and group needs for security, and have no reason to accumulate wealth except to ensure their future survival. In such a system, the concept of wealth does not exist hence there is a high degree of reliance on renewal and reproduction within the natural environment. The nature of the subsistence economy is reflected in the social organization of families, who join together to form large kinship groups (*kaainga*) which survives according to a set of rules and roles. Each member of a *kaainga* performs a different set of activities which are assigned on the basis of sex and age. It is important for the survival of the group that each member fulfils the roles and responsibilities assigned to him/her.

Typical subsistent activities include fishing, toddy cutting, cultivation and harvesting of food crops mainly coconut, pandanus, breadfruit and bwabwai. These activities are performed by the adult members of a family, while the younger members are expected to collect firewood and fetch water, clean the *kaainga*'s compound, and assist the adult members to do the easy part of their chores.

Most of the fishing is done for subsistence but where there is a surplus this is either given freely to relatives or sold to others. Due to the increasing dependence on imported goods which are sold to the general public by small stores, the importance of cash as a medium of exchange is well appreciated by the population. However the lack of infrastructure prevents most people from engaging seriously in selling surplus produce like fish in order to make money. Furthermore, as a subsistence economy everyone is expected to be well skilled and knowledgeable in many things in order to survive in the harsh island environment. While some people may be more skilled in one thing compared to others, the concept of specialization which is a strong feature of cash-based economies is absent on the islands.

The customs of borrowing (*tangobwai*), or asking (*bubuti*), are still very much alive, especially on Makin island where people are more interdependent and out-going compared to their brothers in the southern islands. The sharing of wealth and property is quite common, especially among close relatives.

4.2 Production

4.2.1 Copra cutting

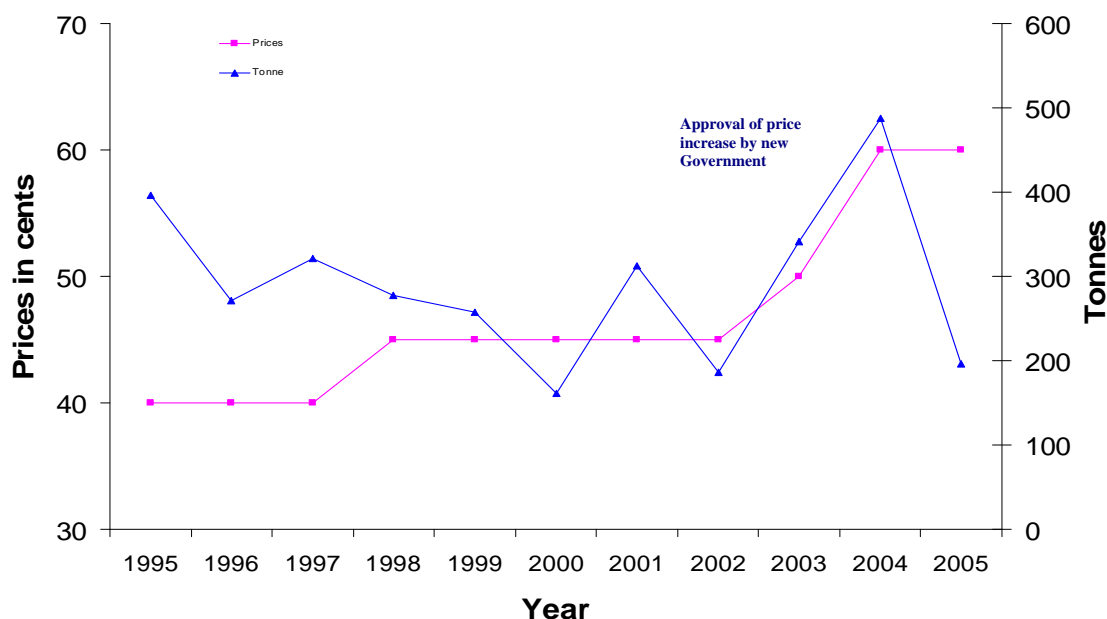
Copra production remains the most important commercial activity on Makin, which provides a reliable and sustainable source of income for many of the islanders. Figure 15 describes the annual copra production for Makin for the past 16 years, showing that in general there has been a slow increase in copra production during that period. Looking back 16 years one could observe the marked fluctuations in production level. These are the result of several factors among which are the changes in copra price and climatic conditions which affect production. As an example, production soared to a record high of nearly 500 tons in 2004 when a new Government came to power and increased the price of copra to AUD\$0.60 cents a pound. In contrast, the sharp decline of production in 1993 was caused by a nationwide drought which lasted for more than a year.



A woman laying copra to dry in the sun – photograph by T.Teaero, 1989

Copra cutting is an important activity which provides a steady source of income for many people on Makin. At \$0.60 cent per kilogram the total revenue from copra was approximately \$210,000 in 2003, \$300,000 in 2004 and \$120,000 in 2005. This means that from copra production each household generates on average a total of \$640.24 in 2003, \$914.63 in 2004 and \$365.85 in 2005.

Copra production compared with prices 1995-2005 - Makin Island



Source: Statistics Office, MFED, 2007

Out of 328 households on Makin (2005 census), 302 or 93% have rights to family-owned lands. This means that most people have access to land and thus can earn an income from cutting copra. In reality however, only 119 households (52% of the total) were engaged in copra cutting in 2005. The decrease

in copra production from 500 tons in 2004 to just 200 tons in 2005 may have to do with a shift to other economic activities besides copra cutting. By looking at the graph on copra production and price, there is a discernible relationship between price and production, for which it can be said in general that copra production fluctuates when price is low, but rises steadily when price increases. In 2005 however there was a sudden fall in production, which may be explained by a combination of factors such as shortage of copra funds, coupled with the increase in development activities (2 large projects were under construction – Council maneaba and Tanginteara bridge), which provided employment for a significant number of locals.

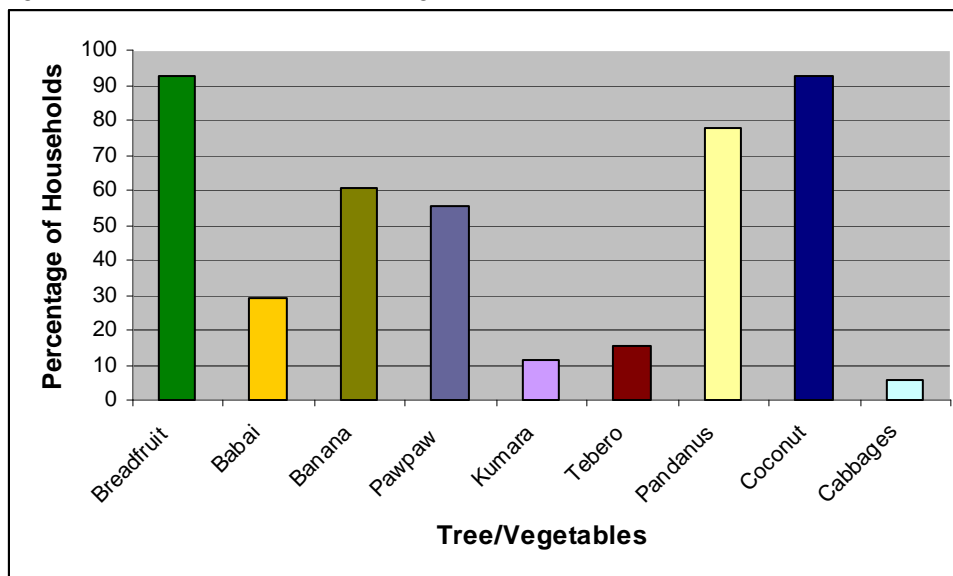
Table XX: Copra production and revenue 2003-2005

Year	Tons	Total income	Income Per H/hold
2003	350	\$ 210,000.00	\$640.24
2004	500	\$ 300,000.00	\$914.63
2005	200	\$ 120,000.00	\$365.85

Source: National Statistics Office, 2007

Although it is much smaller in size, Makin produces more copra compared to the neighboring island of Butaritari. The average annual copra production for Makin over the past 16 years from 1990 to 2005 was 277 metric tons, compared to 196 tons for Butaritari. The lowest production figure for Makin was 147 tons in 1993, and the most productive year was 2004 when it soared to 487 tons. The jump in production was caused by a rise in copra price introduced in 2003.

Fig.XX: Access to food trees and vegetables 2005



Source: 2005 Census of Population

Based on the last census it is found that almost all households on Makin (over 90%) own coconut and breadfruit trees which are two of the most important traditional food crops. Many households (60-80%) also grow pandanus, banana, and pawpaw trees, while *babai*, *te bero*, *kumara* and cabbages are grown but by a small percentage of families. Among the food crops mentioned here, only coconut and banana are sold to generate income. However unlike copra production which is done on a large scale and well organized with a special government agency (Copra Board) to oversee its operation, banana production is still small with most of the operation overseen by small businesses. It is therefore difficult to obtain the

amount of money generated from the sale of banana over the past few years.

4.3 Employment

The Island Council serve as the biggest employer for Makin islanders, employing about 20 islanders as village wardens, village nurses, drivers, hotel keepers, and office assistants. Depending on the need, Council may from time to time engage contractors to undertake short carpentry or auto-mechanical jobs. Seasonal employment is usually available when Government or large Council projects are undertaken, especially those which require the service of casual laborers. The most common projects which generate jobs for the young men of Makin include construction of buildings and road and other large infrastructure.

Manual labor is also regularly needed in the stevedoring of visiting supply boats, which make monthly or more regular runs to Makin carrying food, fuel, timber, and other general goods. On their return from Makin they are loaded with copra, empty fuel drums and some local produce like banana. Stevedoring provides an alternative way to earn income.

Apart from a handful number of jobs offered by the Island Council in its limited service, the opportunity for paid employment for the islanders is otherwise non-existent. There are government employees stationed on Makin in the form of teachers and medical staff, but the number is small and the jobs they do are not available to the islanders. Even in South Tarawa jobs are very difficult to find due to the small size of the private sector. To solve the high unemployment problem in the country Government is now increasing its effort to look for and exploit overseas labour markets especially the Pacific-rim countries of Australia, New Zealand, Japan and the United States. Just recently the Ministry of Labour conducted a pre-selection process for potential fruit pickers who would be sent to work on fruit farms in New Zealand. The pre-selection exercise was conducted on Makin resulting in the selection ofyoung people to join a national work-ready pool who can be deployed after a request for laborers is received from farmers in New Zealand.

4.4 Trade and Commerce

As a small island with undeveloped infrastructure, under-utilized resources, and a dualistic economy characterized by a high dependency on imported consumables, the size of trade and commerce on Makin is rather small but important. The most common form of imported items consists of food, tobacco and fuel, which are normally shipped to Makin on boats. Among the imported food rice, flour, sugar and tinned food make up the bulk of the supply.

4.5 Cooperative and Local Finance

In 1995, the Village Bank project was initiated by Government to serve as a micro credit facility for village communities in the outer islands. The objective of the project is to enable families to have easy access to a credit facility from which they could borrow money to start a small business. Funding for this project was provided by Government and shared among the islands and its village communities on a population basis. In the village a committee, consisting of a chairman, a secretary and a treasurer, is established to manage and administer the Village Banks funds. The Island Project Officer based at the Island Council provides auditing and monitoring services to this project to ensure proper use of funds and sustainability. The operations of the Village Banks are governed under the Village Bank Act.

Table 7 illustrates the distribution of funds that have been made to Makin's Village Banks under this

project. Altogether Makin has received to a total of \$37,175.90 (total of the first, second, and third shares) between 1995 and 2007. A team from the Rural Planning Division of the Ministry of Internal and Social Affairs visited Makin recently as part of a national exercise to review the performance of the Village Banks. Based on this review Government will be able to decide what step(s) need to be taken next.

Table 7: Village Bank share per district

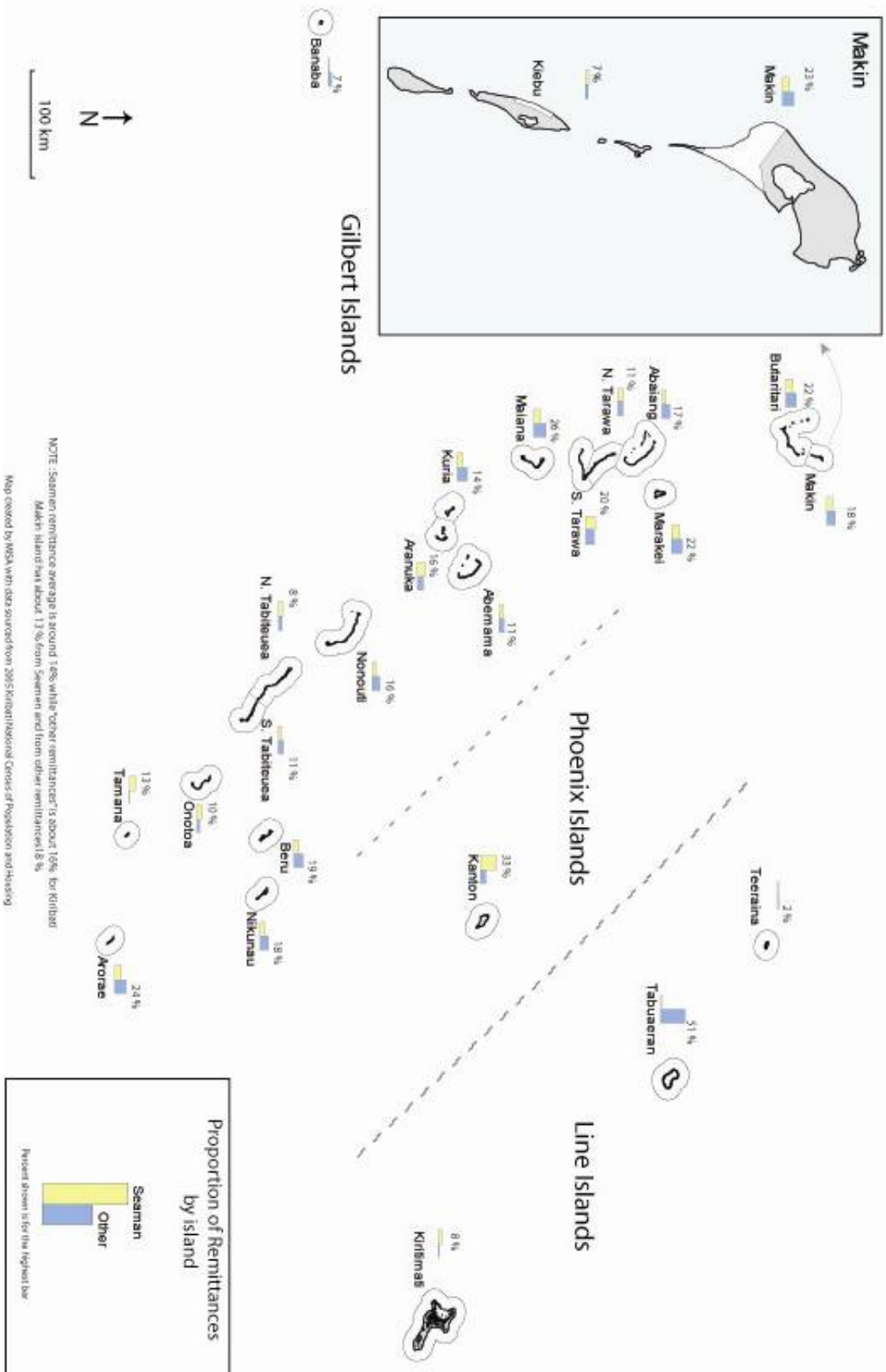
BANK NAME	KIRIBATI GOV'T FUND OF 1\$MILLION						UNDP GRANT OF \$90,000		
	1ST 75% SHARE			2ND 25% SHARE			3RD SHARE		
	PAID	DATE	DW NO:	PAID	DATE	DW NO:	PAID	DATE	DW NO:
Kaibangakin									
Maiaki	\$5,461.80	26/05/1999	73/99	\$1,820.60	10/11/1999	143/99	\$720.25	22/10/2001	367/01
Ueen te									
Kukurei	\$5,961.19	26/05/1999	73/99	\$1,987.06	10/11/1999	143/99	\$786.10	22/10/2001	367/01
Rikian									
Makin									
Meang	\$7,141.92	26/05/1999	73/99	\$2,380.64	10/11/1999	143/99	\$941.80	22/10/2001	367/01
Nei Nikauki	\$6,807.59	26/05/1999	73/99	\$2,269.20	10/11/1999	143/99	\$897.75	22/10/2001	367/01
	\$25,372.50			\$8,457.50			\$3,345.90		

(Source: RPD, MISA 2007)

4.6 Remittances

With limited employment and income-generating activities, many people on Makin depend to a great extent on remittances sent to them by relatives working in Tarawa or overseas. According to a survey conducted in 2006 by the Kiribati Statistics Office on the annual income and expenditure of households it was found that a household on Makin receives an average of AUD\$678 in remittances and gifts. With 328 households on Makin, this means that over \$200,000.00 flows into the island's economy every year, from money and gifts sent back by families and friends living and working outside Makin.

Proportion of Remittances by Island, Kiribati 2005



B. ECONOMIC ACTIVITIES

4.8 Agriculture

By Kiribati standard Makin is one of a small number of islands that have the greatest potential for agricultural development. This is due to the island's high annual rainfall and good soil. Beside coconut, a good variety of fruit and vegetable crops such as breadfruit, banana and pumpkin also grow well on the island.

Recent projects carried out on the island by the Agricultural Division include coconut rehabilitation and the cross-breeding of stud boar with local sows. The former met with little success but the later has an overwhelming demand by the islanders who have asked for more stud boars to the island to mate with their local sows. Pigs have cultural importance as they are the main dish in large family and village functions, where the size of a wholly cooked pig, predetermines the success of a function.

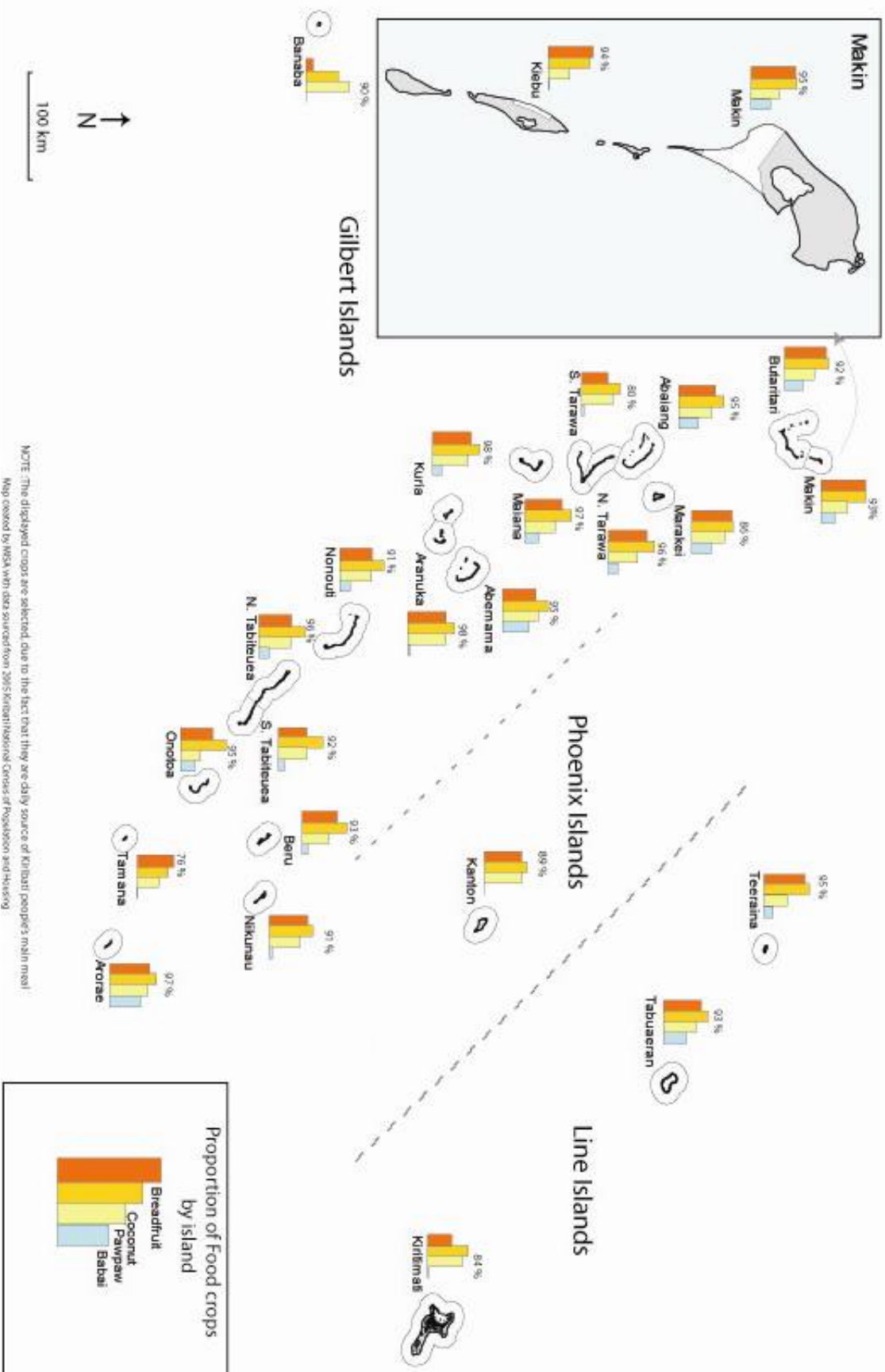
The predominant food crops on Makin are *bwabwai*, banana, pandanus, coconut and breadfruit. Each family has its own bwabwai pits, breadfruit and toddy trees. Home gardening is not common but some households have their own vegetable gardens where they grow tomato, cabbage, cucumber and eggplant mainly for home consumption. Some people sell their bananas to business agents in Tarawa.

The main animals reared by the islanders are pigs and chickens, for home consumption. In 2005 the total number of pigs on Makin was 1083, with 93.5% of households owning at least 3 pigs on average. There were approximately 2465 local chickens. The people of Makin believe that they can produce more meat and vegetables for export to Tarawa if the problem of transport, communication and marketing are resolved. They also believe that training on vegetable and livestock production is important if trade in these primary produce is going to be undertaken.



Cross-bred pigs tied to the trees which serve as shelter

Proportion of household with Food crops by Island, Kiribati 2005



4.9 Fisheries

Since Makin is small without a real lagoon, fishing is restricted to the ocean flat and deep ocean. The 2005 census records show that out of 328 households on Makin and Kiebu village 244 (74.3%) fish on the ocean flat while 204 (62.1%) venture in small canoes and boats to fish in the deep ocean surrounding Makin. (Cross-check with 2.3.3 Pattern of fishing activities page 22)



A traditional canoe under shelter sea.



A wooden boat conveniently docked by the

According to locals fishing on the reef flat can be dangerous because of the presence of the *Crown-of-thorns* starfish (*Acanthaster planci*). This reddish and heavy-spined starfish, known locally as *Te Aa*, has sharp spines that secrete poison when people step on them. In fear of the starfish, fishing which involves walking on the reef flat (e.g. snaring octopus or eel with a hand hook and torch fishing at night) is not as popular as it should be. In addition, the crown-of-thorns starfish feeds on coral polyps – causing damage and death to coral which is an important link in the marine ecology.

Table 6 Households by Village and the location of fishing 2005

Village	Ocean Flat	Lagoon Flat	Ocean Fishing	Lagoon Fishing	Net Fishing	Total
Makin	164	7	137	18	150	241
Kiebu	80	0	67	1	11	87
Total	244	7	204	19	161	328

Source: Population Census 2005, Statistic Office Bairiki

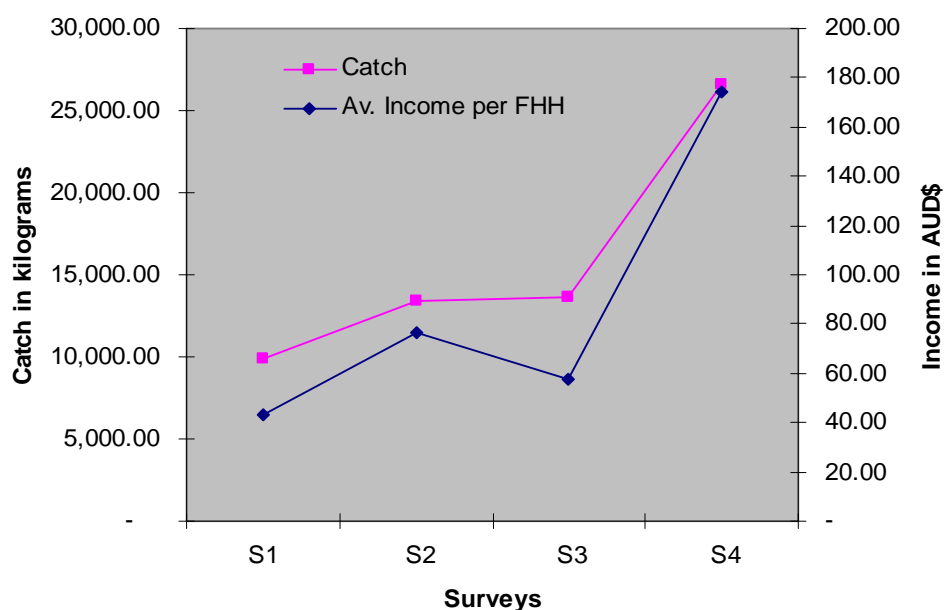
Fishing is a daily activity for the men. Council fishing byelaw on Makin prohibits fishermen from catching flying fish in the offshore waters close to land.



Crown-of-thorns starfish

Despite its small size (land and reef) Makin's offshore tuna resources are plentiful. A survey carried out in 1995 by the Fisheries Division shows that 91% of Makin's households were harvesting the sea in one way or another, both for domestic sale and to satisfy their subsistent needs. In that survey it was found that the majority of fishing households (fulltime and part-time) were accessing the deep ocean to harvest tuna, flying fish, shark and other fish resources.

Figure xx: Total fish catch compared to income per week – Makin island



Source: Fisheries Division, MFMRD 2007

Based on the data collected it was calculated that in one week fishermen on Makin island can land a total of 26,647 kilograms of fish. Of this catch 25,509 kg (98%) comes from the ocean and 1,138 kg (2%) is from the reef. In terms of consumption 53% of the total catch was sold, while the rest was self-consumed by the fishing families.

By comparing data from 4 surveys (1997, 2000, 2001 and 2005) it is clear that the quantity of fish caught correlates to the level of income earned by families who are engaged in fishing. Income from fishing will certainly rise if the volume of catch and percentage sold increases. The surveys also suggest that an increase in both catch and income is possible if the required infrastructures for commercialization are developed.

The Ministry of Fisheries and Marine Resource Development supports fisheries development on the outer islands through:

- the provision of technical staff for training, advisory and resource monitoring/evaluation purposes;
- research and trialing of new fishery-related projects;
- the sourcing of funds for implementation of national projects (such as cold storage, etc.)
- the provision of affordable fishing gear.

Makin island has benefited recently from a national project on the installation of Fish Aggregating Devices (FADs). During a consultation undertaken by MISA in 2007 Makin fishermen stated that the FAD had been very useful, and requested for one more. In another effort to develop fisheries on the outer islands MFMRD is currently building cold storage facilities on selected islands, with the objective of preserving fish for the market. Makin is not included in this phase of the project, but it is hoped that such a facility will be built on the island within the next few years, as the project expanded to cover other islands.

4.10 Handicrafts

The making of handicrafts for commercial purposes remains insignificant, mainly due to the lack of a market to sell them. Tourism, which is often the reason for handicraft production, is virtually non-existent. The most common handmade local products are those that have daily use, such as mats, strings, and various forms of baskets. These are normally given away as gifts to visitors, in particular mats made from pandanus leaves.

A few years ago Government established the Kiribati Handicraft and Local Produce Company (KHLP) to encourage people to make handicrafts and local products for commercial purposes. The company buys materials from the outer islands and then re-sells them to the urban population, as well as foreigners. However, despite the existence of KHLP, the level of production is still very small. Among other reasons, KHLP faces staffing and funding difficulties that results in its inability to adequately absorb production from the outer islands.

C. INFRASTRUCTURE

The establishment and maintenance of development infrastructure on the island is the responsibility of government. The central government normally takes responsibility of implementing new development projects while the local government is given the responsibility of maintaining such projects upon completion. Local government authorities are allocated some money every year under a "Support Grant" to enable them perform this role.

4.11 Transportation

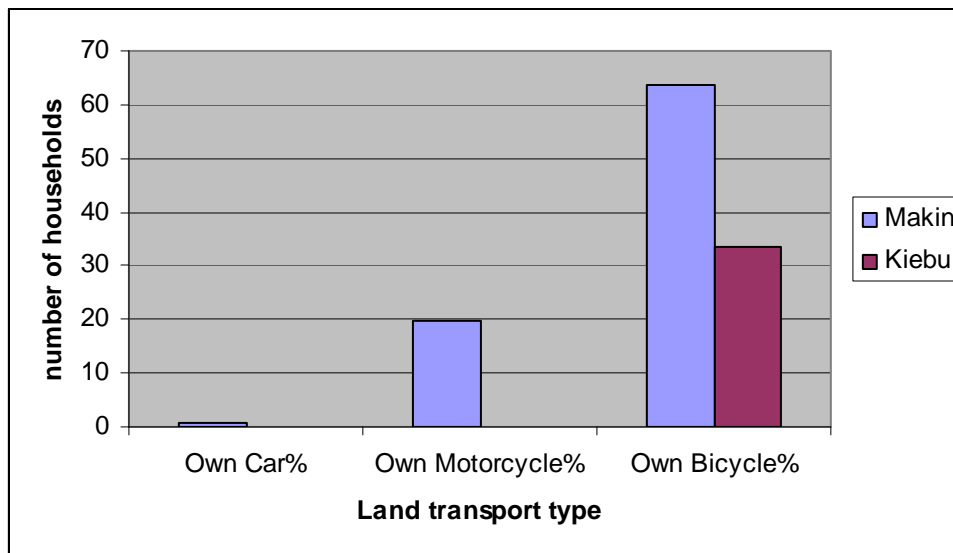
4.11.1 Land Transport

The main transport infrastructure on Makin is made up of 7.29 miles of road that covers the main islet of Makin, and 1.4 miles on Kiebu. The road is normally 3 to 4 meters in width, enough for the use of small to medium size vehicles. Roads on the outer islands are unpaved, with the surface overlaid with coral mud that dries and hardens in the sun. The same mud however quickly softens during heavy rains, resulting in the creation of small and large potholes on the road. Because Makin is a wet island, its road

is subject to constant damage and it is a huge burden to the Island Council to maintain it, especially without proper equipment and insufficient funds. To assist in the maintenance and repair work on the road, the central government have provided a small backhoe and tipper truck to Council, but these have now become the problem of Council to maintain.

Every few years the central government undertakes a national program to repair the roads on the outer islands. The way this is done is that a team of engineers, machinery operators and mechanics go around the islands with a set of heavy equipment. They remain on one island until their work is done, before they are transported with their equipment to the next island. The project is done this way to maximize the use of limited manpower and equipment, however it takes time and incur very high costs to transport people and equipment from island to island. It has been quite a while since the roads on the outer islands have been repaired.

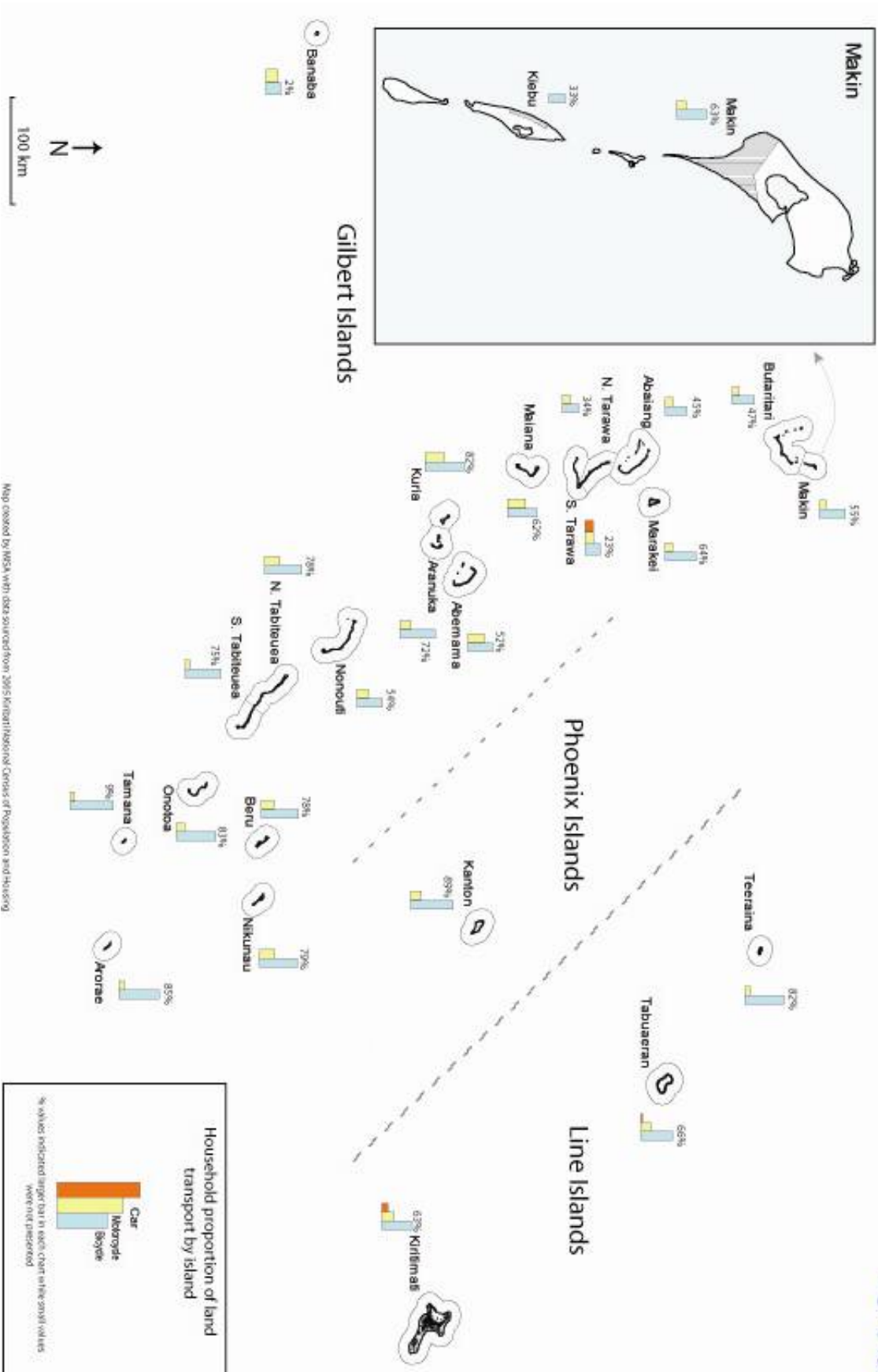
Figure 19: Distribution of household ownership per vehicle



(Source: 2005 census, National Statistics Office, Ministry of Finance and Economic planning)

The most common form of land transport is the bicycle, of which there were 199 in 2005. Motorcycles ranks second in popularity, with a total of 48 motorcycles recorded in 2005. Due to the high cost of four-wheeled vehicles, and small size of the island, there were only 2 cars on Makin during the census survey. One of the cars owned by the Island Council is a 4-ton truck donated by the people of Taiwan, for the purpose of transporting primary and junior secondary pupils to and from school. Council charges a small fare for pupils in order to raise funds to meet the truck's operational cost and future maintenance. Apart from this, the truck could be hired out to meet the need of the public.

Household proportion of Land transporta by Island, Kiribati 2005

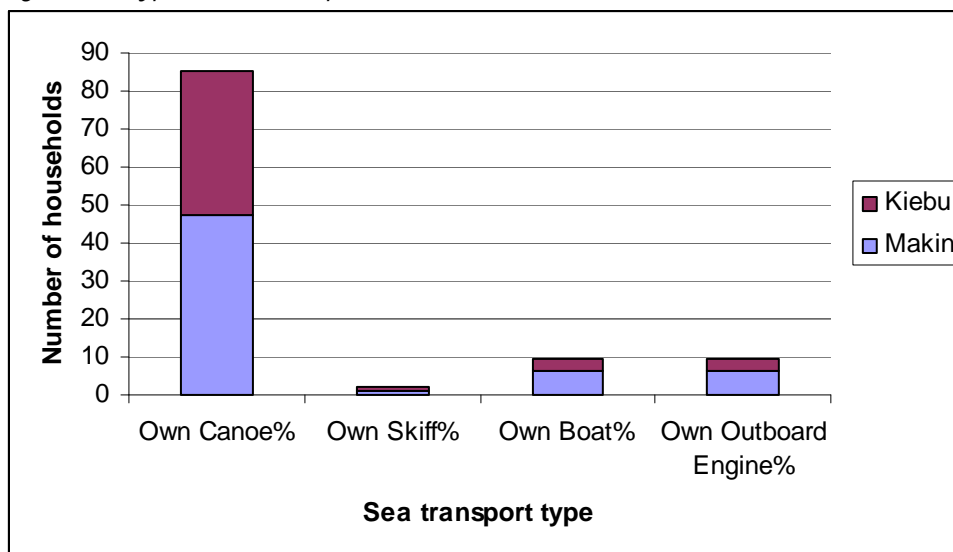


4.11.2 Sea Transport and Shipping

Inter-village travel between Makin and Kiebu islets is done through the use of canoes and small boats, since the villages are separated by sea. It is possible to walk between the islets during low tide but the distance is the main deterrent. The separation of Kiebu and Makin islets affects children the most, in particular those who are old enough to attend junior secondary school. Whereas there is a primary school on Kiebu, the junior secondary school is located on Makin islet, and children must travel every day to attend school. Those who do not have access to transport either miss a lot of classes or just simply drop out of school. In 2006 central government provided a skiff and outboard engine to the community to use it specifically to serve the need of JSS pupils.

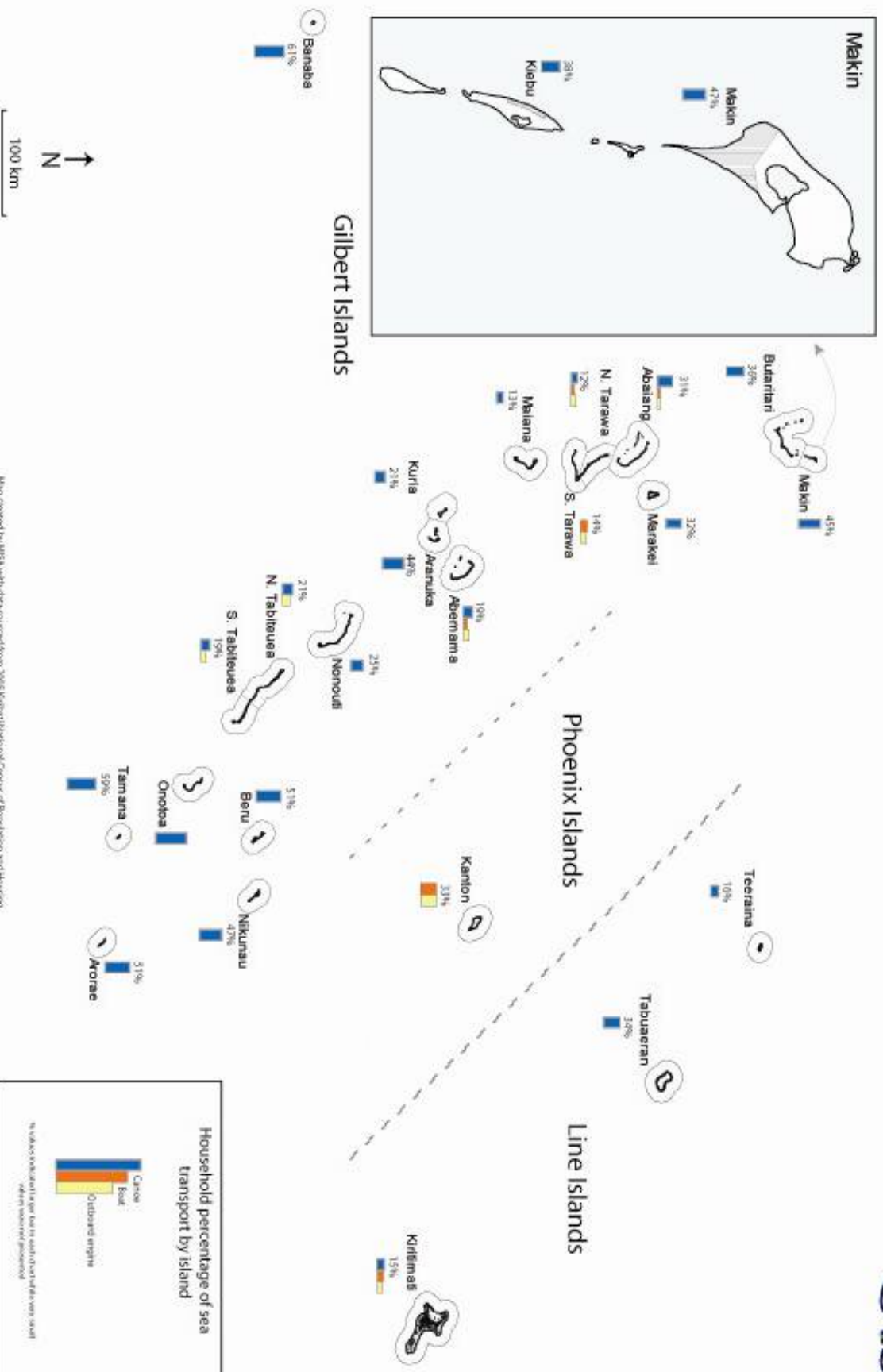
Canoes, boats, and skiffs can be used both as transport and for fishing. According to the latest statistics, the proportion of household owning a canoe is apparently high compared to other types of sea vessels. Makin has 48% of the household owning a canoe, while Kiebu has 37%. In comparison, those owning a skiff are typically low in number with Kiebu having 3% while there are none on Makin.

Figure 20: Type of sea transport owned



(Source: 2005 census, National Statistics Office, MFEPD)

Household percentage of sea transport by island, Kiribati 2005



4.11.3 Air Service

The need for inter-island travel is served either by oceangoing vessels or by small planes. Air Kiribati is the state-owned airline based in the capital Tarawa which provides domestic flight service to all islands in the Gilbert group with the exception of Banaba. Makin is serviced twice a week on Tuesdays and Sundays. The adult fare between Tarawa and Makin is \$84.00. Students are charged 75% of adult fare, children aged 2-11 years pay 50%, while infants are charged 10%.

The airstrip is located on Makin islet, has a length of approximately 0.64 miles and is built from compacted coral mud. The maintenance of the airstrip is the responsibility of the Civil Aviation Authority based within the Ministry of Transport. The Island Council looks after the air-terminal while the agent for Air-Kiribati is responsible for reservations, ticketing, check in and maintains communications and safety for airline crew and passengers.



The airstrip on Makin is made from compacted coral mud – photo by Tete and Pita 2007

4.11.4 Issues facing Transportation

Inter-village travel on Makin is hindered by the physical nature of the island, which is divided by open sea passages. The main mode of transport between Makin and Kiebu islets is by skiffs or boats which are powered by outboard motor engines. Should a traveler wish to walk he/she must wait for the low tide in order to cross the passages, and must wear shoes to protect ones feet from sharp coral.

4.12 Communication

Kiribati is a nation of fragmented islands dispersed over a vast ocean area that extends almost 3,000 kilometers across the central Pacific, bordering the Marshall Islands in the east and French Polynesia in the west. This fragmentation and vastness of ocean give rise to major communication and transport problems that have been, and will continue to be the greatest development challenge for government. Shipping is a critical service that needs to be provided and maintained between Tarawa and the outer

islands, in order to facilitate the transportation of supplies to and from the islands. Government has been the major shipping operator since colonial times, and still continues to dominate this service, although private businesses have secured an increasing share of the market. Still, central government attempts, through its shipping line – Kiribati Shipping Services Limited (KSSL) – to serve all islands in the country near and far. Makin, like other islands, is visited at least once a month by a KSSL ship, which brings replenishments of food, fuel and other assortments of supplies.

The improvement of airport and seaport facilities across the country is a priority development objective of central government, with focus to be given to islands which hold the potential for viable economic operations. The northern islands of the Gilbert group which include Makin are fertile and have great potential for agricultural development.

Until a few years ago, the main mode of communication between the islands was through the use of HAM radio communication systems operated by TSKL. Each island has one such system based at the Island Council headquarter on the island. Members of the general public normally use this for inter-island communication, as does the Island Council and central government in Tarawa. However, despite the fact that the system has been dependable and effective, there were a few problems relating to its use, among which are:

1. the system is not safe for sharing of private information, since the frequency used can be assessed by anyone, and the radio equipment is operated by a TSKL agent.
2. the use of the radio is dictated by a schedule, hence only available for 1-2 hours daily, and only from Mondays to Fridays.
3. the radio operator lacks the skill to undertake major repair works if the radio breaks down. Communication with the island could be cut for at least one week during which the radio is sent to Tarawa for repairs.
4. since there is only one radio, people from distant villages must take long journeys in order to use it.

In order to address these problems TSKL has decided to slowly introduce a new technology, a satellite-based telephone system which connect directly to the telephone system in Tarawa. The new system also supports the use of facsimile and internet, and therefore was considered to be a major accomplishment as far as progress is concerned. After its installation the old radio communication system was decommissioned and removed, and direct telephoning replaced it. But it was not very long after the new system was in operation before new problems surfaced. First it was found that the new technology costs more to use compared to the radio; connection is vulnerable to rough weather conditions, and people still need to travel to Council headquarters to make a call.