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Jefferson B. Butuna
Census Commissioner and
Director, OPS

Phillip K. Kabua
Chief Secretary and
Chairman, NCSC

Leading Facts and Figures

POPULATION

<p>Population 50,840</p> <p> Male 26,026</p> <p> Female..... 24,814</p> <p> Sex Ratio..... 104.9</p> <p>Population Increase Since 1988</p> <p> Number 7,460</p> <p> Percent..... 17.2</p> <p>Average Annual Growth Rate (percent)</p> <p> 1988 – 1999..... 1.5</p> <p> 1980 – 1988..... 4.2</p> <p>Population Density (persons per sq. mile)</p> <p> Marshall Islands 726</p> <p> Majuro..... 6,314</p> <p> DUD Area, Majuro 30,365</p> <p> Kwajalein 2,760</p> <p> Ebeye Island..... 66,750</p> <p>Urban Population</p> <p> Number 33,125</p> <p> Percent of total population 65.2</p> <p>Rural Population</p> <p> Number 17,715</p> <p> Percent of total population 34.8</p> <p>Children Under 5 Years</p> <p> Percent of total population 15.1</p> <p>Population Under 15 Years</p> <p> Percent of total population 42.9</p> <p>Population 15 – 64 Years Old</p> <p> Percent of total population 54.8</p> <p>Population 65 Years and Older</p> <p> Percent of total population 2.2</p> <p>Age Dependency Ratios</p> <p> Total dependency ratio..... 82.2</p> <p> Child dependency ratio 78.3</p>	<p>Old-age dependency ratio 3.9</p> <p>Median Age of Population</p> <p> Total 17.8</p> <p> Males..... 17.8</p> <p> Females 17.9</p> <p>Literacy Rate.</p> <p> Total 97.0</p> <p> Males..... 96.8</p> <p> Females 97.2</p> <p>Education of Population 25 Years and Over</p> <p> Percent of population 25 years and over with:</p> <p> No education 3.0</p> <p> Grade 1 to 7..... 11.1</p> <p> Grade 12 24.6</p> <p> Some College or higher ... 14.7</p> <p>School going age population attending school</p> <p> Percent of children (6-13 yrs old) .. 84.1</p> <p> Percent of youth (14-18 yrs old) 69.5</p> <p>Internal Migration since 1988 Census</p> <p> Total inter-atoll/island migrants... 3,951</p> <p> In-migrants in Majuro 2,017</p> <p> Out-migrants from Majuro 1,021</p> <p> In-migrants in Kwajalein 614</p> <p> Out-migrants from Kwajalein 604</p> <p>Fertility.....</p> <p> Total Fertility Rate (births per woman 15-49 years)</p> <p> Total 5.7</p> <p> Urban..... 5.5</p> <p> Rural..... 6.3</p> <p>Crude Birth Rate (births per 1000 population)</p> <p> Total 41.8</p>
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Leading Facts and Figures

Urban.....	42.2
Rural.....	41.2

Nuptiality

Mean Age of Ever Married Women in the age group:	
35-39.....	22.2
45-49.....	23.3

Singulate Mean Age at Marriage

Males.....	25.5
Females	23.2

Labor Force and Employment

Labor Force (Number)

Total	14,677
Males.....	9,679
Females	4,998

Labor Force Participation Rate

(percent)	
Total	51.2
Males.....	66.3
Females	35.4

Unemployment Rate

Total	30.9
Males.....	27.6
Females	37.3

HOUSEHOLDS

Total Number of Households

Marshall Islands	6,478
Majuro.....	3,080
Kwajalein	1,213

Average Household Size (persons per household)

Marshall Islands.....	8.7
Majuro.....	8.6

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CHAPTER 1

CENSUS ORGANIZATION AND OPERATIONS

Introduction

The 1999 Census of Population and Housing (CPH) of the Republic of Marshall Islands (RMI) is the tenth census conducted since 1920 and the second since RMI gained independence. The first population census in Marshall Islands was conducted in 1920, after which censuses were conducted every five years up to 1935 when World War II disrupted this pattern. The first census after World War II was in 1958, followed by censuses in 1967, 1973, 1980 and 1988.

RMI financed most of the costs of the 1999 CPH field operations. The Asian Development Bank (ADB) gave a grant of about \$350,000 in the form of advisory services, training of enumerators and supervisors, data dissemination workshops, data processing support and publication of census instruments as well as this final report. ADB engaged the National Statistics Office (NSO), Philippines to provide technical advisors who worked with the National Census Steering Committee (NCSC) and the Office of Planning Statistics (OPS) in planning and conducting the 1999 CPH. The United States Bureau of Census provided technical assistance and financing for the pre-test and pilot census operations. One of the consultants of the United Nations Population Fund assisted OPS in developing the first census project document that was submitted to ADB.

The objectives of this census were to provide government planners, policy makers, the private sector and the international donor community with social and economic data and to fulfill the data requirements of the upcoming negotiation of the Compact of Free Association. Data on the size, composition and distribution of the population as well as the structural characteristics and available facilities of housing units were obtained.

Census Organization

The Cabinet established the National Census Steering Committee (NCSC) on 17 October 1998 with Mr. Phillip K. Kabua, Chief Secretary as Chairman, to set the policies and guidelines regarding CPH. The President of RMI appointed the following members to the NCSC:

- Mr. Kinja Andrike – Chairman, Public Service Commission
- Mr. Donald Capelle – Secretary, Ministry of Health and Environment
- Mr. Cent Langidrik – Secretary, Ministry of Education
- Ms. Marie Maddison – Secretary, Ministry of Foreign Affairs and Trade
- Mr. Michael Konelios – Secretary, Ministry of Finance
- Mr. Fred de Brum – Secretary, Ministry of Internal Affairs
- Mr. Kirtley Pinho – President, Majuro Chamber of Commerce
- Ms. Veronica Kilawe – President, National Women’s Council
- Rev. Enja Enos – President, Council of Churches
- Mr. Shem Anitas – President, National Youth Council
- Ms. Calora B. Milne – Representative from the Private Sector

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The Cabinet designated OPS as the executing agency of the census and the OPS Director, Mr. Jefferson Butuna as the ex-officio Census Commissioner, secretariat and principal advisor to the NCSC. The consultants from NSO, Philippines served in the Census Technical Committee (CTC) that supported NCSC. They were Ms. Janice Ybañez, Census Operations Expert; Dr. Socorro Abejo, Demographic Analysis Expert and Ms. Nazaria Guerra, Data Processing Consultant. Two other consultants – Dr. Elizabeth Go and Ms. Estela de Guzman were fielded by NSO, Philippines on short term basis to assist the CTC in training and data dissemination respectively.

Census area supervisors (CAS) and enumerators were recruited, mainly from the Ministry of Education to participate in the census field operations. Local government officials, led by Mayor Tamille Ishoda of Majuro and Mayor Wilmer Bolkeim of Kwajalein provided material support and facilitated the CPH field operations in their areas of responsibility.

Census Operations

Publicity

To elicit the cooperation of the public, various government agencies and the private sector, a publicity program was implemented prior to the census field operations. Posters and brochures to attract and educate the public were prepared and distributed to all the atolls and islands. Streamers were hung in conspicuous places. The media, particularly the radio and the newspapers were requested to disseminate information on the census. A census proclamation from the President and messages from the Chief Secretary, the Finance Minister and the Census Commissioner were aired through the radio and featured in local newspapers.

Preparation of Census Instruments

There were three types of census instruments that were prepared – (1) the questionnaires, (2) the control forms and (3) the manuals. To prepare the census questionnaires CTC consulted all the major users of census information. CTC presented the list of data items the NCSC for review and approval. The approved data list became the basis of the questionnaires.

Two types of questionnaires were drafted -- (1) CPH Form 2 gathers information on the demographic, social and economic characteristics of the population as well as the characteristics of the building and housing units, and (2) CPH Form 3 gathers information on people residing in institutional living quarters. These questionnaires were reviewed several times by NCSC. OPS and CTC pre-tested the questionnaires at the end of March. Revisions were made on the basis of the pre-test and the revised questionnaires were reviewed again by the NCSC. After the questionnaires in English version were approved by NCSC, they were translated into Marshallese to facilitate the training of enumerators and supervisors. The English version of the questionnaires, however, was used in the

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actual enumeration with questions asked in Marshallese. The enumerators and supervisors kept a copy of the questionnaires in Marshallese for reference. Control forms such as listing sheets that will be used to generate preliminary counts were also prepared by CTC. These forms were designed to record the major step of the census operations.

Three manuals were prepared by CTC to guide the enumerators, supervisors and data processors in the conduct of the census. The Supervisors' Manual aimed to orient the supervisor about the census, its objectives, the role and responsibilities of the supervisor. The manual was divided into 9 chapters, and detailed instructions were given for field supervision, control and data checks. Similarly, the Enumerators' Manual explained how an enumerator should conduct his or her field interview, and provided definitions and examples for easy reference.

The Data Processing Manual described the steps in processing data and presented screen examples and flowcharts. The census operations plan was presented and approved by the NCSC. The plan included the estimates for number of enumerators and supervisors, the schedule of major activities – training, mapping, enumeration and data processing, the recruitment procedure of enumerators and supervisor and the financing of all the activities. By the fourth week of May 1999, all the survey instruments were approved by the NCSC. The census questionnaires, control forms and manuals were printed and sent to atolls.

Recruitment of Census personnel

Mayors were designated census superintendents and served as overall coordinator in their atolls. They were also requested to recommend suitable supervisors and enumerators, most of which were from the Ministry of Education. The mayors liaised with OPS, the supervisors and enumerators, and provided logistics and administrative support. The mayors did not receive any compensation for their efforts.

The whole country was delineated into 172 Enumeration Areas (EA). An EA consists of an average of fifty households. For five atolls/islands, namely, Bikini, Jabat, Lib, Rongelap and Wotho, the entire atoll or island comprises one EA. For all other atolls/islands, one EA covers only a portion of the atoll or island. Through the assistance of the Ministry of Education school teachers were recruited to work as CAS and enumerators(ENs). A total of 159 ENs and 56 CAS were hired. Each enumerator was assigned to cover an average of fifty households for five days or at least 10 households per day.

Mapping operations

On 17-28 May 1999, mapping and listing operations were conducted. The purpose of these operations was to update the atoll and island maps and to list buildings, institutional living quarters, using the Listing Sheet. The updated maps and data on number of households were then used in delineating the census enumeration areas (EAs)

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in each atoll and island. The estimated count of households and population of the atoll/island obtained from listing were used as basis for determining the number of enumerators to be assigned in the atoll/island.

Training

Two types of training were given by the ADB consultants or CTC. They were the training for mapping operations and training for the enumeration proper. The training for mapping operations was done on 7-14 May 1999 in 2 batches of 3 days each. For the training on enumeration, two levels were undertaken -- (1) 56 supervisors were trained on 14-18 June 1999; and (2) the enumerators were trained on 21-25 June 1999 by their respective supervisors in their atolls. However, the enumerators training in Majuro and Kwajalein as well as the supervisors' and mapping operations training were conducted by the CTC or ADB consultants. Exercises were administered in these training sessions to evaluate the level of understanding of the trainees.

Enumeration

The 1999 CPH count began on 28 June and was completed in most atolls and islands by 2 July 1999. In Majuro and Kwajalein however, there were some delays in the enumeration because the enumerators had to do a lot of callbacks since they could not find responsible household respondents at home during the usual work hours. This problem was more prevalent in Kwajalein and Majuro, where numerous adults have regular employment. The enumeration period was extended for another 7 days in these two areas. The enumeration for these 2 areas was completed on 15 July 1999. CAS and OPS staff observed that during the enumeration period, many people were on vacation outside their atoll of residence as the census was conducted during off-school season.

Data processing

The questionnaires were separated by type of form and folioed by EA. Each folio was checked for completeness. The questionnaires underwent two stages of processing -- manual processing and machine processing. Manual processing involved the verification of geographic identification, review of the entries for completeness, consistency and acceptability of responses and coding of selected items.

After an EA or one folio was manually processed, it underwent computer processing using the Integrated Microcomputer Programs Software (IMPS) developed by the US Bureau of Census. Computer processing consists of data entry, ID validation involving geographic identification and completeness check, editing of entries for consistency and data tabulation. IMPS was chosen for data processing because of its well-tested capabilities and because OPS staff are familiar with it. The ADB Data Processing consultant worked alongside with OPS staff in developing a system for processing the census questionnaire and generating reports for public dissemination. Data entry began on 16 July 1999 and was completed on 31 August 1999. Updating of data

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files based on reject listing (or error listing) was carried out from 1 September 1999 to 23 November 1999. Data editing, verification of questionnaire and/or callbacks were performed in iteration until all the data editing rules have been fulfilled or when there are no more reject listing on the particular questionnaire. Some data records had to be edited four times. This means that four iterations of the steps mentioned above had to be done before the records or questionnaires could be declared without error.

Twenty-four people were involved in the data processing process. These are the ADB Data Processing Consultant, a national data processing specialist from OPS, 9 manual processors, 5 keyers for data entries, 1 keyer for field editing, 6 data processors and 1 keyer for updating of the data files.

Data Evaluation

The preliminary population counts by atoll and by sex and atoll were generated based on the listing sheet in the first week of August 1999. These were compared to the 1988 and 1980 censuses. The comparison indicated that the average annual population growth rate between 1988 and 1999 was lower than expected. The possible undercount in the 1999 census was investigated. The CTC proposed a plan to revisit the major atolls of Majuro and Kwajalein that the NCSC discussed and approved. Jaluit was also included in the revisit because of its significant population decline. The revisit was conducted in Majuro from 10 August to 11 September 11, in Ebeye (Kwajalein) 13-20 September and in the two islets of Jaluit, namely Jabwor and Jaluit on 5-10 October to 10 October, 1999. The best enumerators were rehired to do the revisits. The ADB consultants directly supervised these enumerators. A three-day training was given to the enumerators before the revisit. Persons reported to be temporarily away from their atoll during the census and were not enumerated in their atoll of residence were counted during the verification. However, exact location in the atoll where they temporarily stayed or spent their vacation was determined and questionnaires in the location cited were checked if the same persons were listed.

This field verification revealed that a total of 1,021 persons from the three atolls were not counted during the 1999 CPH enumeration, while 13 persons were counted more than once. Under-coverage in Majuro (3.5 percent) was found to be higher than in the other two atolls, i.e. Ebeye and Kwajalein (1.6 percent), and Jabwor and Jaluit (1.6 percent). The incidence of double count was insignificant. After adjusting the undercount, the average growth rate increased slightly from 1.3 percent before the field verification to 1.5 percent after the verification. This revisit operation was able to provide a more reliable data as the coverage was verified and adjusted.

The full understanding of the concepts and definitions in the manuals by the enumerators and supervisors was the most critical objective of the training and therefore, was given the most emphasis by the trainers. However, the very high incidence of errors in the data editing process indicated that the enumerators were not able to grasp all the concepts and definitions that were taught them. For example, there were many questionnaires with persons who were 'not employed', but were asked related questions

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about their employment. Other possible errors that were observed were on doubtful fertility information on young women, doubtful or overstated/understated incomes and inconsistencies between age and education. In large households, only the children of the household head were usually covered. Children living elsewhere and/or children of other household members in the extended family were not usually listed. Careful editing, callbacks and corrections were made to remove the inconsistencies or errors.

Data Analysis

After the data have passed through thorough editing, statistical tables by islets, by atoll, and at the national level of the census data were generated. The ADB consultants, United Nations Volunteer and OPS staff analyzed these tables. The resulting analyses and the statistical tables are the core of this final report. Some indirect estimates, like the P/F ratio and singulate mean age at first_marriage were also derived by the Demographic Analysis Expert.

Data Dissemination

This Final Census Report will be published and distributed to government agencies, donor community and the private sector. Two data dissemination workshops were also held to inform the major users about the results of the census. Public use files will be produced by ADB so that researchers and major users can perform further analysis on the census data.

CHAPTER 2

CONCEPTS AND DEFINITIONS

This chapter presents the important concepts and definitions that were used in the 1999 Census of Population and Housing (CPH). These concepts and definitions are also discussed in the Enumerators and Supervisors' Manuals that were written for the census. There are more discussions and examples regarding these concepts and definitions in these manuals.

Census Reference Date

The National Census Steering Committee designated 1 June 1999 as the Census Reference Date. This means that all persons residing in RMI at 12:01 a.m. of 1 June 1999 will be counted.

Household Membership

A household in the 1999 CPH was defined to be any social unit consisting of a person living alone or a group of persons who *sleep in the same housing unit and have a common arrangement in the preparation and consumption of food*. In most cases, a household consists of persons who are related by kinship ties, like parents and their children. In some instances, several generations of familiar ties are represented in one household while, still in others, even more distant relatives are members of the household. Household helpers, boarders, and non-relatives are considered as members of the household provided *they sleep in the same housing unit and have common arrangement for the preparation and consumption of food* and do not usually go home to their family at least once a week.

The following individuals were enumerated as members of the household:

- a. Those whose usual place of residence is the housing unit where the household lives.
- b. Family members who are overseas workers and who are away at the time of the census are considered members of the household.
- c. Those whose usual place of residence is the place where the household lives but are temporarily away at the time of the census for any of the following reasons:
 1. on vacation, business/pleasure trip or study/training somewhere in the Marshall Islands and are expected to be back within six (6) months from the time of departure;
 2. on vacation, business/pleasure/fishing trip or study/training abroad and are expected to be back within a year from the time of departure;
 3. working or attending school in some other place but comes home at least once a week;

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4. confined in hospitals for a period of not more than six (6) months at the time of enumeration except when they are confined as inmates of tuberculosis pavilions, mental hospitals, leprosaria or leper colonies, drug rehabilitation centers, etc.;
 5. detained in jails or in military camps for a period of not more than six (6) months at the time of enumeration except when their sentence or detention is expected to exceed 6 months;
 6. training with the Armed Forces of the Marshall Islands if training is not more than 6 months;
 7. on board coastal, inter-island or fishing vessels within Marshall Islands territories; or
 8. on board ocean-going vessels but are expected to come home at least once for every six (6) months.
- c. Boarders/lodgers of the household or employees of household-operated businesses who do not usually go to their respective homes weekly.
 - d. Citizens of foreign countries, *excluding* members of diplomatic missions and non-Marshallese members of international organizations, but *including* Marshallese tourists/returnees who have resided or are expected to reside in the Marshall Islands for more than a year from their arrival.
 - e. Persons temporarily staying with the household who have no usual place of residence or who are not certain to be enumerated elsewhere.

Usual Residence

In delineating household membership, a basic criterion is the usual place of residence or the place where the person usually resides. The term refers to the geographic place where the person resides. It may be the same or different from the place where he is found at the time of the census. As a rule, it is the place where he usually sleeps.

Membership of Institutional Population

The following persons were listed members of the institutional population:

- a. Permanent lodgers in boarding houses
- b. Dormitory residents who do not go home at least once a week
- c. Hotel residents who have stayed 6 months or more at the time of the census
- d. Boarders in residential houses, provided that their number is ten (10) or more. (Note: If the number of boarders in a house is less than 10, they will be considered members of regular households, not institutional).
- e. Patients in hospitals who are confined for at least 6 months
- f. Seminarians, nuns in convents
- g. Inmates of penal colonies or prison cells

CONCEPTS AND DEFINITIONS

Buildings Listed

A building is defined to be any structure built, designed or intended for the enclosure, shelter or protection of any person, animal or property. It consists of one or more rooms and/or other spaces, covered by a roof and usually enclosed within external walls or with common dividing walls with adjacent buildings, which usually extend from the foundation to the roof.

Only those *buildings which contain living quarters*, whether occupied or vacant, were listed. More specifically, *the buildings to be listed* are the following:

- a. Residential buildings which are presently occupied by a household;
- b. Vacant residential buildings except those which are open to the elements, that is, if the roof, walls, windows, and/or doors no longer protect the interior from wind and rain as a result of fire, deterioration or vandalism.
- c. Vacant deteriorated residential buildings which show some signs that deterioration is being prevented to some extent such as when windows and/or doors are covered by wood, metal, or other materials to keep them from being destroyed or to prevent entry into the building or secondary posts are added to prevent it from collapsing;
- d. New residential buildings which are still not occupied or still under construction, if at the time of the visit, the roof and walls are already in place;
- e. Residential buildings which are presently not occupied by a household but are used for purposes other than as residence, provided they still have one or more vacant housing units;
- f. Institutional living quarters which are in operation such as hotels, motels, dormitories, lodging houses, seminaries, mental hospitals, prisons, etc.;
- g. Non-residential buildings presently occupied by a household; and
- h. Non-residential buildings which have one or more vacant housing units with complete facilities for cooking, dining and sleeping, with or without inner partitions.

Living quarters

Living quarters is any structurally separate and independent places of abode. They may: have been constructed, built, converted or arranged for human habitation, provided that they are not at the time of the census used wholly for other purposes; or actually being used at the time of the census, although not intended for habitation

Housing Units Listed

A housing unit is any structurally separate and independent place of abode which, by the way it has been constructed, converted, or arranged, is intended for habitation by one household. Structures or parts of structures which are not intended for habitation, such as commercial, industrial, and agricultural buildings, or natural and man-made

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shelters such as caves, boats, abandoned trucks, culverts, etc., but which are used as living quarters by households, are also considered as housing units

- a. Occupied or vacant housing units in single residential houses.
- b. Occupied or vacant housing units in multi-unit residential buildings such as apartment units
- c. Occupied makeshift houses
- d. Vacant housing units in residential buildings used for purposes other than residential.
- e. Housing units, which are still under construction, but the roof and walls are already in place.
- f. Occupied housing units in institutional living quarters such as hotels, motels, dormitories, lodging houses, seminaries
- g. Occupied housing units in non-residential buildings such as offices and churches.
- h. Vacant housing units with complete facilities for cooking, dining and sleeping in institutional living quarters and non-residential buildings;

Institutional Living Quarters Listed

These are structurally separate and independent places of abode intended for habitation by large groups of individuals. Such quarters usually have certain common facilities such as kitchen and dining rooms, toilet and bath, and lounging areas that are shared by the occupants. The following are considered institutional living quarters:

- a. Hotels, Motels, Dormitories, other Lodging Houses which provide lodging on a fee basis
- b. Hospitals
- d. Seminaries, Convents, Nunneries, Boarding schools
- e. Corrective and Penal Institutions
- f. Logging, Mining and Construction/Public Works Camps
- g. Ocean-going and Interisland/Coastal Vessels

Other Basic Concepts

Age of last birthday Interval between a person's date of birth and before 1 June 1999, in completed years.

Citizenship Legal nationality of a person.

Disability Refers to any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

Highest educational attainment Highest grade or year completed in school, college or university.

CONCEPTS AND DEFINITIONS

Institutional population	Comprises of persons who are found living in institutional living quarters. They may have their own families or households elsewhere but at the time of the census, they are committed or confined in institutions, or they live in institutional living quarters and are usually subject to a common authority or management, or are bound by either a common public objective or a common personal interest.
Literacy	Ability of a person to read and write a simple message.
Marital status	Status of an individual with reference to the marriage laws or customs of RMI.
Economically active	Consists of the employed and the unemployed.
Employed population	Those who were active during the week before the census in providing for themselves or their families
Unemployed population	Includes all those people who sought work in the week before the census as well as those who did not seek work but were available for work.
Working age population	Consists of all persons aged fifteen years or over.
Job or business	Refers to any work or job that a person does for pay, in cash or in kind, in an establishment, office, on weto making copra, private home or for profit or without pay on family business.
Overseas worker	An RMI resident who has employment outside of RMI.
Occupation	Refers to the type of work performed, and/or trade or profession being pursued by the person during the past 7 days (prior to the census) such as deep-sea fisherman taxi driver, typist, beauty parlour operator, etc. If he/she is not at work but with a job, occupation refers to the kind of job he/she was doing or will be doing if merely waiting for a new job to begin within two weeks from the date of the interview.

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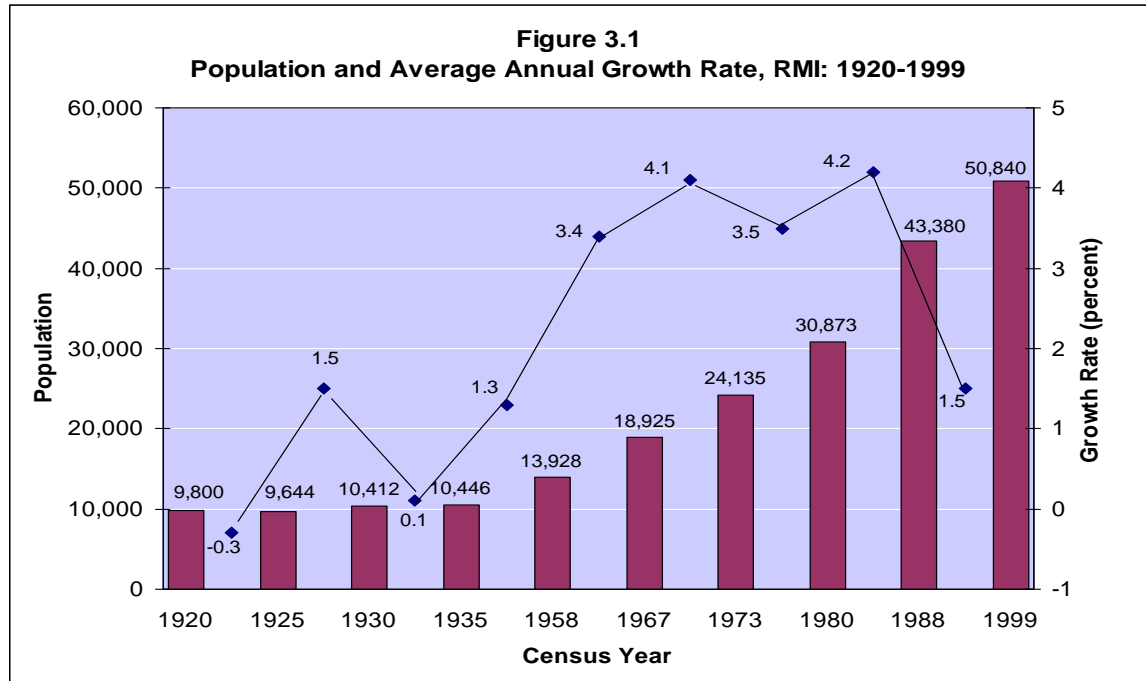
CHAPTER 3

POPULATION SIZE AND GROWTH

National Population Size and Growth

The total population enumerated in the 1999 Census of the Marshall Islands is 50,840. This number is 7,460 persons or 17 percent more than the population counted in the 1988 census of the islands, and more than five times the population during the first census conducted in 1920. The total population during census years from 1920 to 1999 is shown in Figure 3.1.

For the 1999 census the *de jure* method of enumeration was adopted. This means that



people were enumerated according to their place of residence as of census reference time, which is 12:01 a.m. of June 1, 1999. By comparison, the 1988 census utilized a *de facto* counting, which means that people were counted according to where they were on the midnight of November 13, 1988. The *de facto* population based on the 1999 Census is 50,688 as compared to the *de jure* population of 50,840. This is because 152 residents of the Marshall Islands were in foreign countries during the census reference date (Table 1).

Figure 3.1 shows that the population of the Marshall Islands increased at a fairly slow rate from 1920 to 1958. However, it grew very rapidly at the rate of 3.4 per annum during the 1958-1967 period. The growth rate climbed to 4.1 percent per annum during the intercensal period 1967-1973 and then declined to 3.5 percent during the 1973-1980 period. During the 1980-1988 period, the annual growth rate rose to 4.2 percent before it plunged to a low 1.5 percent in the 1988-1999 period. The major factor for this marked decline in growth rate is emigration. This is substantiated by the rate of natural increase (RNI), based on the 1990 census, of 3.69 percent. This means that if there was no emigration or if the number of immigrants equals that of emigrants, then the RMI population would have increased by 3.7 percent. The RNI is the difference between crude birth rate and crude death rate. The estimated crude birth rate (CBR), based on 1999 census, is 41.8 live births while the estimated crude death

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rate (CDR) is 4.9. Chapter 10 discusses the indirect techniques used to calculate the CDR and CBR.

If the present growth rate of 1.5 percent continues, then the population of the RMI would increase to double its present size in approximately 46 years.

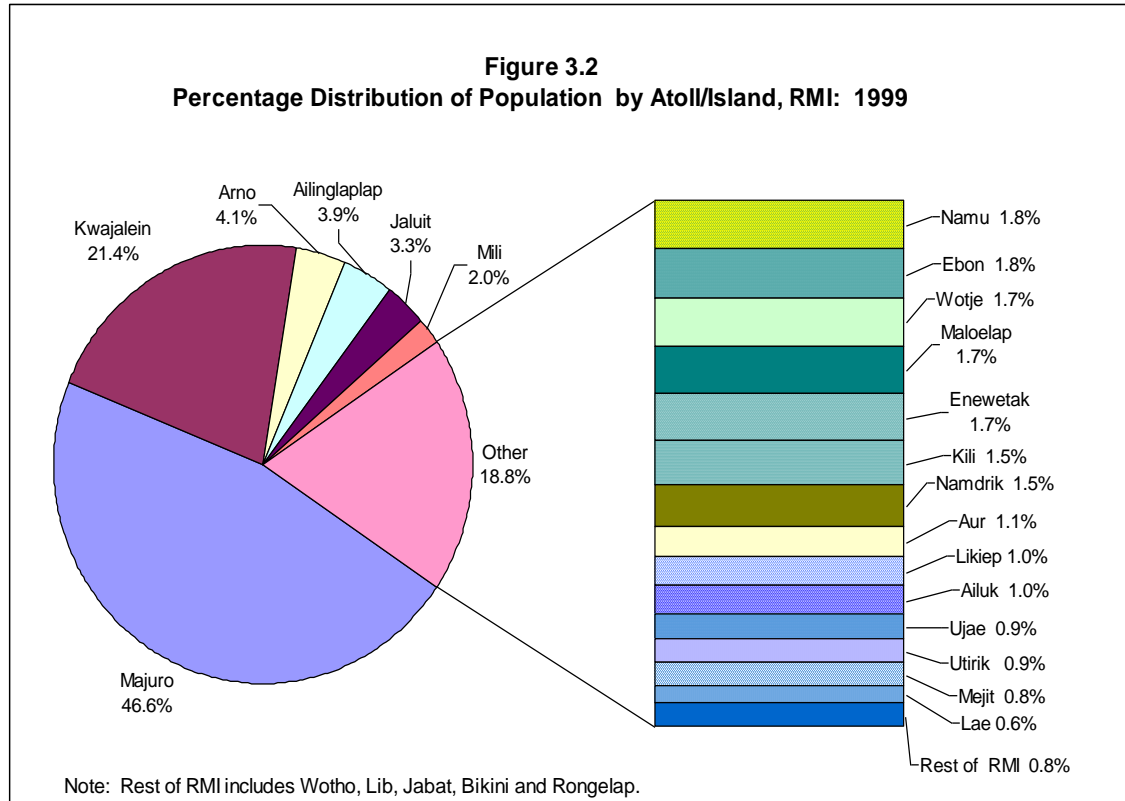
Table 3.1. Comparison of De Jure and De Facto Population, 1999 RMI Census

Atoll	De jure	De facto	Difference (de jure minus de facto)
RMI	50,840	50,688	152
Ailanglaplap	1,959	1,944	15
Ailuk	513	514	-1
Arno	2,069	2,079	-10
Aur	537	514	23
Bikini	13	11	2
Ebon	902	903	-1
Enewetak	853	859	-6
Jabat	95	95	0
Jaluit	1,669	1,659	10
Kili	774	756	18
Kwajalein	10,902	10,906	-4
Lae	322	316	6
Lib	147	147	0
Likiep	527	518	9
Majuro	23,676	23,613	63
Maloelap	856	844	12
Mejit	416	416	0
Mili	1,032	1,033	-1
Namdrik	772	753	19
Namu	903	903	0
Rongelap	19	19	0
Ujae	440	439	1
Utirik	433	434	-1
Wotho	145	144	1
Wotje	866	869	-3
Foreign Country		152	

Population Size and Growth of Atolls/Islands

POPULATION SIZE AND GROWTH

About 68 percent of the total population of the Marshall Islands reside in Majuro and Kwajalein. The population of Majuro is 23,676 or 46.6 percent of the total population and that of Kwajalein is 10,902 or 21.4 percent (Figure 3.2).



During the intercensal period 1988-1999, the implied average annual growth rate for Majuro is 1.8 percent and that for Kwajalein is 1.5 percent. These are markedly lower than the corresponding growth rates during the intercensal period 1980-1988 of 6.3 percent and 4.2 percent.

The population growth rates of 13 other inhabited atolls/islands in the country also declined during the intercensal period 1988-1999, while those of eight others, excluding Bikini and Rongelap which were uninhabited during the 1988 census, increased. The average annual growth rate of the atolls/islands varied widely from a negative rate of 1.6 percent in Jabat to a positive rate 4.5 percent in Wothe (Table 3.2). These two atolls are among the five least populated atolls/islands during the 1999 census. The three other atolls/islands are Bikini, Lib, and Rongelap. The enumerated population in Bikini (13 males) and Rongelap (19 males) are all living in construction or public works camps. On the other extreme, four atolls, aside from Majuro and Kwajalein, have more than 1,000 populace – Ailinglaplap (1,959 persons), Arno (2,069), Jaluit (1,669), and Mili (1,032).

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Table 3.2. Population Enumerated in 1980, 1988 and 1999 Censuses and Intercensal Population Growth Rate for Atolls/Islands

Atoll/Island	Population			Average Annual Growth Rate	
	1980 Census	1988 Census	1999 Census	1980-1988	1988-1999
Marshall Islands	30,873	43,380	50,840	4.2	1.5
Ailinglaplap	1385	1,715	1,959	2.6	1.3
Ailuk	413	488	513	2.0	0.5
Arno	1487	1,656	2,069	1.3	2.1
Aur	444	438	537	-0.2	1.9
Bikini	-	10	13	-	2.5
Ebon	887	741	902	-2.2	1.9
Enewetak	542	715	853	3.4	1.7
Jabat	72	112	95	5.4	-1.6
Jaluit	1450	1,709	1,669	2.0	-0.2
Kili	489	602	774	2.5	2.4
Kwajalein	6624	9,311	10,902	4.2	1.5
Lae	237	319	322	3.6	0.1
Lib	98	115	147	2.0	2.3
Likiep	481	482	527	0.03	0.8
Majuro	11791	19,664	23,676	6.3	1.8
Maloelap	614	796	856	3.2	0.7
Mejit	325	445	416	3.8	-0.6
Mili	763	854	1,032	1.4	1.8
Namdrik	617	814	772	3.4	-0.5
Namu	654	801	903	2.5	1.1
Rongelap	235	0	19	-	-
Ujae	309	448	440	4.5	-0.2
Ujelang	-	0	0	-	-
Utirik	336	409	433	2.4	0.5
Wotho	85	90	145	0.7	4.5
Wotje	535	646	866	2.3	2.8

Table 3.3 presents the population density of all inhabited atolls/islands in the country based on the 1999 census. Majuro remains the most densely populated atoll in the country with a population density of 6,300 people per square mile, followed by Kwajalein with 2,970 people per square mile and Kili with 2,150. By contrast, two atolls, aside from Bikini and Rongelap, have a population density of less than 200 persons per square mile - Likiep and Mili Atolls.

POPULATION SIZE AND GROWTH

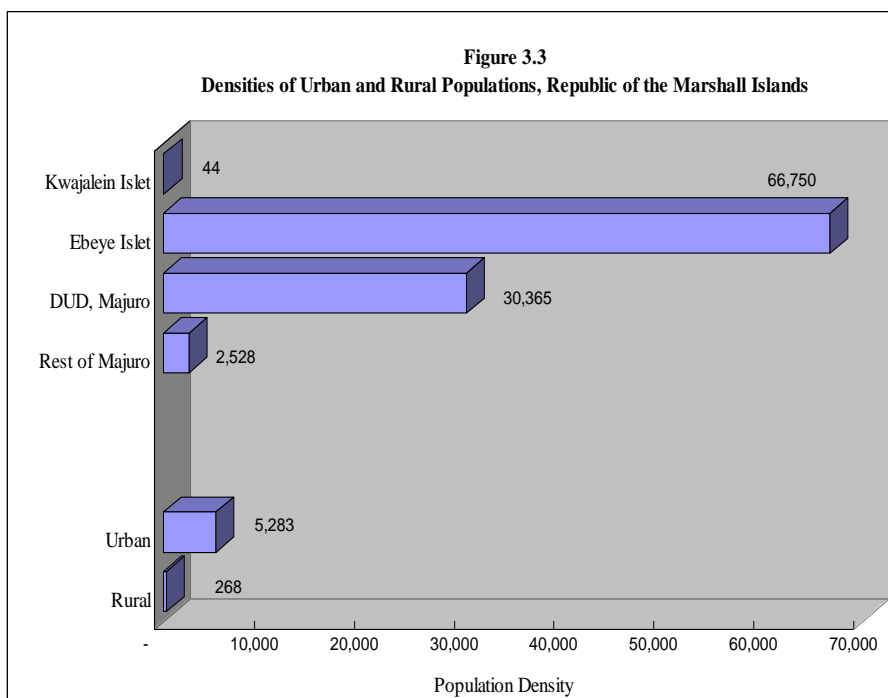
Table 3.3. Land Area, Population Density in 1988 and 1999 Censuses and Density Rank in 1999, by Atoll/Island, Republic of the Marshall Islands

Atoll/Island	Land Area (sq. miles)	Population Density (population per sq. mile)		Rank According to 1999 Population Density
		1988 Census	1999 Census	
Marshall Islands	70.07	619	726	-
Ailinglaplap	5.67	302	346	16
Ailuk	2.07	236	248	18
Arno	5.00	331	414	10
Aur	2.17	202	247	19
Bikini	2.32	4	6	25
Ebon	2.22	334	406	12
Enewetak	2.26	316	377	14
Jabat	0.22	509	432	9
Jaluit	4.38	390	381	13
Kili	0.36	1,672	2,150	3
Kwajalein	6.33	2,357*	2,760*	2
Lae	0.56	570	575	7
Lib	0.36	319	408	11
Likiep	3.97	121	133	22
Majuro	3.75	5,244	6,314	1
Maloelap	3.79	210	226	20
Mejit	0.72	618	578	6
Mili	6.15	139	168	21
Namdrik	1.07	761	721	4
Namu	2.42	331	373	15
Rongelap	3.07	-	6	24
Ujae	0.72	622	611	5
Ujelang	0.67	-	-	-
Utirik	0.94	435	461	8
Wotho	1.67	54	87	23
Wotje	3.16	204	274	17

* Density calculation excludes USAKA area.

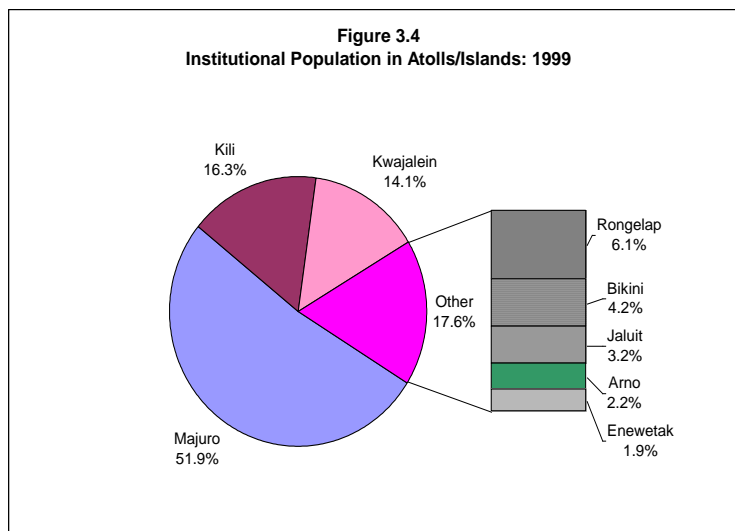
Almost two-thirds of the total population of Majuro or 15,486 persons live in Djarrit (Rita)-Uluga-Delap (DUD) area which is only 0.51 square miles in land area. This translates into a population density of 30,365 people per square mile (Figure 3.3). However, the most densely populated area in the whole Marshall Islands is Ebeye Island which is only 0.14 square miles in land area. The population enumerated in Ebeye during the 1999 census is 9,345. This results in a population density of 66,750 persons per square mile. Figure 3 also shows that the population density of urban areas is almost 20 times that of rural areas. The entire Majuro Atoll, and the two islets of Kwajalein Atoll, namely, Ebeye and Kwajalein, comprise the urban areas and the remainder of the islands, the rural areas.

THE 1999 CENSUS OF POPULATION AND HOUSING



d Institutional Population

Out of the 50,840 residents of the Marshall Islands, 50,528 persons or 99 percent were members of households and only 312 were residents of institutional living quarters such as lodging houses and dormitories, boarding schools, prisons, hospitals, and construction camps. More than half (53 percent) of the total institutional population in the country were in Majuro, 16 percent were in Kili, 14 percent were in Kwajalein and the remaining 18 percent were in Arno, Bikini, Enewetak, Jaluit, and Rongelap (Figure 3.4). Persons living in public works and construction camps comprised mainly the institutional population enumerated in outer atolls and islands.



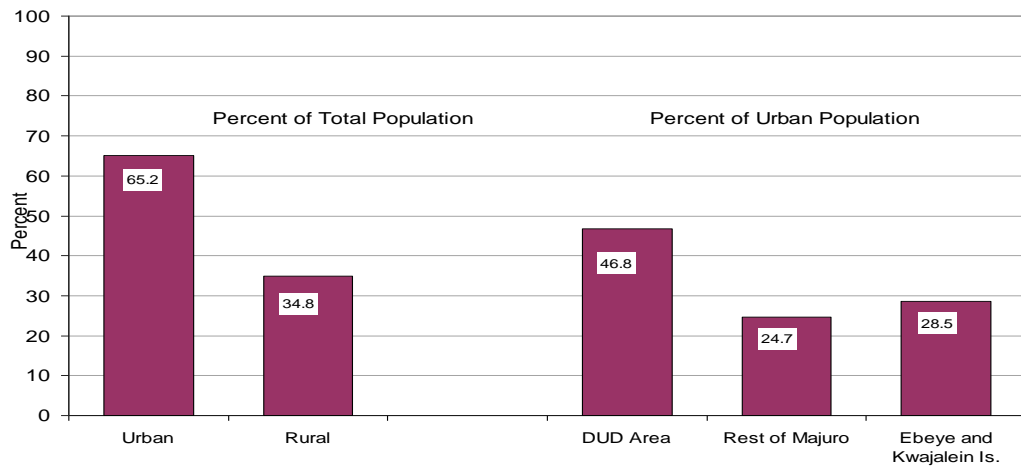
Persons living in public works and construction camps comprised mainly the institutional population enumerated in outer atolls and islands.

Urban-Rural Distribution

POPULATION SIZE AND GROWTH

Approximately two-thirds of the residents of the Marshall Islands are located in urban areas (Figure 3.5). Some 47 percent of the total number of urban residents are located in DUD area in Majuro Atoll, about a quarter (24.7 percent) live in the other parts of Majuro, and the remaining 28.5 percent in Ebeye and Kwajalein Islets in Kwajalein Atoll. Appendix Table 1

Figure 3.5
Percentage Distribution of Total Population and
Urban Population: 1999



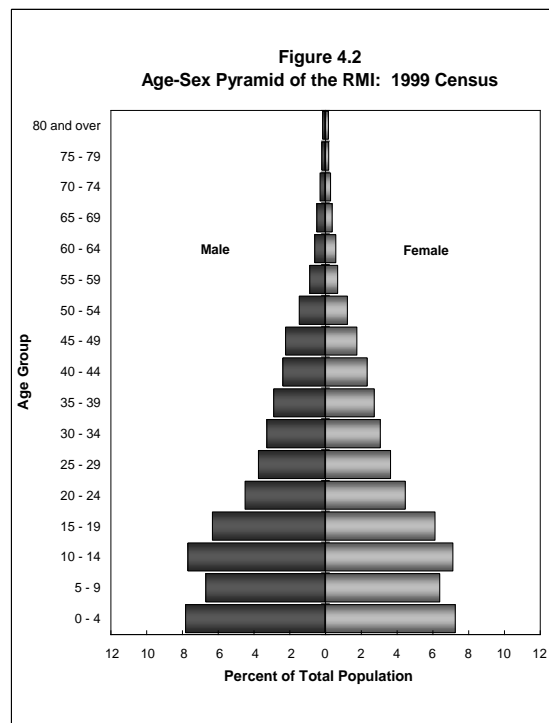
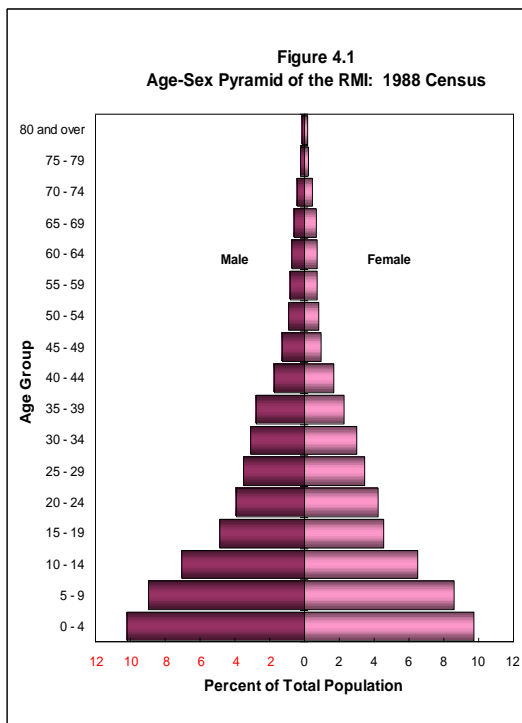
THE 1999 CENSUS OF POPULATION AND HOUSING

CHAPTER 4

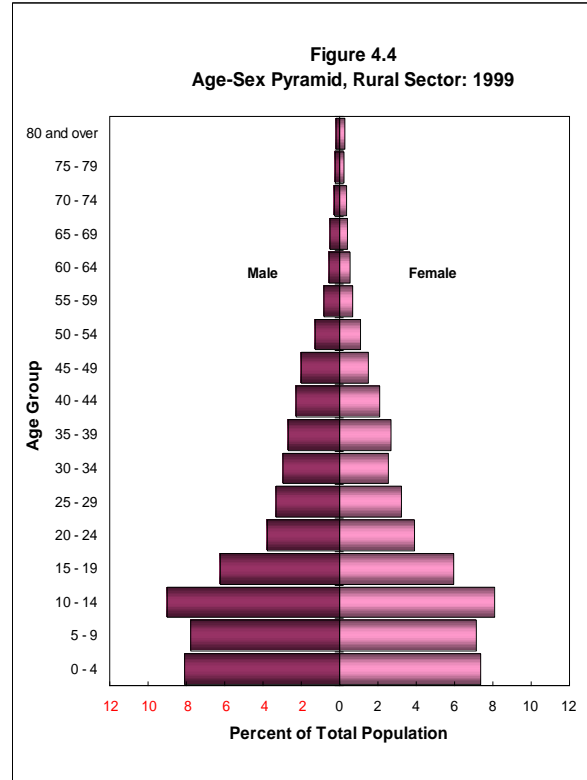
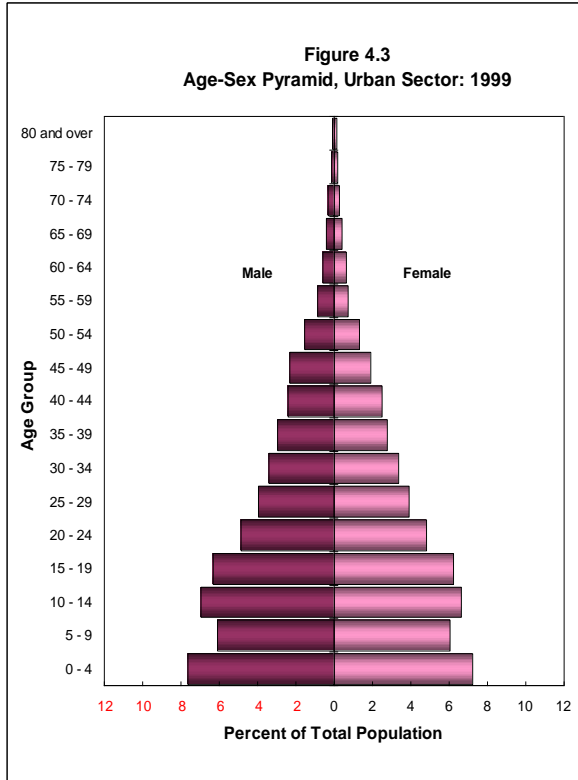
AGE-SEX COMPOSITION

The age structure of the Marshall Islands in 1999 is remarkably different from that in 1988. The 1988 pyramid has the shape typical of age pyramids for developing countries. It is broad at the base and tapers towards the top (Figure 4.1). By comparison, the 1999 age pyramid has a relatively narrow base and the bars representing male and female children in the age group 5-9 are shorter than the base (Figure 4.2). The shape of the 1999 age pyramid implies an occurrence of a rapid decline in fertility in the past ten years, more especially so 5 to ten years ago, and a massive out-migration involving families with very young children. The shape of the age pyramids for the urban and rural populations is similar to that of the national population except that the rural pyramid has longer bars at age groups 5-9 and 10-14 (Figures 4.3 and 4.4). Rural children below 15 years comprise 47.3 percent of the total rural population. By comparison, urban children in the same age range comprise 40.5 percent of the total urban population. This is because rural women have higher fertility than urban women.

The population of the Marshall Islands has become older. In 1999, the percentage of children less than 15 years declined to 43 percent of the total population, from 51 percent in 1988. The percentage of the population in the working ages 15 to 64 years rose to 55 percent, from 46 percent in 1988. The elderly or those 65 years and older constituted 2 percent in 1999, down from 3 percent in 1988.

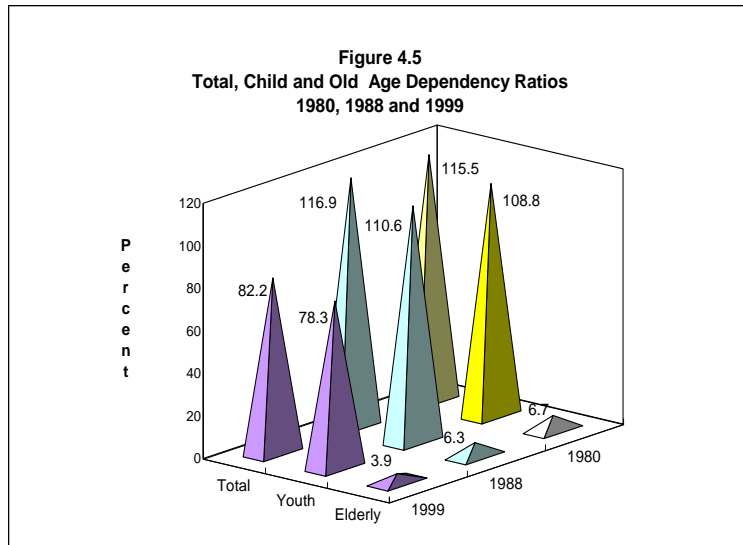


THE 1999 CENSUS OF POPULATION AND HOUSING



The median age of the national population, for both males and females, increased by 4 years, from 14 years in 1988 to 18 years in 1999. The median ages of the populations of atolls/islands, excluding Bikini and Rongelap, range from 13 years in Lae Atoll and Lib Island to 19 years in Majuro. Rongelap and Bikini Atolls, which are inhabited only by construction workers, have median ages of 36 and 38 years, respectively.

The decrease in the proportions of the population composed of children below 15 years and those who were 65 years and older have resulted in the decline of both the child and old-age dependency ratios of the RMI. The child dependency ratio, which is the number of children below 15 years per 100 persons in the working ages or 15 to 64 years, declined to 78.3 in 1999 from 110.6 in 1988 (Figure 4.5). Likewise, the old age dependency ratio, which is the number of persons aged 65 years and above per 100 persons in the age group 15-64, declined to about 4 in 1999 from 6.3 in 1988. The total



AGE-SEX COMPOSITION

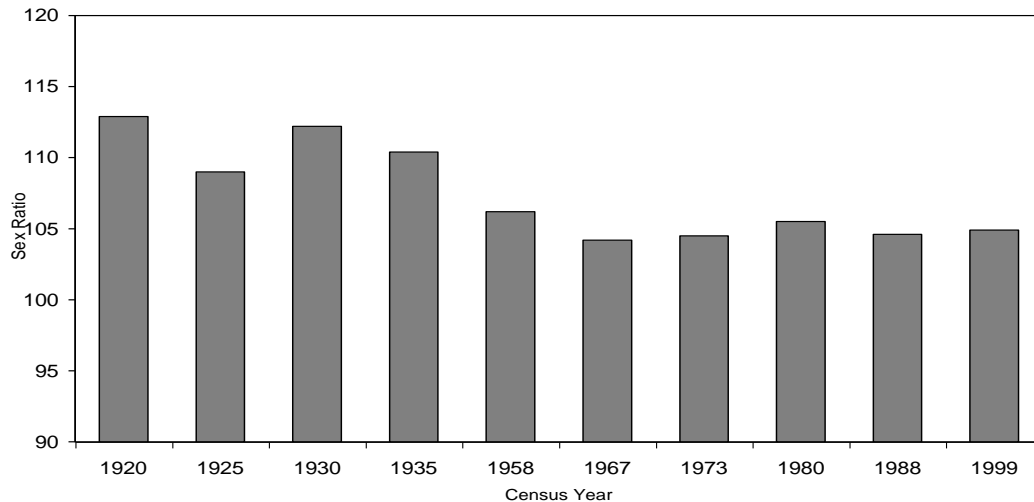
dependency ratio declined to 82.2, from 116.9 in 1988, or by about 35 persons below 15 years and aged 65 years and above. If children below 15 years and persons aged 65 years and above are considered economically dependent on the population in the working ages, then in 1999, the number of dependents that every 100 persons in the working ages had to support was fewer by 35 persons than in 1988. The 1980 youth and old dependency ratios were slightly lower than the corresponding 1988 figures (108.8 and 6.7, respectively).

Sex Ratio

Figure 4.6 shows the sex ratios of the population of the Marshall Islands during census years from 1920 to 1989. The sex ratio, which is defined as the number of males per 100 females, of the national population declined from about 113 males per 100 females in 1920 to 104 in 1967. It increased slightly to about 105 in 1980 and remained at this level up to 1999 (Figure 4.6). The sex ratio varies with age. In 1999, the sex ratio was above 100 for age groups 0-4 to 55-59, except for age group 20-24 which posted a sex ratio of 99.4 indicating an excess of females possibly due to out-migration of more males than females in the age group. At ages 60 years and above, the sex ratio was lower than 100 reflecting the fact that women normally live longer than men (Table 4.1).

Table 4.1 shows that in earlier census years, the sex ratios at particular young adult age groups were more noticeably lower than 100. In 1988, a sex ratio of 92.4 was reported for the age group 20-24 and this could be attributed to out-migration of males.

Figure 4.6
Sex Ratio of RMI Population: 1920-1999



In 1980, the sex ratio for the age group 15-19 was 94.2, and for age group 20-24, 88.8.

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Table 4.1 Age-Specific Sex Ratios, 1980-1999

Age Group	1980	1988	1999
All ages	105.5	104.6	104.9
0-4	108.1	104.6	107.1
5-9	112.7	104.3	103.9
10-14	109.3	108.3	107.1
15-19	94.2	106.2	102.2
20-24	88.8	92.4	99.4
25-29	105.4	100.9	101.6
30-34	109.5	103.1	105.4
35-39	115.2	122.7	104.3
40-44	113.8	103.3	100.0
45-49	102.3	130.1	123.8
50-54	116.4	108.1	115.3
55-59	100.0	111.8	120.0
60-64	126.9	97.2	96.4
65-69	100.5	88.3	112.2
70-74	78.1	96.3	91.7
75 and over	75.7	81.4	77.9

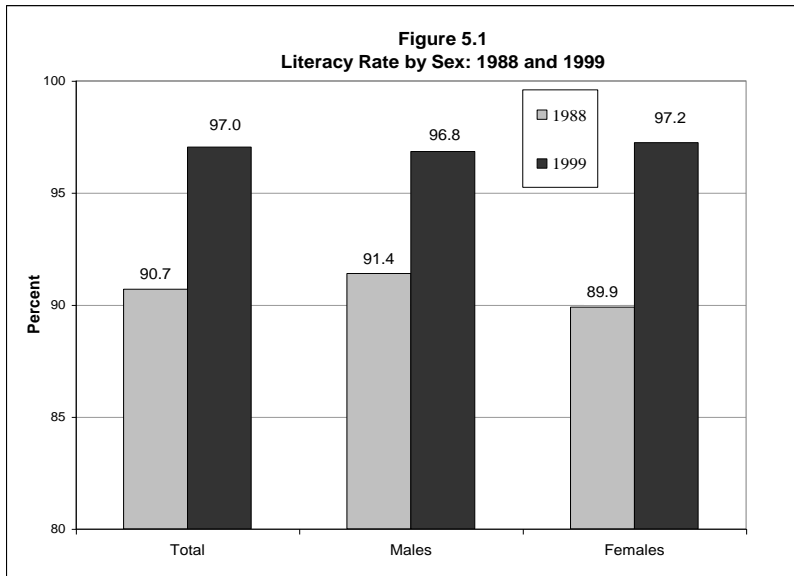
Table 4.1 also shows very high sex ratios of three age groups - 45-49, 50-54 and 55-59 in 1999. This is partly because there were more non-Marshallese citizens in these age ranges. One for every four or 25 percent of the 1,147 citizens of foreign countries who were enumerated in the Marshall Islands during the 1999 census were aged 45 to 59 years. The sex ratio of the foreigners in this age range was 271 males for every 100 females. The sharp increase in the sex ratio at age range 45 to 59 years could also be explained by the sex differential in the misreporting of ages. It is widely observed in censuses that women, especially those in their late forties or fifties, tend to understate their ages, and that men who are in their sixties tend to overstate their ages.

CHAPTER 5

LITERACY, EDUCATION AND SCHOOL ATTENDANCE

Literacy

Based on the 1999 census, 97.0 percent of the household population 10 years and older are literate. There is no significant difference in the literacy rates of males and females. It was 96.8 percent for males and 97.2 percent for females (Figure 5.1). The 1988 literacy rates are lower- 91.4 percent for males and 89.9 percent for females.

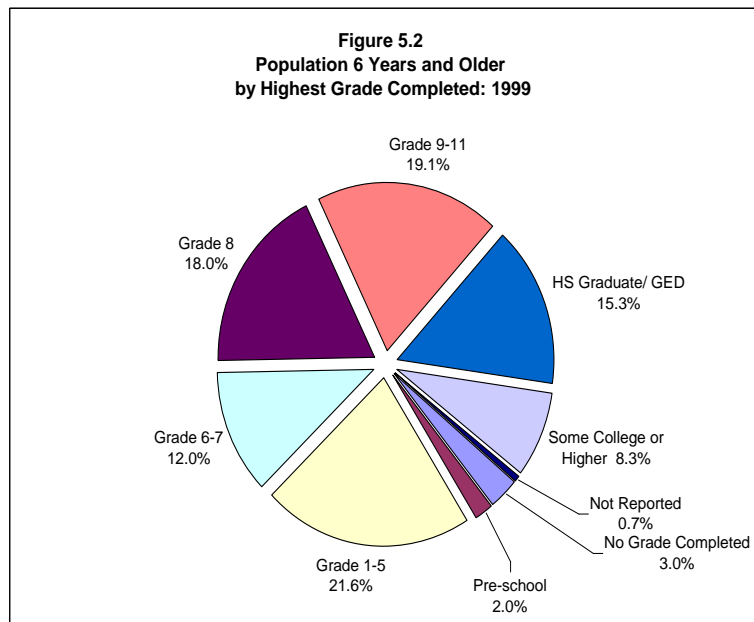


However, the results of these censuses are not comparable because of the difference in the definitions used. In the 1999 census, a literate person was defined as one who can, with understanding, both read and write a simple message in any language. By this definition, a person who previously could read and write but can no longer do so because of old age or disability is considered

as literate. By comparison, the 1988 definition is that a person is literate if he/she attained at least grade 4. The 1999 literacy rates, calculated based on the 1988 definition, are 93.7 for both sexes, 93.6 percent males and 93.7 percent for females. These figures are still higher than the 1988 literacy rates.

Highest Grade Completed

In 1999, 15.3 percent of the population 6 years and older have completed either high school (Grade 12) or GED at the most, while another 8.3 percent have had some college or higher level of education (Figure 5.2). Those who reached high school but have not yet completed Grade 12



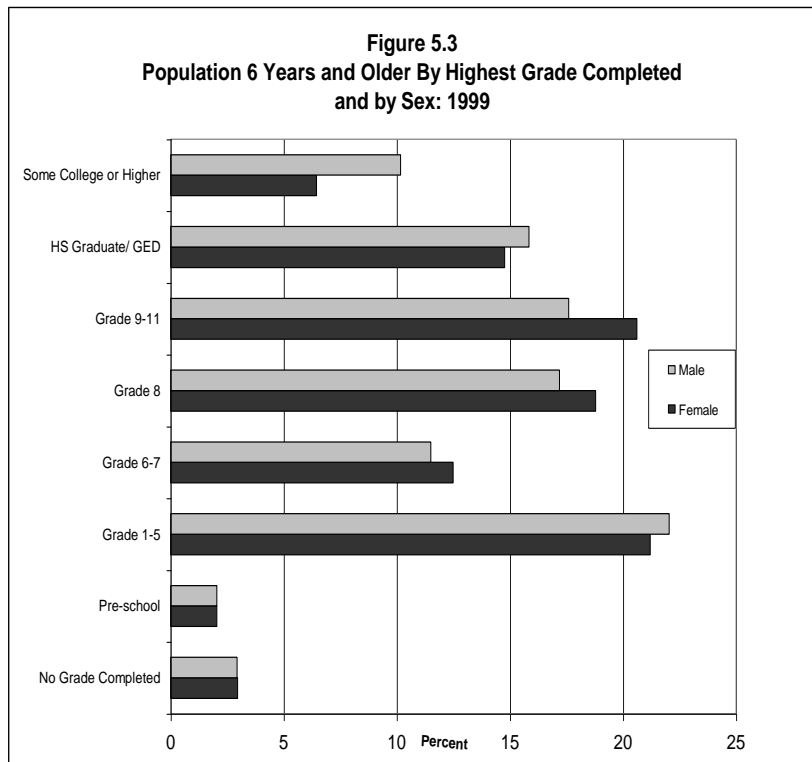
1999 CENSUS OF POPULATION AND HOUSING

comprised 19.1 percent while those whose highest level attained was Grade 8 comprised 18.0 percent. The bulk, comprising about one-third, were elementary graders 1 to 7. Those who have never been to school constituted 3 percent.

As can be seen from Figure 5.3, the males have a higher average level of education than the females. Males with at least some college education comprised 10.2 percent of all males 6 years old and over. The corresponding percentage for females was 6.4 percent.

Bikini and Rongelap led all atolls and islands in terms of the percentage of the population 6 years of age and older who have completed at least a secondary level of education (Figure 5.4). Majuro and Kwajalein

ranks third and fourth, respectively. The reason for the high percentages for Bikini and Rongelap is that the residents of these two atolls are construction workers in the ages 15 years and above, with the median ages of 36.3 years and 37.5 years, respectively. Hence, in general, they have reached the highest educational levels of formal education they would reach in their lifetime, the level of education of a person being a function of age, at least up to a certain age, say 25 years.



LITERACY, EDUCATION AND SCHOOL ATTENDANCE

Figure 5.4
Percent of Population 6 Years and Older Who Completed High School or Higher Level of Education
by Atoll/Island: 1999

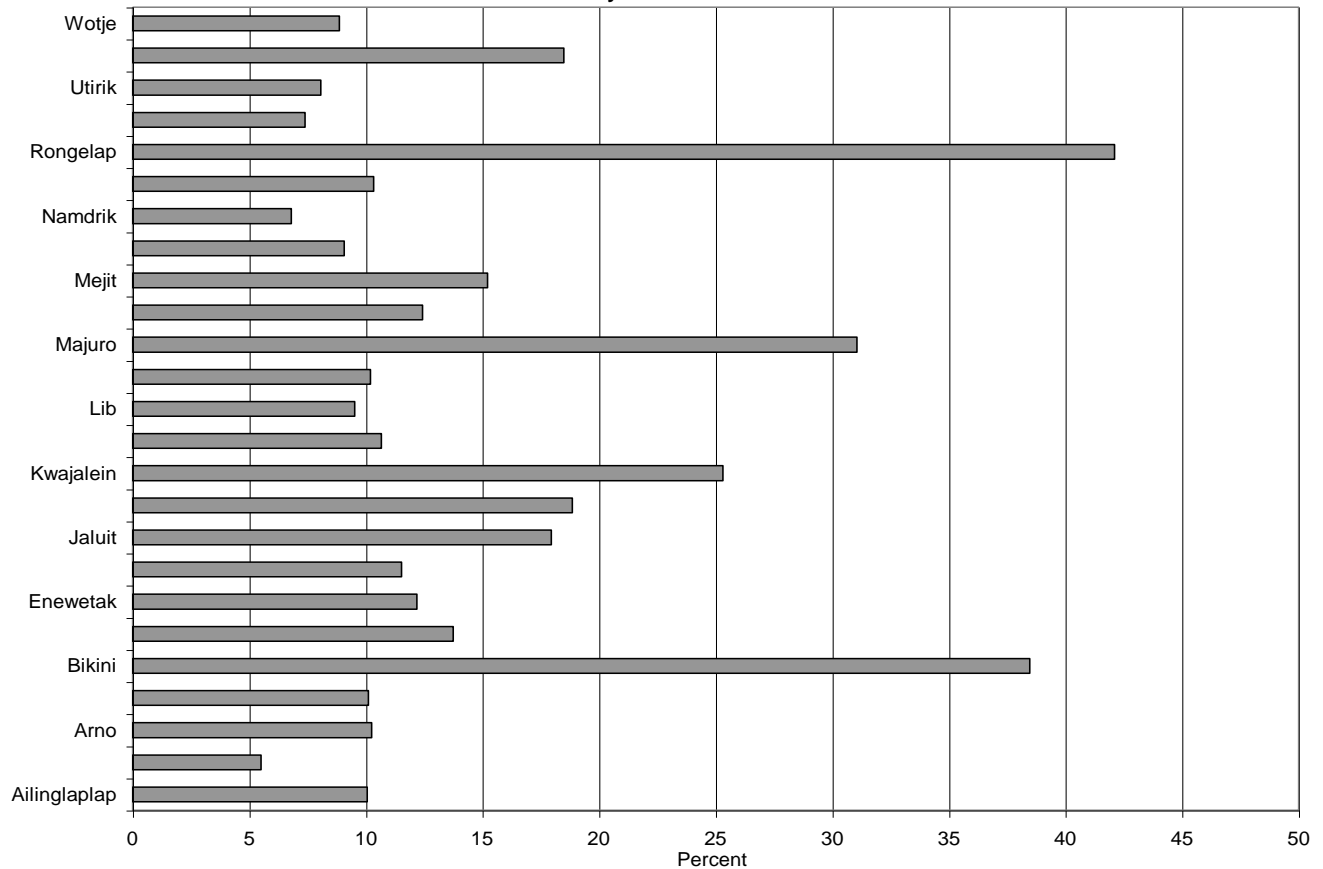


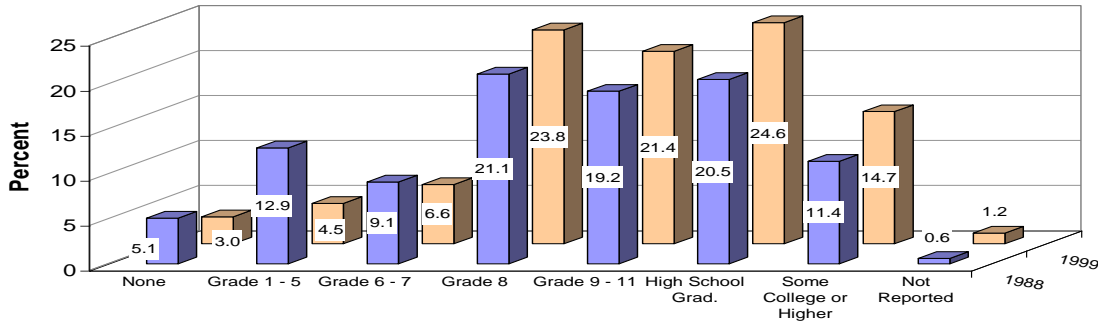
Figure 5.5, which compares the educational profile of the population 25 years and older in 1999 with that in 1988, indicates that the level of education of the RMI population has improved since 1988. In 1999, 14.7 percent of the population 25 years and older have reached college level and one-fourth have finished high school. At the other extreme, the primary graders comprised 4.5 percent; the sixth and seventh graders, 6.6 percent; the elementary graduates, 23.8 percent; and those with no formal education, 3.0 percent. By comparison, the percentage of the primary graders in 1988 was 12.9 percent, which is more than twice that in 1999. The percentage of those with no education was 5.1 percent. The high school graduates constituted one-fifth and those who have attained college level comprised 11.4 percent of the population 25 years and older.

The urban population is generally more educated than the rural population. In 1999, 17.9 percent of the urban population 25 years and older have attained college or higher level of education and another 29.2 percent have completed secondary education at the most. By comparison, the high school graduates among the rural residents 25 years and older constituted 14.6 percent, which is half the urban percentage. Those who

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reached college comprised 7.6 percent, but one-third completed elementary education only (Table 5.1).

Figure 5.5
Population 25 Years and Older by
Highest Grade Completed: 1988 and 1999



In both urban and rural areas, men are generally better educated than women. This advantage of men is more pronounced in rural areas.

Table 5.1. Percentage Distribution of Urban and Rural Population 25 Years and Older by Level of Education and by Sex, RMI: 1999

Highest Grade Completed	Urban *			Rural		
	Total	Male	Female	Total	Male	Female
Total	12,209	6,234	5,975	5,694	2,938	2,756
	100.0	100.0	100.0	100.0	100.0	100.0
No Grade Completed	2.4	2.1	2.6	4.3	3.6	5.1
Pre-school	0.1	0.1	0.1	0.2	0.1	0.2
Grade 1-5	3.6	3.1	4.1	6.4	5.8	7.1
Grade 6-7	5.4	4.2	6.6	9.3	7.1	11.6
Grade 8	18.9	17.5	20.2	34.5	32.1	37.0
Grade 9-11	22.0	19.5	24.6	20.2	20.6	19.8
High School Graduate/GED	29.2	30.7	27.7	14.6	16.6	12.4
Some College or Higher	17.9	22.3	13.6	7.6	11.2	4.0
Not Reported	0.4	0.4	0.4	2.9	2.9	2.9

* Includes Majuro Atoll, Ebeye Island and Kwajalein, Kwajalein.

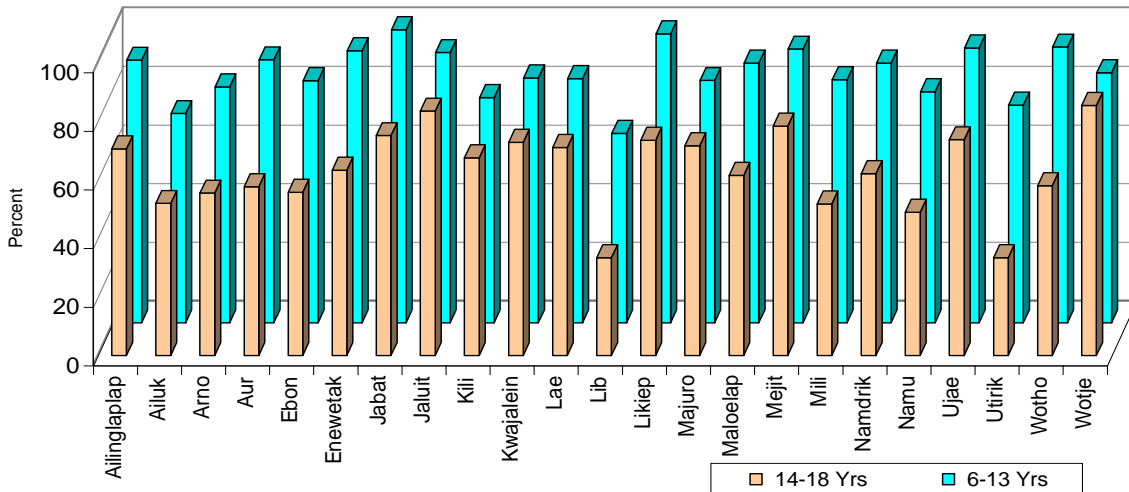
LITERACY, EDUCATION AND SCHOOL ATTENDANCE

School Attendance

Persons 6 to 18 years old are expected to be attending school. In the Marshall Islands, there are 17,814 in these school ages, 14,031 or 79 percent attended school during the school year preceding the census. However, when the elementary school age group (6 to 13 years) and secondary school age group (14 to 18 years) were separately considered, the 1999 census data reveals that only 69.5 percent of the secondary school age group (69.5 percent) attended school compared to 84.1 percent of the elementary age group (84.1 percent).

Jabat, which has the third smallest population size among the 25 inhabited atolls and islands in the country, posted a 100-percent school attendance for the age group 6-13 years. Six other atolls/islands registered more than 90-percent school attendance. These are Enewetak (92.9 percent), Jaluit (92.2 percent), Likiep (98.7 percent), Mejit (93.4 percent), Ujae (93.8 percent) and Wotho (94.1 percent). The percentage for Majuro was 82.7 percent and Kwajalein, 83.6 percent. Lib (64.7 percent) posted the smallest percentage (Figure 5.6).

Figure 5.6
Percent of Population 6-18 Years Who Attended School
at Anytime in the Year Preceding the Census by Atoll, 1999

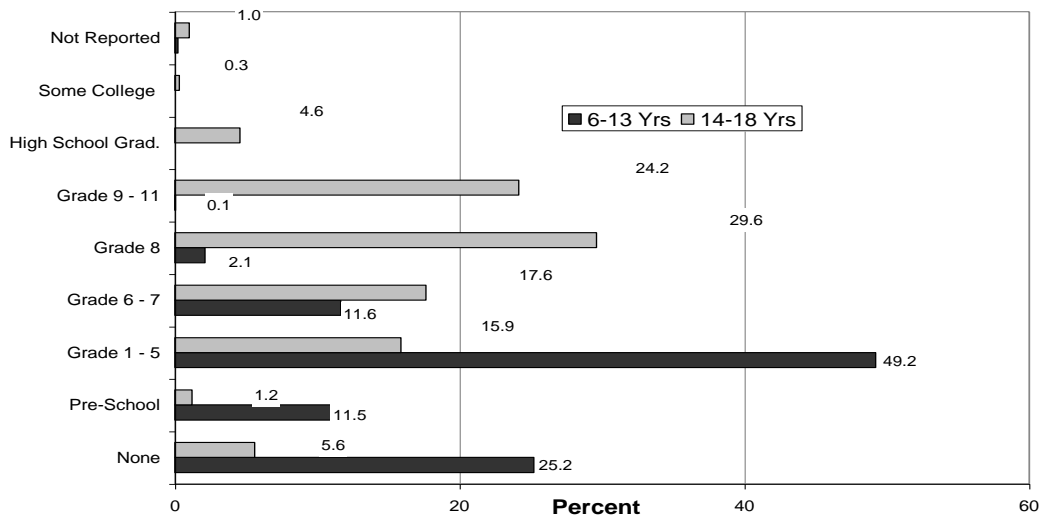


For the age range 14 to 18 years, the highest school attendance was recorded for Wotje (85.3 percent) followed by Jaluit (83.3 percent). Lib and Utirik posted the lowest, with 33.3 percent each. Majuro had 71.6 percent and Kwajalein, 72.7 percent secondary school attendance.

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Children and youth 6 to 18 years old who did not attend school during the year prior to the census comprised 21.2 percent of the total population in these school ages. The majority (49.2 percent) of the out-of-school children 6 to 13 years old were primary graders while a quarter have never been to school (Figure 5.7). Three of every 10 out-of-school youth 14 to 18 years were elementary graduates and close to one quarter have completed some years of secondary education. Those with no formal education comprised 6 percent.

Figure 5.7
Population 6-18 Years Who Did Not Attend School During the Year
Preceding the Census by Highest Grade Completed



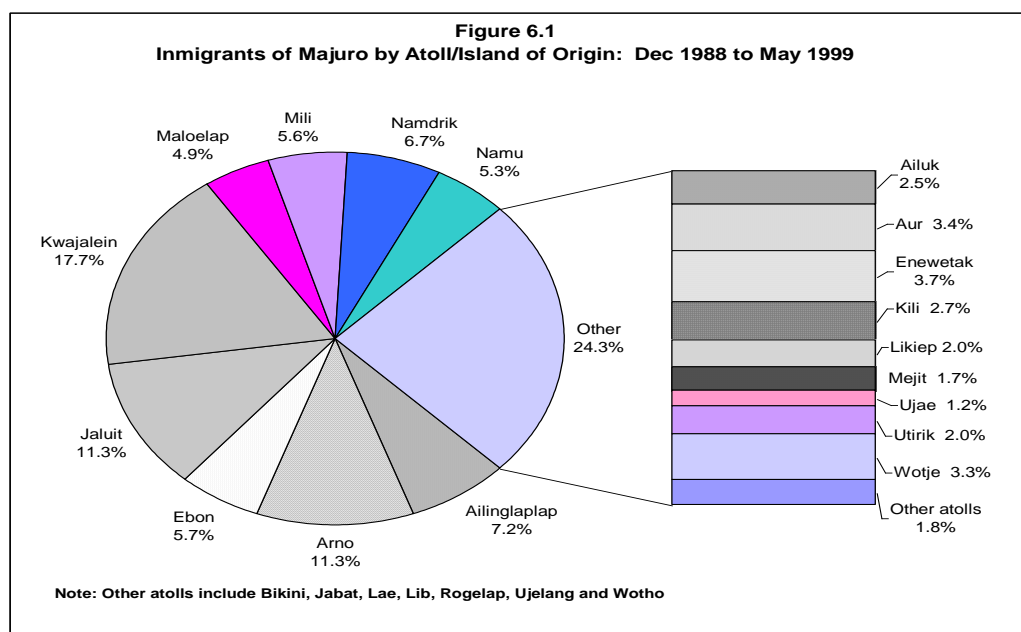
CHAPTER 6

MIGRATION

A total of 10,464 persons 5 years old and over were reported to have lived in another atoll/island before they settled in the atoll or island where they were enumerated during the 1999 census, hereafter referred to as atoll or island of current residence. Of this number, 5,588 or 53 percent moved to their current residence after September 1980, or approximately after the 1980 census. Seven in every 10 or 3,951 of the post-1980 census inter-atoll/island migrants 5 years old and over moved to their current residence after November 1988, or approximately after the 1988 census. Likewise, close to 70 percent or 2,726 of the post-1988 census inter-atoll/island migrants 5 years old and over migrated to their current residence during the second half or so of the intercensal period 1988-1999 (Table 6.1).

During the periods examined, Majuro attracted the largest volume of migrants – 63 percent of all migrants during the intercensal period 1980-1988, 58 percent of all migrants during the first five years of the intercensal period 1988-1999 and 48 percent of all migrants during the remainder of the same period (Table 6.1).

Of the 2,018 post-1988 census immigrants in Majuro, 17.7 percent were reported as residing in Kwajalein before moving to Majuro (Figure 6.1). Migrants who came from from Jaluit and Arno each comprised 11.3 percent, while those from Ailinglaplap and Namdrik constituted 7.2 percent and 6.7 percent, respectively.



There were more females than males among the immigrants in Majuro who came from Kwajalein, Jaluit and Namdrik. The sex ratio of the post-1988 census immigrants in Majuro who came from Kwajalein was 87 males per 100 females, while of those coming from Jaluit and Namdrik, 78 and 84 males per 100 females, respectively. Overall, there were more male

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immigrants than female immigrants in Majuro . The sex ratio of migrants who settled in Majuro during the 1988-1999 intercensal period was 108 males per 100 females. The corresponding sex ratio of the immigrants in the 1980-1988 period was slightly lower - 104 males per 100 females.

Table 6.1 Migrants 5 Years Old and Over Between Atolls/Islands During the Intercensal Periods 1980-1988 and 1988-1999.

Atoll/Island of Destination/ Origin	Oct. 1980 – Nov. 1988				Dec. 1988 – Dec. 1993				Jan. 1994 – May 1999			
	Immigrants		Outmigrants		Immigrants		Outmigrants		Immigrants		Outmigrants	
	No.	% of All Mig- rants	No.	% of All Mig- rants	No.	% of All Mig- rants	No.	% of All Mig- rants	No.	% of All Mig- rants	No.	% of All Mig- rants
TOTAL	1637	100.0	1637	100.0	1225	100.0	1225	100.0	2726	100.0	2726	100.0
Ailinglaplap	30	1.8	117	7.1	30	2.4	75	6.1	183	6.7	151	5.5
Ailuk	7	0.4	35	2.1	2	0.2	22	1.8	29	1.1	45	1.7
Arno	11	0.7	138	8.4	17	1.4	88	7.2	48	1.8	189	6.9
Aur	4	0.2	41	2.5	20	1.6	42	3.4	49	1.8	56	2.1
Bikini	0	0.0	2	0.1	0	0.0	0	0.0	0	0.0	6	0.2
Ebon	1	0.1	105	6.4	24	2.0	41	3.3	56	2.1	104	3.8
Enewetak	20	1.2	12	0.7	21	1.7	18	1.5	51	1.9	67	2.5
Jabat	2	0.1	8	0.5	0	0.0	5	0.4	1	0.0	14	0.5
Jaluit	38	2.3	186	11.4	53	4.3	105	8.6	160	5.9	202	7.4
Kili	8	0.5	17	1.0	13	1.1	8	0.7	49	1.8	53	1.9
Kwajalein	405	24.7	188	11.5	211	17.2	184	15.0	403	14.8	420	15.4
Lae	8	0.5	13	0.8	12	1.0	11	0.9	29	1.1	17	0.6
Lib	0	0.0	8	0.5	0	0.0	2	0.2	1	0.0	28	1.0
Likiep	7	0.4	39	2.4	12	1.0	39	3.2	61	2.2	54	2.0
Majuro	1032	63.0	223	13.6	708	57.8	275	22.4	1309	48.0	746	27.4
Maloelap	11	0.7	51	3.1	18	1.5	34	2.8	35	1.3	85	3.1
Mejit	14	0.9	44	2.7	13	1.1	19	1.6	44	1.6	44	1.6
Mili	1	0.1	67	4.1	17	1.4	48	3.9	39	1.4	77	2.8
Namdrik	3	0.2	67	4.1	3	0.2	53	4.3	25	0.9	116	4.3
Namu	2	0.1	52	3.2	7	0.6	63	5.1	25	0.9	82	3.0
Rongelap	0	0.0	135	8.2	0	0.0	5	0.4	0	0.0	6	0.2
Ujae	10	0.6	15	0.9	14	1.1	15	1.2	6	0.2	46	1.7
Ujelang	0	0.0	7	0.4	0	0.0	0	0.0	0	0.0	7	0.3
Utirik	4	0.2	28	1.7	8	0.7	30	2.4	20	0.7	40	1.5
Wotho	1	0.1	5	0.3	2	0.2	2	0.2	32	1.2	17	0.6
Wotje	18	1.1	34	2.1	20	1.6	41	3.3	71	2.6	54	2.0

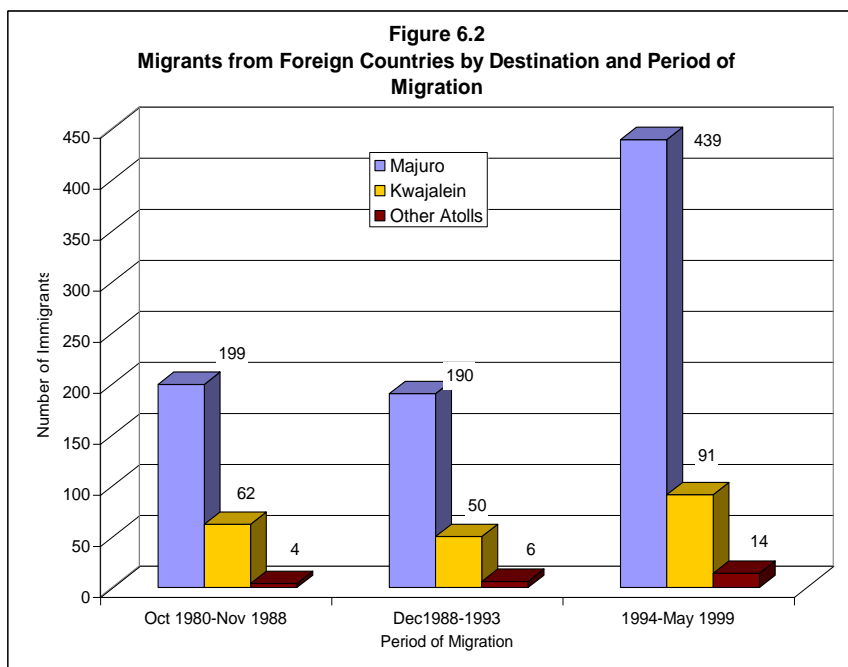
Note: Migration periods were delineated based on the reference dates of the 1980, 1988 and 1999 censuses.

MIGRATION

Majuro was a consistent net in-migration area. During all the migration periods examined, the number of people moving into this atoll always exceeded the number of those out-migrating. By comparison, Kwajalein, which was second to Majuro in terms of volume of immigrants, became a net out-migration area in the 5 years immediately preceding the 1999 census (Table 6.1). More than half (57 percent) of the 420 outmigrants of Kwajalein from January 1994 to May 1999 settled in Majuro.

Table 6.2 shows that during the intercensal period 1988-1999, only Majuro experienced a substantial gain in population from immigration. During the same period, the number of immigrants in Majuro exceeded that of outmigrants by 996 persons. In terms of net migration rates, however, Wotho led the atolls and islands with a net migration rate of 15 percent, which means a net gain of 15 persons per 100 population 5 years old and over. It was followed by Majuro and Lae with net migration rates of 5.5 percent and 5.1 percent, respectively. Other atolls/islands with positive net migration rates were Kili and Kwajalein. All other 20 inhabited atolls/islands had negative net migration rates. Seven atolls/islands, aside from Bikini Atoll, posted negative net migration rates that exceeded 10 percent - Arno (-14.2), Jabat (-21.7), Lib (-28.4), Namdrik (-21.9), Namu (-15.7), Ujae (-11.6), and Utirik (-12.5). Compared to other net outmigration atoll/islands, they experienced relatively large population decreases due to outmigration.

Majuro was also the preferred destination of migrants from foreign countries (Figure 6.2). The number of immigrants in the Marshall Islands in the past five years was about the same as the combined volumes of immigrants during the 1980-1988 intercensal period and the first five years of the 1988-1999 intercensal period. Eight out of every 10 immigrants in the past 5 years reside in Majuro. The other 17 percent

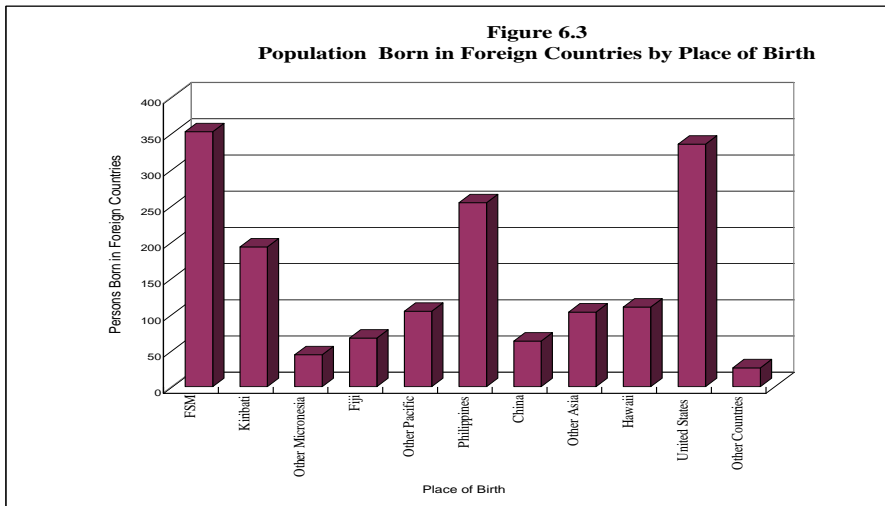


live in Kwajalein and the remaining 3 percent in other atolls. Immigrants were mostly males. However, a steady decline in the sex ratio of immigrants has been observed. From 170 males per 100 females during the 1980-1988 period, the sex ratio of migrants from foreign countries dropped to 159 during the first 5 years of the 1988-1999 intercensal period and further decreased to 128 in the latter 5 years.

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Figure 6.3 shows the number of lifetime migrants from foreign countries. A lifetime migrant is here defined as a person whose current residence is different from his or her mother's residence at the time of his or her birth. Based on the 1999 census, a total of 1,651 lifetime

migrants come from foreign countries. Of this number, 21 percent are from the Federated States of Micronesia (FSM), 20 percent come from the United States and another 15 percent come from the Philippines. Kiribati (12 percent) is the fourth leading origin of lifetime migrants in the Marshall Islands.



MIGRATION

Table 6.2. Migration Between Atolls/Islands During the Intercensal Period 1988-1999.

Atoll/Island	Number			Rate (percent)		
	In-migrants	Out-migrants	Net Migrants	In-migration Rate	Out-migration Rate	Net Migration Rate
Ailinglaplap	213	226	-13	14.5	15.4	-0.9
Ailuk	31	67	-36	7.6	16.4	-8.8
Arno	65	277	-212	4.4	18.6	-14.2
Aur	69	98	-29	17.0	24.1	-7.1
Bikini	0	6	-6	0.0	120.0	-120.0
Ebon	80	145	-65	11.6	21.0	-9.4
Enewetak	72	85	-13	11.3	13.4	-2.0
Jabat	1	19	-18	1.2	22.9	-21.7
Jaluit	213	307	-94	15.4	22.2	-6.8
Kili	62	61	1	11.4	11.2	0.2
Kwajalein	614	604	10	7.4	7.3	0.1
Lae	41	28	13	16.0	11.0	5.1
Lib	1	30	-29	1.0	29.4	-28.4
Likiep	73	93	-20	17.5	22.3	-4.8
Majuro	2017	1021	996	11.2	5.6	5.5
Maloelap	53	119	-66	7.9	17.7	-9.8
Mejit	57	63	-6	15.8	17.4	-1.7
Mili	56	125	-69	7.2	16.2	-8.9
Namdrik	28	169	-141	4.3	26.2	-21.9
Namu	32	145	-113	4.5	20.2	-15.7
Rongelap	0	11	-11	0.0	-	-
Ujae	20	61	-41	5.7	17.3	-11.6
Ujelang	0	7	-7	0.0	-	-
Utirik	28	70	-42	8.3	20.8	-12.5
Wotho	34	19	15	34.0	19.0	15.0
Wotje	91	95	-4	14.9	15.6	-0.7

Note: For each atoll/island, the migration rates were calculated by dividing the number of migrants by the average of the 1988 and 1999 population 5 years old and over. The average population is an estimate of the population 5 years old over during the middle of the 1988-1999 intercensal period.

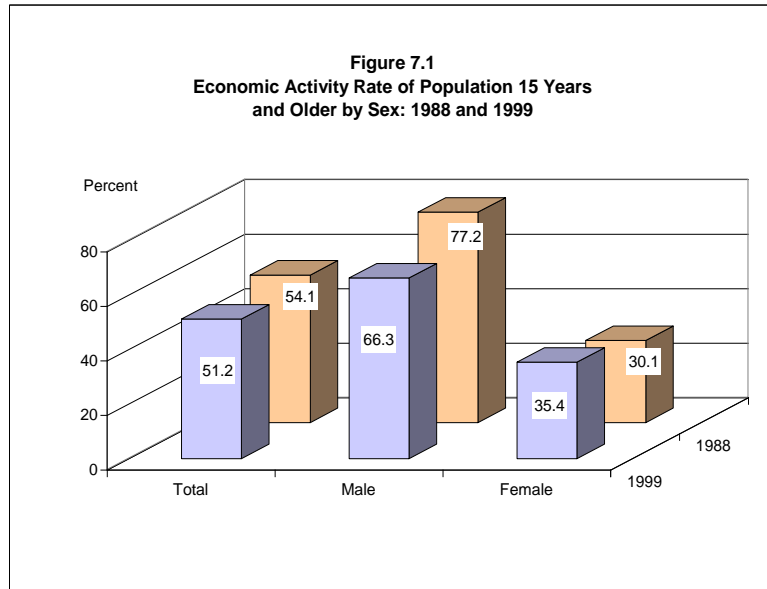
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CHAPTER 7

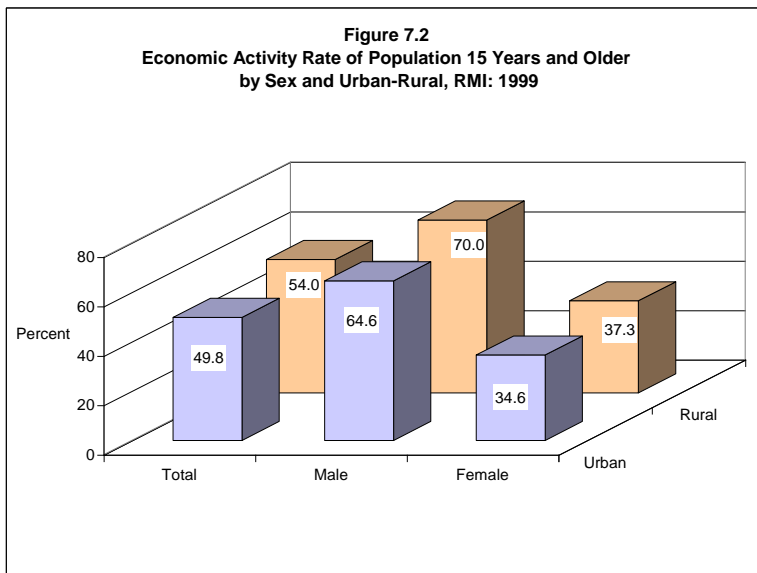
LABOR FORCE AND EMPLOYMENT

Labor Force

The size of the working age population, or persons aged 15 years and older, is 28,698, with the males comprising 14,595 and the females, 14,103. The economically active population or the total labor force is 14,677 persons – 9,679 males and 4,998 females. These numbers translate into economic activity rates of 66.3 percent for males, 35.4 percent for females, and 51.2 percent for both sexes (Figure 7.1). The economic activity rate or labor force



participation rate is the ratio of the labor force to the working age population, expressed in percent..



In 1988, the activity rate of males was 77.2 percent, which is higher than the 1999 figure, while that of females was 30.1 percent, lower than the 1999 rate.

The activity rates of both males and females are higher in rural areas than in urban areas (Figure 7.2). This urban-rural differential is more pronounced for males than for females. In rural areas, the activity rate for males is 70.0 percent while that for females is

37.3 percent. For their urban counterparts, the activity rates are 64.6 percent and 34.6 percent, respectively.

1999 CENSUS OF POPULATION AND HOUSING

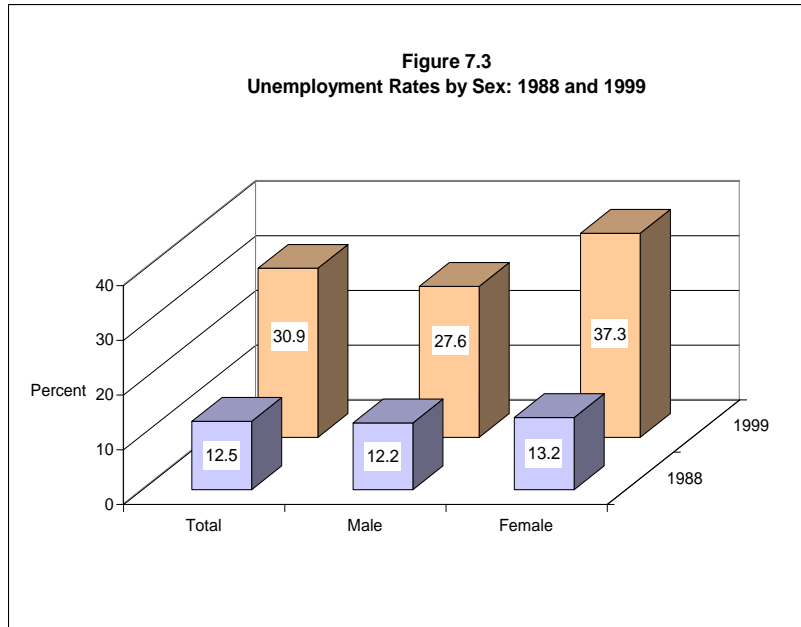
Table 7.1 Comparison of Working Population by Classification of Economically Active and Not Economically Active between 1988 and 1999 Censuses.

	1988	1999
Working age population (15+ years)		
Total	21,244	28,698
Male	10,819	14,595
Female	10,425	14,103
Economically Active		
Total	11,488 (54.1%)	14,677 (51.2%)
Male	8,353 (77.2%)	9,679 (66.3%)
Female	3,135 (30.1%)	4,998 (35.4%)
Employed		
Total	10,056 (87.5%)	10,141 (69.1%)
Male	7,335 (87.8%)	7,008 (72.4%)
Female	2,721 (86.8%)	3,133 (62.7%)
Unemployed		
Total	1,432 (12.5%)	4,536 (30.9%)
Male	1,018 (12.2%)	2,671 (27.6%)
Female	414 (13.2%)	1,865 (37.3%)
Economically Not Active		
Total	9,546 (44.9%)	14,015 (48.8%)
Male	2,328 (21.5%)	4,913 (33.7%)
Female	7,218 (69.2%)	9,102 (64.6%)
Not Stated		
Total	210 (1.0%)	6 (0.02%)
Male	138 (1.3%)	3 (0.02%)
Female	72 (0.7%)	3 (0.02%)

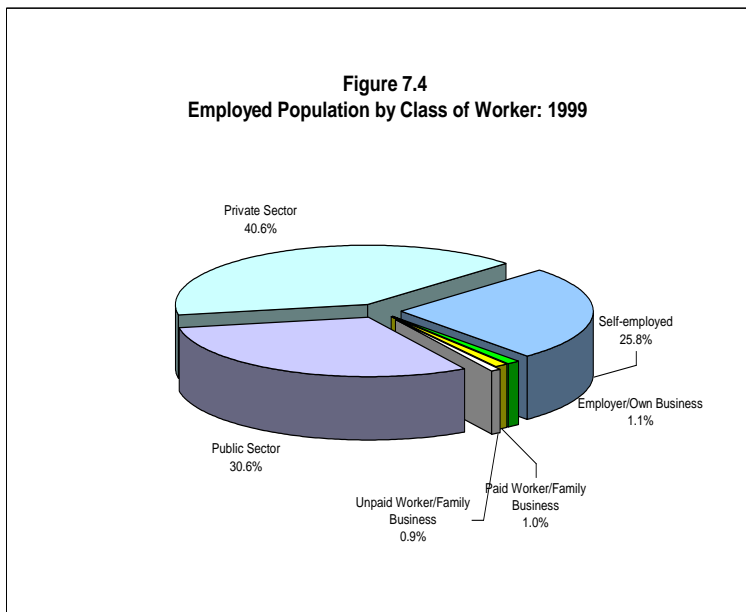
LABOR FORCE AND EMPLOYMENT

Unemployment Rate

The total number of employed persons, based on the 1999 census, is 10,141, which is 69.1 percent of the total labor force. The unemployed comprises 30.9 percent of the total labor force (Figure 7.3). This is more than double the unemployment rate in 1988, which was 12.5 percent only. It is speculated that the increase in unemployment rate is the result of the down sizing of the government work force. For both census years, the unemployment rate for females was higher than for males. The difference was more pronounced in 1999. In 1999, the unemployment rate of males was 27.6 percent while that of females was 37.3 percent. In 1988, the unemployment rate of males was 12.2, and that of females, 13.2



percent.



Class of Worker

In 1999, persons working for private employers comprised 40.6 percent of the total employed population, those working in the government, 30.6 percent, and those who were self-employed, 25.8 percent (Figure 7.4). The remaining 3.0 percent were employers, unpaid workers and paid workers in family-operated businesses or farms.

1999 CENSUS OF POPULATION AND HOUSING

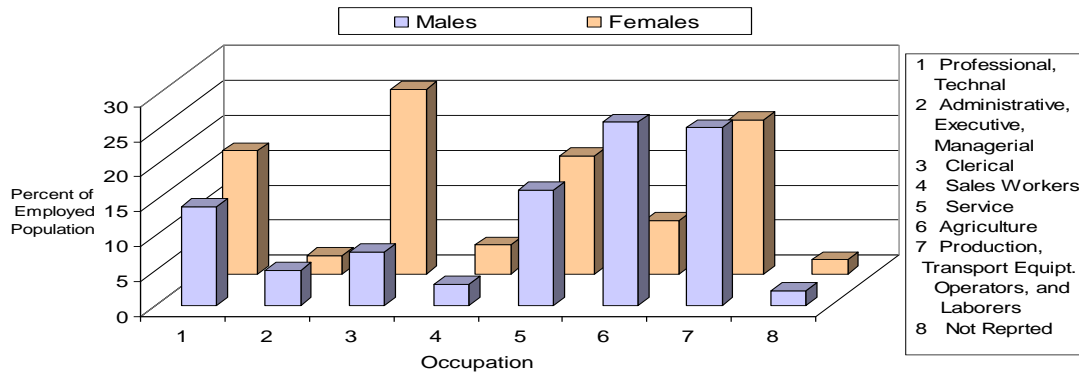
CHAPTER 8

OCCUPATION AND INDUSTRY

The production workers, laborers and transport equipment operators comprise the largest percentage of the employed population in the country (24.4 percent), followed by the agricultural workers and fishermen (20.5 percent). The sales workers comprise the smallest occupational group (3.4 percent).

A comparison of the male and female workers by occupational group reveals that male workers are predominantly engaged in agriculture and fishing (26.2 percent). The second largest group of employed males is composed of production workers, transport equipment operators and construction workers (25.4 percent). By comparison, among female workers, the clerical workers is the largest group, comprising 26.5 percent of employed females, followed by those engaged in production jobs constituting 22.1 percent.

Figure 8.1
Employed Population by Major Occupational Group and Sex: 1999

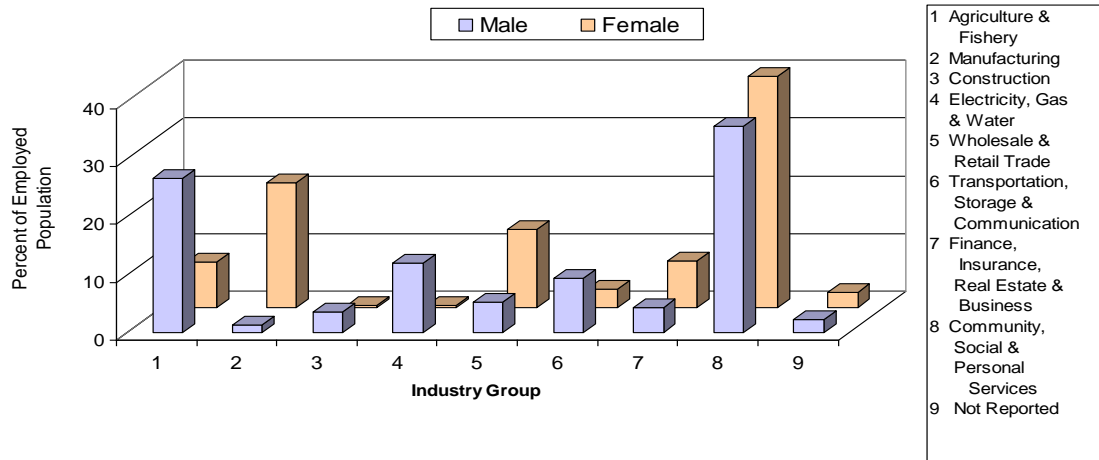


The largest percentage of both male and female workers belong to the industry group 'community, social and personal services,' with the males in this industry accounting for 35.6 percent of all male workers, and the females, 41.8 percent of all female workers. This is to be expected since this industry group includes service workers, government officials, professionals, technical and related workers like the medical workers and teachers.

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The next largest industry group for men is ‘electricity, gas and water’ (11.9 percent), and that for women, ‘manufacturing’ (21.7 percent). The majority of the women under the ‘manufacturing’ industry group are engaged in handicraft.

Figure 8.2
Employed Population by Major Industry Group and Sex: 1999

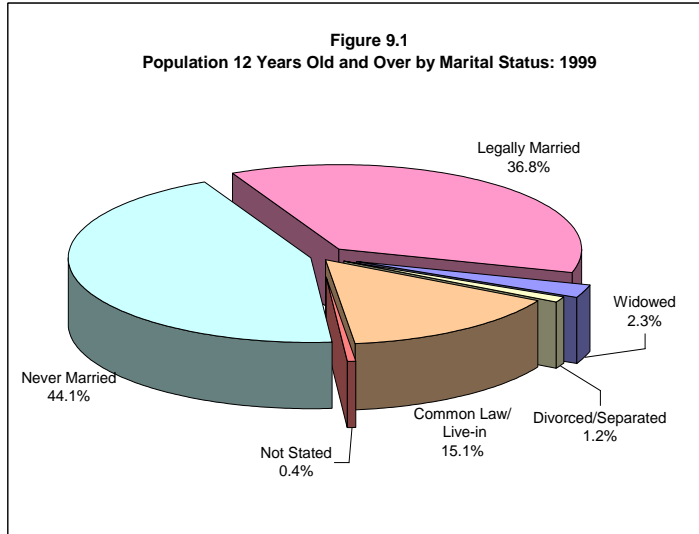


CHAPTER 9

OTHER POPULATION CHARACTERISTICS

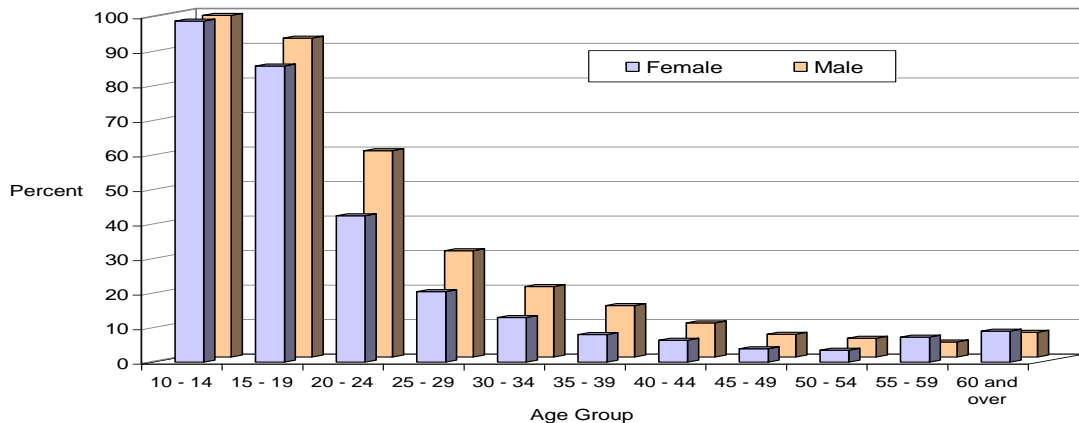
Marital Status Distribution

More than half of the 33,479 persons 12 years old and over were married - 36.8 percent were legally married and another 15.1 percent were in a common-law union (Figure 9.1). The never married accounted for 44.1 percent, the widowed, 2.3 percent, and the divorced or separated, 1.2 percent. Approximately eight out of every 10 widowed persons were women, reflecting the fact that women normally live longer than men.



More than half of the never-married were males. A comparison of the percentage single among men and women by age revealed that up to age group 50-54, the percentage of males who were never married was higher than that of females (Figure 9.2). This finding supports the general observation that men to marry later than women.

Figure 9.2
Percent of the Never Married Population
by Age Group and Sex: 1999

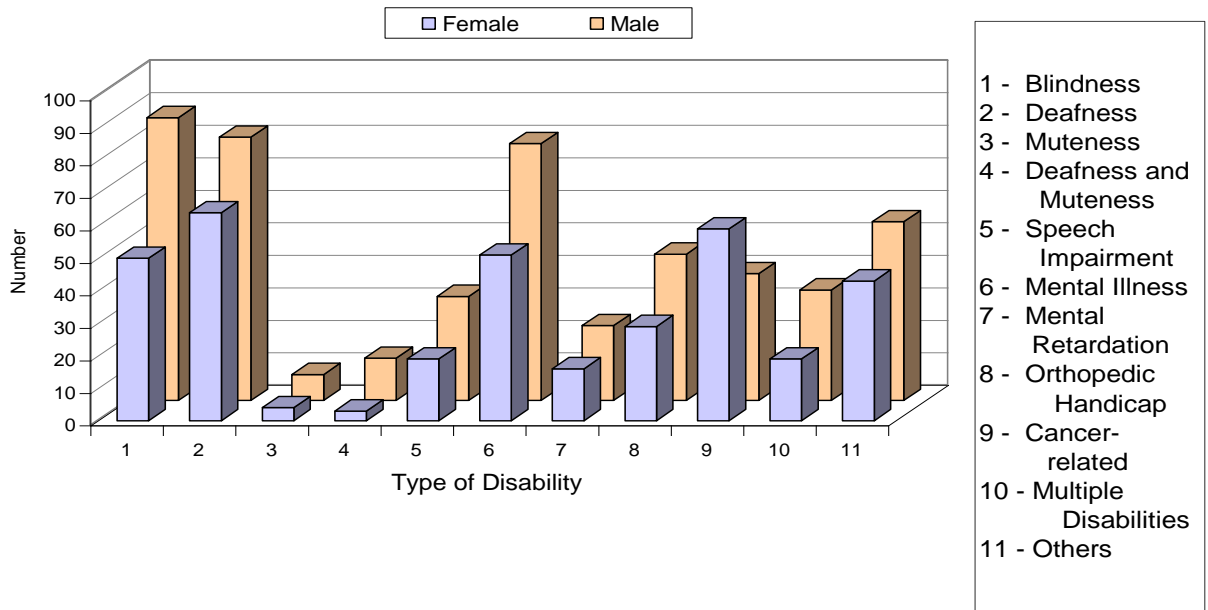


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Persons With Disability

During the 1999 census, 853 persons or close to 2.0 percent of the household population in the Marshall Islands were reported as having a disability. The most frequently reported types of disability were deafness, blindness, mental illness and cancer-related disability (Figure 9.3). Except for cancer-related disabilities, the males outnumbered the females. Approximately six in every 10 people who were orthopedic handicaps are males. Likewise, the males comprised 61 percent of those who were afflicted with mental illness, and 59 percent of those who were mental retardates. By contrast, the females accounted for 60 percent of those with cancer-related disabilities.

Figure 9.3
Population With Disability by Sex and Type of Disability: 1999

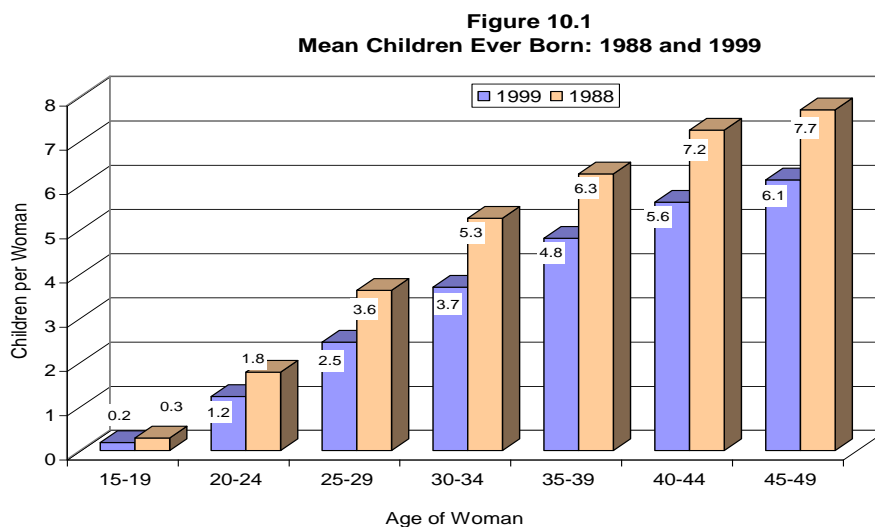


CHAPTER 10

DEMOGRAPHIC ANALYSIS

National-Level Fertility

The fertility of Marshallese women had declined during the intercensal period 1988-1999. In 1999, the mean parity or average number of children per woman 45 to 49 years old was about six children (Figure 10.1). In 1988 the mean parity for the same age group of women was 7.7, or about 2 children more than in 1999. Likewise, for younger women, the average number of children per woman is smaller in 1999 than 1988.



The mean parity of women 45 to 49 years old may be used as a measure of the completed fertility of women. Because it is based on children born in any year, it does not represent current fertility.

The total fertility rate (TFR), which represents current fertility, declined from 7.2 in 1988 to 5.7 in 1999. A TFR may be viewed as representing the completed fertility of a hypothetical cohort of women. The 1999 TFR of 5.7 means that a woman would have about 6 children in her lifetime, on the average, assuming that she bears a child at each age at the rates prevailing in 1999 and assuming that she survives up to age 49. The 1988 TFR of 7.2 means if a woman experiences in her lifetime the fertility rates prevailing in 1988, then she would have about 7 children, assuming that she survives up to the end of her childbearing years.

The 1999 TFR estimate was derived by the P/F Ratio Method using data on live births in the past year and children ever born by age of women (Table 10.1). The number of women includes those for whom the parity was not reported. The El-Brady correction for non-response on parity was not adopted. When applied to the 1999 RMI census data, the adjustment resulted in an exaggerated proportion of childless women, hence, in a greater number of women 15-49 years old with known parity than the total enumerated

1999 CENSUS OF POPULATION AND HOUSING

women 15-49 years old. Moreover, initial calculations show that the number of women with no response on parity has no significant effect on the result of the estimation.

Table 10.1. Number of Women, Average Parity and Age-Specific Fertility Rates by Age of Women: 1999

Age Group	Number of Women	Children Ever Born	Births in Past Year	Mean Parity	Age-Specific Fertility Rate (ASFR)
(1)	(2)	(3)	(4)	(5) *	(6) **
15-19	3115	569	209	0.1827	0.0671
20-24	2257	2751	550	1.2189	0.2437
25-29	1846	4527	451	2.4523	0.2443
30-34	1562	5767	340	3.6921	0.2177
35-39	1389	6668	180	4.8006	0.1296
40-44	1190	6683	78	5.6160	0.0655
45-49	898	5497	42	6.1214	0.0468

* (5) = (3) / (2)

** (6) = (4) / (2)

Table 10.2 shows the P/F ratios used in adjusting the age-specific fertility rates. The P/F ratios are obtained by dividing, for each age group of women, the mean parity by the parity equivalent. The latter is derived from cumulated fertility. The cumulated fertility rate need to be converted into parity equivalent since, for a particular age group, it only provides an estimate of the average number of children ever born by women who have reached the end of the age group. By comparison, the mean parity provides an estimate of the average number of children ever born by women whose ages vary over the range of the age group. Parity equivalents cover a comparable age range. These are derived by interpolation using the period fertility rates or ASFRs and the cumulated fertility rates (U. N. Manual X, pages 33-34).

Similarly, age the age-specific fertility rates in Table 10.1 are converted into age-specific fertility rates for conventional age groups. This is because the former were calculated based on births in the 12 months prior to the census classified by the age of the mother at the time of the census. At the time of birth, the mother was in general six months younger, hence, these fertility rates are specific for unorthodox age groups that are shifted by six months. Age-specific fertility rates for conventional five-year age groups were calculated by applying weighting factors to fertility rates for unorthodox age groups (U. N. Manual X, pages 34-35). The rates for the conventional age groups are then multiplied by a correction factor. For the present analysis the correction factor is the weighted average of the P/F ratios for age groups 20-24 and 25-29.

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Table 10.2. Cumulated Fertility Rates, Estimated Parity Equivalents, P/F Ratios, Adjusted Age-Specific Fertility Rates and Estimated Number of Births: 1999

Age Group	Cumulated Fertility	Estimated Parity Equivalent ^a	P/F Ratio ^{a/}	Fertility Rate for Conventional Age Groups	Adjusted Age-Specific Fertility Rate ^{b/}	Estimated Number of Births ^{c/}
(1)	(2)	(3)	(4)	(5)	(6)	(7)
15-19	0.3355	0.1362	1.3413	0.0834	0.0938	292
20-24	1.5539	1.0422	1.1695	0.2530	0.2848	643
25-29	2.7755	2.2887	1.0715	0.2428	0.2733	504
30-34	3.8638	3.4664	1.0651	0.2104	0.2368	370
35-39	4.5118	4.2727	1.1235	0.1233	0.1387	193
40-44	4.8395	4.6484	1.2082	0.0605	0.0681	81
45-49	5.0733	5.0183	1.2198	0.0413	0.0465	42
Total						2,125
Total Fertility Rate					5.71	

Notes:

- a/ P/F ratio is calculated by dividing the mean parity by the estimated parity equivalent.
- b/ The adjusted age specific fertility rate was calculated by multiplying the fertility rate for the conventional age group by a correction factor K, which is derived by taking the weighted average of the P/F ratios for age groups 20-24 and 25-29. Thus, K is calculated by the formula:

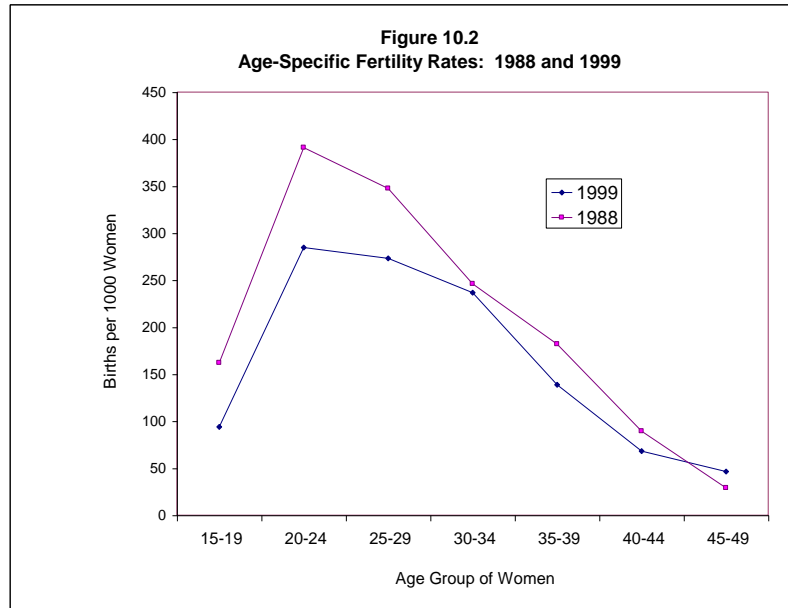
$$[P/F(20-24) \times POPF(20-24) + P/F(25-29) \times POPF(20-24)] / [POPF(20-24) + POPF(25-29)]$$

where, P/F(20-24) and P/F(25-29) are P/F ratios for age groups 20-24 and 25-29, respectively, while POPF(20-24) and POPF(25-29) are counts of women in age groups 20-24 and 25-29.

- c/ The number of births for each age group of women is calculated by multiplying the adjusted age-specific rate in column 6 by the number of women in the same age group.

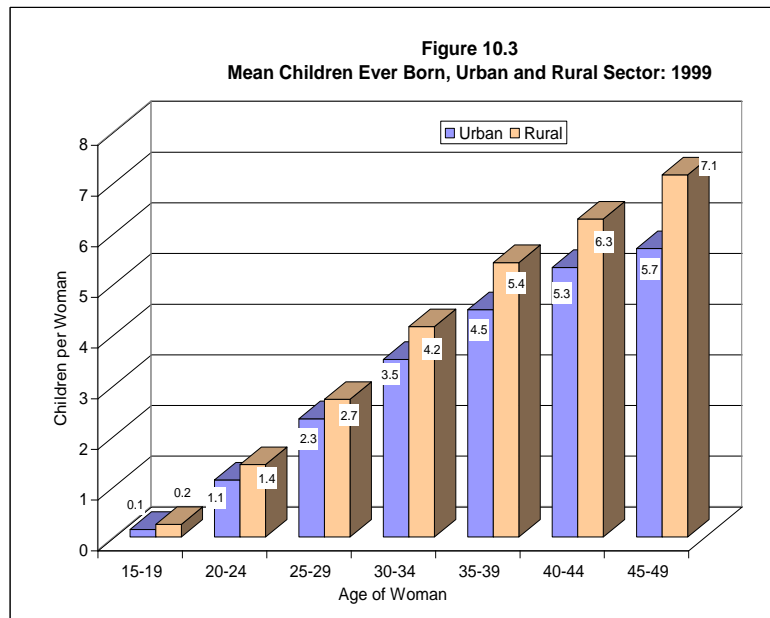
1999 CENSUS OF POPULATION AND HOUSING

Figure 10.2 shows the fertility rates prevailing in 1988 and 1999, by age group of women. For both census years, the birth rate was highest among women 20 to 24 years old and was second highest among women 25 to 29 years old. The decline in fertility in 1999 was most pronounced for the age group 20-24 with their birth rate falling from 391 to 285 live births per 1000 women, or by 106 live births per 1000 women. The age groups 15-19 and 25-29 experienced the next largest fertility declines with their birth rates falling by 68 and 74 live births per 1000 women, respectively. The fertility rate of older age groups also declined, except that of age group 45-49.



Urban-Rural Fertility Differential

Rural women in the Marshall Islands have higher fertility compared to urban women. In 1999, a rural woman in the age group 45-49 had 7 children, on the average, while her urban counterpart had about 6 children (Figure 10.3). Likewise, a rural woman belonging to any younger age group generally had born more children than an urban woman of her age.



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Figure 10.4 shows that the fertility rate of rural women is higher than that of urban women, except for age groups 25-29 and 45-49. Urban women 20 to 24 years old showed higher fertility than their rural counterpart, while urban women 45 to 49 years old exhibited the same fertility rate as rural women of their age. The urban-rural differential in fertility is most apparent among women in the age groups 15-19 and 35-39. The fertility of rural women peaks at ages 20 to 24 years, while that of urban women at ages 20 to 29 years.

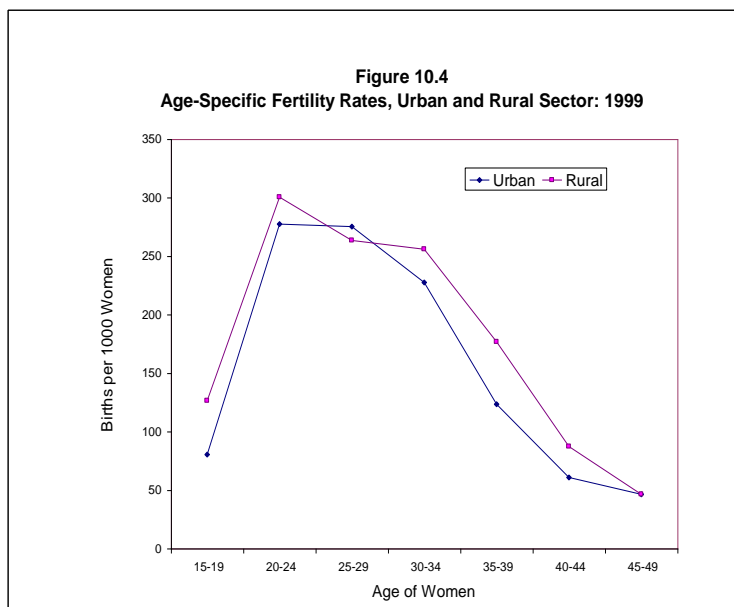


Table 10.3 shows different indicators of fertility for the urban and rural areas and for the whole country. The urban-rural differential in fertility is evident from the figures in the table, except for the crude birth rate (CBR). The CBR is easily affected by the composition of a population with respect to age, sex and other characteristics, hence, is less useful for making comparisons. The gross reproduction rate (GRR) is obtained by multiplying the total fertility rate (TFR) by the ratio of female births to total births. This ratio is 100/206 since the widely observed sex ratio at birth is 1.06. The GRR of 2.77 for the year 1999 means that a woman in the Marshall Islands would have approximately 3 daughters in her lifetime, on the average, assuming that she bears a child at each age at the rates prevailing in 1999, and assuming that she survives up to age 49.

Table 10.3. Total Fertility Rate, Gross Reproduction Rate, General Fertility Rate and Crude Birth Rate by Urban-Rural: 1999

Fertility Indicator	Total	Urban	Rural
Total Fertility Rate (live births per woman)	5.71	5.45	6.28
Gross Reproduction Rate (female births per woman)	2.77	2.65	3.05
General Fertility Rate (live births per 1000 women 15-49 years)	173.3	166.5	189.3
Crude Birth Rate (live births per 1000 population)	41.8	42.2	41.2

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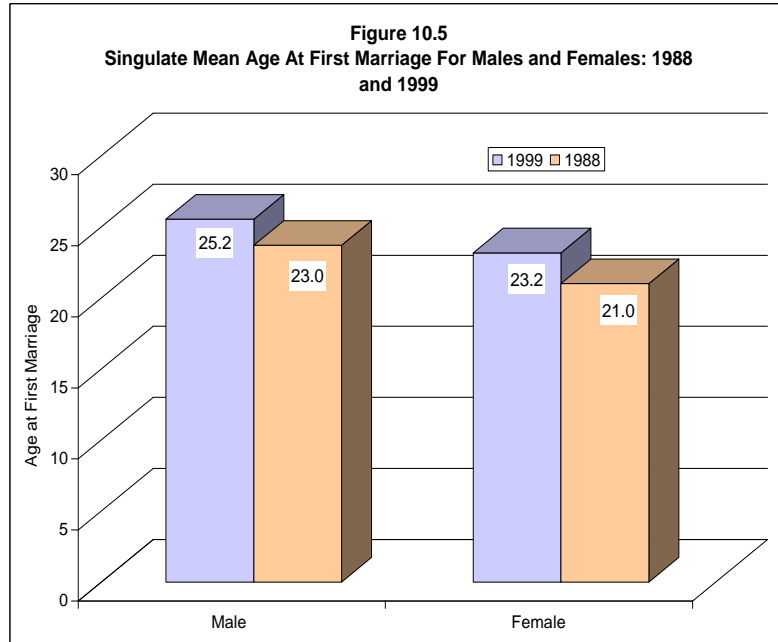
Nuptiality

The age at first marriage for both males and females was older in 1999 than in 1988. For males, the singulate age at first marriage (SMAM) was 25.2 years in 1999, compared to 23.7 years in 1988, or an increase of 1.8 years. For females, the increase was 2 years, with their SMAM posting at 23.0 years in 1999 (Figure 10.5). In both years, males entered into their first marital union later than females.

The SMAM is an indirect estimate of the average number of years spent in the never married state by those who marry before age 50, and it is based on the percentage of the population who are never married in 5-year age groups.

Table 10.4 shows the percentage never married by age and sex based on the 1999 census.

The basic assumption involved in the calculation of SMAM is that the change in the proportion never married from age x to age $x+1$, or from one 5-year age group to the next, is a measure of a birth cohort who married at that age. Moreover, the calculation assumes that all persons in the cohort survive up to their 55th birthday. Accordingly, the calculation is based on the following considerations. The number of years lived in the never married state between the ages 15 and 50 by the cohort is the sum of the percent single multiplied by 5. The use of 5 is required since the grouping is in 5 years. To this sum, 1500 (15×100) years lived by the cohort before their 15th birthday is added. The number of years lived by those who did not marry before age 50 is subtracted from the total. The new total divided by the number of persons who have married is the SMAM.



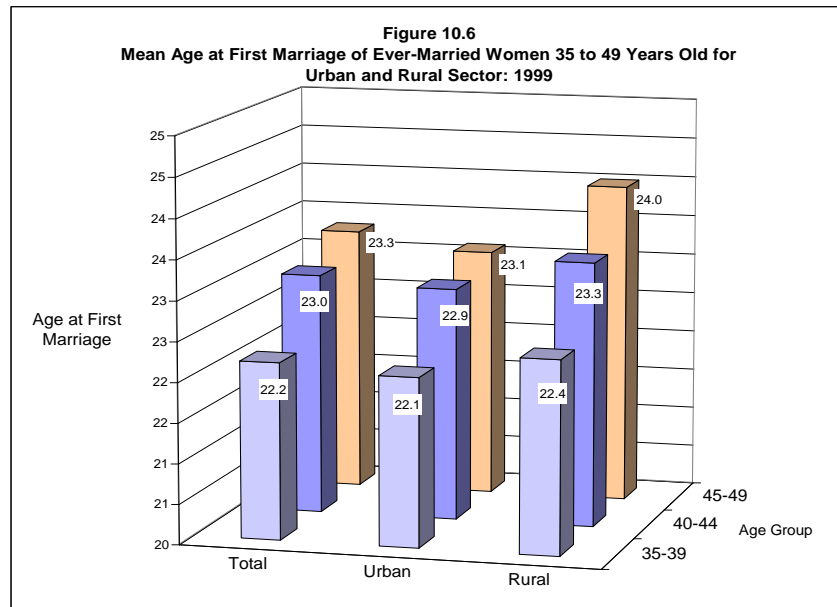
DEMOGRAPHIC ANALYSIS

Table 10.4. Percent Never Married by Age and Sex, and Singulate Mean Age at Marriage by Sex: 1999

Age Group	Percent Never Married		
	Total	Male	Female
15 - 19	89.1	92.36	85.75
20 - 24	51.0	59.75	42.34
25 - 29	25.6	30.79	20.38
30 - 34	16.8	20.46	12.88
35 - 39	11.5	14.90	7.95
40 - 44	8.1	9.87	6.36
45 - 49	5.4	6.61	3.87
50 - 54	4.5	5.47	3.47
55 - 59	5.7	4.4	7.2
60 - 64	6.7	6.8	6.6
65 - 69	9.0	8.3	9.8
70 - 74	8.0	6.3	9.6
75 and older	9.4	6.9	11.3
SMAM	24.1	25.2	23.0

The direct estimates of the mean age at first marriage for ever-married women in the age groups 35-39, 40-44 and 45-49 are shown in Figure 10.6. In the 1999 census, the question on age at first marriage was asked only for ever-married women 15 to 49 years. First marriage was defined in this census as the age at first marital union, whether or not the union has the benefit of a civil or religious ceremony.

The mean age at first marriage of the age group 40-44 is 23 years, while that of the age group 45-49 is 23.3 years, which is about the same as the 1999 SMAM of females. The corresponding average for the age group 35-39 is 22.2 years, or 0.8 year less than that of the 40-44 cohort. Figure 10.6

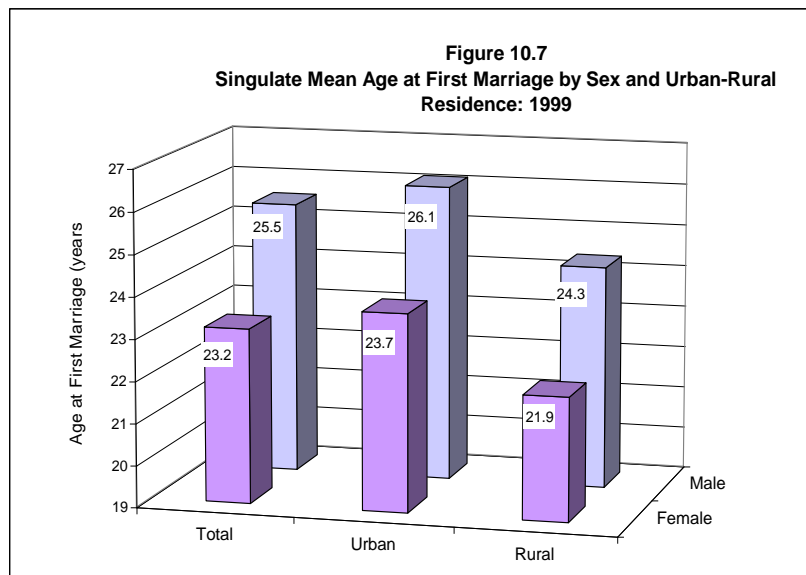


also reveals that rural women marry later than urban women. This finding runs counter

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to the widely observed trend in many countries that urban women marry later than rural women. One possible reason for such a result is the misreporting of age at first marriage. It is possible that rural women, particularly those who have been married more than once, had a greater difficulty recalling the age of their first marital union.

The Singulate Mean Age at First Marriage (SMAM) in Figure 10.7, on the other hand, shows the expected pattern, that is, rural females marry younger than urban females. Furthermore, Figure 10.7 shows that males in the Marshall Islands, whether they live in urban areas or in rural areas, enter into first marital unions at an older age than females.



Mortality

Information on children ever born (CEB) and children still living collected in the 1999 census are used in this chapter to estimate the life expectancy at birth, infant mortality rate (IMR) and crude death rate. The “West family” of the Regional Model Life Tables was used in the estimation. It is assumed that the West Family of model life tables best represents the age pattern of mortality in the Marshall Islands.

The proportions of children who have died by age group of women (column 7 of Table 10.5) are converted into probabilities of dying from birth to certain exact ages, denoted by $q(x)$ in Table 10.6 by applying multipliers, denoted by $k(i)$. The probability of surviving to exact age x , denoted by $l(x)$ in Table 10.6, is a complement of $q(x)$. The value of $q(2)$, which is the probability of dying before reaching exact age 2, is considered as the most robust in selecting the model life table which will provide the best estimate of the mortality level of the Marshall Islands. The estimate of $q(2)$ refers to approximately 2.3 years preceding the census-taking, hence, it provides a more recent estimate of mortality level than $q(3)$ and $q(5)$ (Table 10.7). The values of $q(3)$ and $q(5)$ refer to 4.4 years and 6.8 years prior to the census. On the other hand, the estimate of $q(1)$ refers to a little less than one year preceding the census but it is less reliable than $q(2)$ since it is based on a much smaller number of CEB and children still living.

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Table 10.5. Proportion of Children Still Living and Proportion of Live Born Children Who are Now Dead by Age Group of Women: 1999

Age Group	All women	Children Ever Born (CEB)	Mean CEB	Children Still Living	Proportion of Children Still Living	Proportion of live born children now dead
(1)	(2)	(3)	(4) ^{a/}	(5)	(6) ^{b/}	(7) ^{c/}
15-19	3115	569	0.1827	538	0.9455	0.0545
20-24	2257	2751	1.2189	2640	0.9597	0.0403
25-29	1846	4527	2.4523	4357	0.9624	0.0376
30-34	1562	5767	3.6921	5489	0.9518	0.0482
35-39	1389	6668	4.8006	6314	0.9469	0.0531
40-44	1190	6683	5.6160	6255	0.9360	0.0640
45-49	898	5497	6.1214	5188	0.9438	0.0562
All	12257	32462	2.6484	30781	0.9482	0.0518

a/ (4) = (3) / (2)

b/ (6) = (5) / (3)

c/ (7) = 1 - (6)

Table 10.6. Estimates of Probabilities of Dying and Surviving Based on the Proportion of Live Born Children Who are Now Dead by Age of Mothers

Age group	index i	a	b	C	k(i)	age x	q(x)	l(x)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15-19	1	1.1415	-2.7070	0.7663	1.1167	1	0.0608	0.93916
20-24	2	1.2563	-0.5381	-0.2637	1.0446	2	0.0421	0.95785
25-29	3	1.1851	0.0633	-0.4177	0.9870	3	0.0371	0.96294
30-34	4	1.1720	0.2341	-0.4272	0.9948	5	0.0480	0.95205
35-39	5	1.1865	0.3080	-0.4452	1.0114	10	0.0537	0.94631
40-44	6	1.1746	0.3314	-0.4537	0.9988	15	0.0640	0.93604
45-49	7	1.1639	0.3190	-0.4435	0.9913	20	0.0557	0.94428
P(1)/P(2)	0.149863							
P(2)/P(3)	0.497027							

Notes: Coefficients a, b, and c are taken from Table 47, p. 77 of UN Manual X.

P(1), P(2) and P(3) refer to the mean CEB of age groups 15-19, 20-24 and 25-29, respectively.

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Table 10.7. Estimated Reference period of Probabilities of Dying (q(x))

Age group	Age x	Parameter estimate	a	b	c	t(x)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
15-19	1	q(1)	1.0970	5.5628	-1.9956	0.94
20-24	2	q(2)	1.3062	5.5677	0.2962	2.29
25-29	3	q(3)	1.5305	2.5528	4.8962	4.35
30-34	5	q(5)	1.9991	-2.4261	10.4282	6.82
35-39	10	q(10)	2.7632	-8.4065	16.1787	9.54
40-44	15	q(15)	4.3468	-13.2436	20.1990	12.40
45-49	20	q(20)	7.5242	-14.2013	20.0162	15.34
P(1)/P(2)	0.149863					
P(2)/P(3)	0.497027					

Note: Coefficients a, b, and c are taken from Table 48, p. 78 of UN Manual X.

The notation t(x) refers to number of years preceding the census-taking.

The q(x) estimates in Table 10.6 are for both sexes only since the 1999 census did not ask how many of the children born to each woman are males and how many are females. Hence, the mortality levels for males and females were estimated based on the West mortality level consistent with the l(2) value for both sexes, and using the ratios of the West life tables mortality levels for males and females during the 2005-2010 period to that of the both sexes.

The estimates of the life expectancy at birth and IMR for 1999 suggest a decline in mortality during the intercensal period 1988-1999. Table 10.8 suggests that life expectancies at birth for males and females that were projected, based on the 1988 census results, to prevail during the 2005-2010 period were attained in a span of 11 years from 1988. The implied crude death rate of the estimated mortality levels for males and females is 4.9 deaths per 1000 population, which is lower than the 1988 figure and the projected crude death rate (CDR) for 2005-2010. The crude death rate is affected by the composition of a population with respect to age and sex and other characteristics. This may explain the difference in the CDR between 1999 and 2005-2010 period despite the similar levels of mortality of the two periods.

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Table 10.8 Estimates of Life Expectancy at Birth, Infant Mortality Rate, Crude Death Rate and Associated Mortality Levels in the West Model Life Tables, by Sex: 1988, 1999, 2005-2010

Mortality Indicators/ Sex	1999 ^{a/}	1988 ^{b/}	2005-2010 ^{c/}
Life Expectancy at Birth (years)			
Both Sexes	67.49	61.6	-
Males	65.72	60.6	65.76
Females	69.35	62.5	69.36
Infant Mortality Rate (per 1000 live births)			
Both Sexes	37.0	63.0	-
Males	41.4	66.0	-
Females	32.4	60.0	-
Crude Death Rate (per 1000 population) ^{d/}	4.9	8.9	6.0
West Mortality Level			
Both Sexes	20.81	-	-
Males	20.88	-	20.89
Females	20.74	-	20.75

Source: 1988 and 2005-2010 estimates are taken from the 1988 Census Report

Notes:

- a/ Figures were interpolated from West model life tables corresponding to 20.88 and 20.74 West model mortality levels for males.
- b/ Figures were derived using data on CEB and children still living.
- c/ Figures are projections, based on the 1988 census results.
- d/ The crude death rate is usually calculated by using the mid-year population as divisor. For the present exercise, the 1999 crude death rate was derived by dividing the total deaths, based on life tables age-specific death rates, by the total population enumerated in 1999.

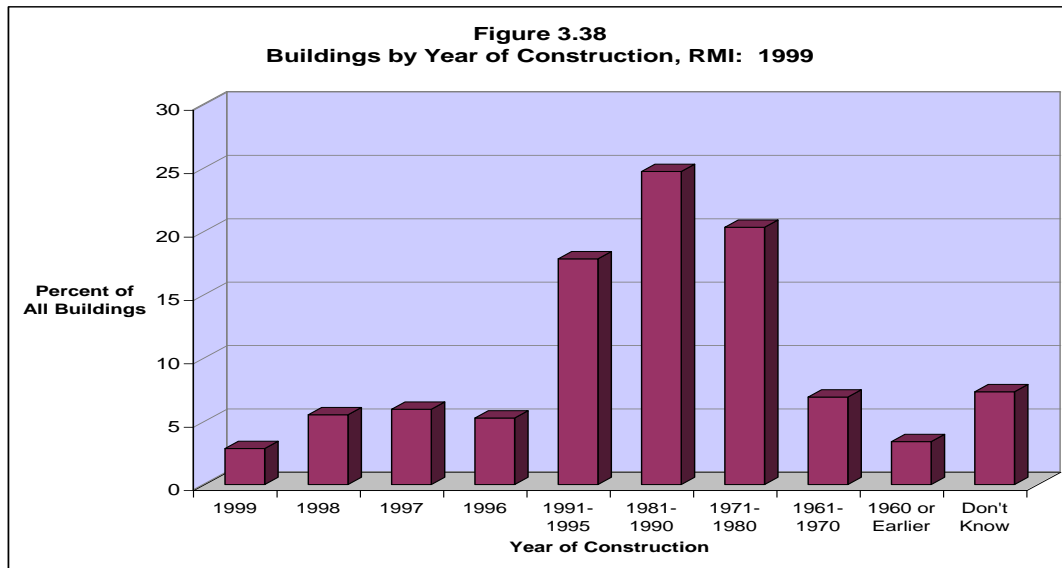
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HOUSEHOLDS AND HOUSING UNITS

Buildings

During the 1999 census, a total of 6,411 buildings with living quarters, whether these are occupied or vacant, were counted in the whole Marshall Islands. Of this number, 5,872 or 92 percent were occupied. Single houses constituted 86 percent of all buildings, while multi-unit residential houses accounted for 12 percent. In Kwajalein, multi-unit residential houses comprised a much higher percentage (33 percent).

One out of four buildings in the country was built in the 1980s. Another 31 percent were constructed in the 1970s or earlier, while 37 percent were built in the last nine years. More than half (58 percent) of all buildings were either in perfect condition or needing minor repair only. Another significant percentage (36 percent), however, needed major repair (Figure 3.38).



Ratio of Households and Occupants to Housing Unit

The number of occupied housing units counted in the 1999 census is 6,441 - 47.7 percent are located in Majuro, while 18.5 percent are in Kwajalein. The total number of households enumerated is 6,478. This translates into a ratio of households to occupied housing units of 1.01, which means that households sharing one housing unit rarely happen.

Housing units with 5 to 9 occupants comprised 47.1 percent of all housing units in the country, those with 10 to 14 occupants accounted for one-fifth, and those with 15 to 19 occupants, 6.2 percent. Similar percentages are comprised by housing units with only

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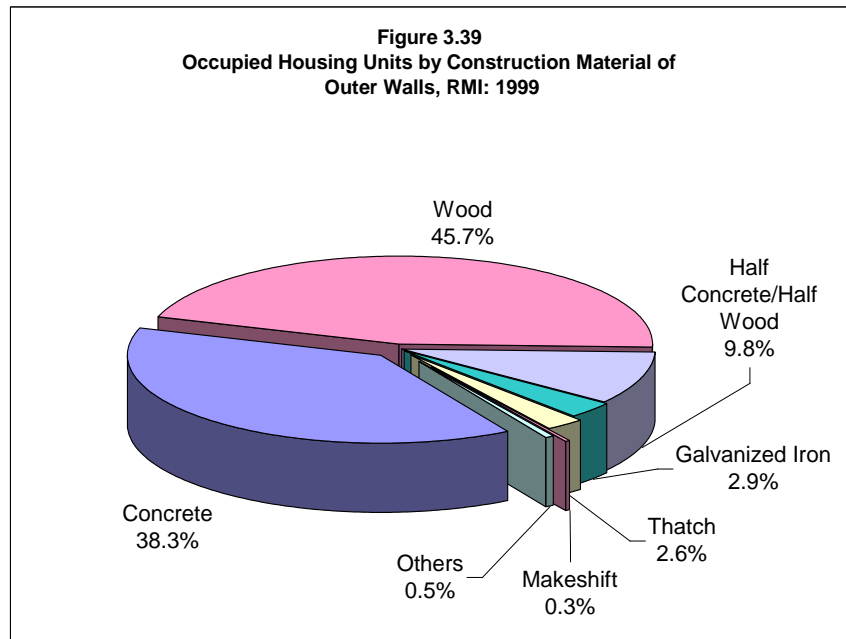
one occupant (3.3 percent) and those with 20 or more occupants (2.8 percent). In Kwajalein and in Lae, housing units with 20 or more occupants constituted around 6.0 percent of all housing units in these atolls.

At the national level, the ratio of population to occupied housing units is 7.8, or an average of eight persons per housing unit. This figure is the same as the average household size. At the sub-national level, this ratio varied from 6.2 in Ailuk to 10.1 in Lae. The ratios for Kwajalein and Majuro are 9.1 and 7.7, respectively.

Materials of Roofs and Outer Walls

Around eight out of 10 occupied housing units have roofs made of either galvanized iron or aluminum. At the atoll/island level, the percentage of housing units with these kinds of roof ranged from 22 percent in Enewetak to 100 percent in Lib. In Majuro, nine out of 10 housing units have iron or aluminum roofs.

The majority of housing units in the country have outer walls made of wood (45.6 percent), and those with concrete walls (38.2 percent) (Figure 3.39). A minimal number have outer walls made of less durable materials like thatch (2.6 percent) and makeshift materials (0.3 percent). Thatch is more commonly used in Mili than in any other atoll or island. In this atoll, one out of four housing units uses thatch for walls.



Floor areas of Housing Units

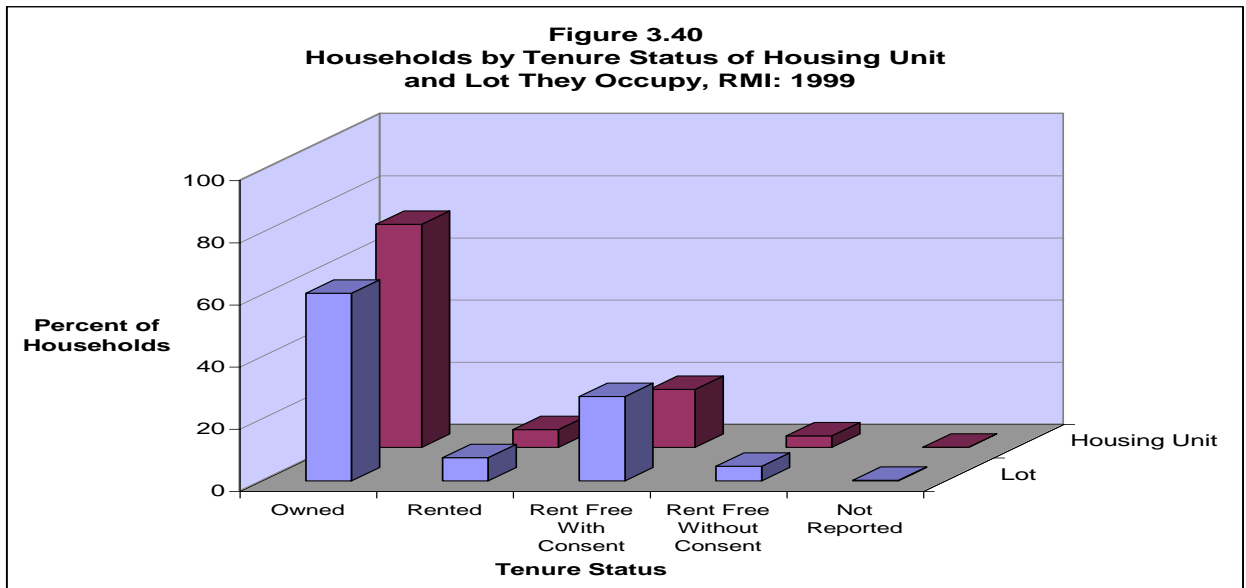
In 1999, the median floor area of occupied housing units was 310 square feet. This means that half of the occupied housing units in the country have floor areas of 310 square feet or smaller. Those with floor areas of less than 108 square feet comprised a little over one quarter (26.3 percent) of all occupied housing units. Housing units of these sizes are occupied by an average of 7 persons. By contrast, housing units with floor areas of 1,287 square feet and over, comprised 6.3 percent. The average number of people living in houses with floor areas ranging from 1,287 to 1,609 is about 9, while an average of 8 persons live in houses with a floor area of 1,610 or larger.

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Housing units in Majuro and in Kwajalein are, in general, bigger than the national average. The median floor area of occupied housing units in Majuro was 375 square feet and in Kwajalein, 434 square feet. There are 23.1 percent of housing units with floor areas smaller than 108 square feet in Majuro and 8.5 percent in Kwajalein. Both figures are lower than the national figure of 26.3 percent. By contrast, houses with floor areas larger than 1,286 square feet comprised 7.5 percent in Majuro and 9.0 percent in Kwajalein, both of which are higher than the national percentage of 6.3.

Tenure Status of Housing Units

There are 71.8 percent of households who own the housing unit they occupy (Figure 3.40). The other 28.1 percent constitute of those who rent their housing units (5.7 percent), occupy housing units rent-free with the consent of owners (18.7 percent), and occupy housing units for free without the consent of owners (3.7 percent). All households in Jabat, Lib and Namdrik own the housing units they occupy. By contrast, less than half of all households in Kwajalein (45.8 percent), Ujae (47.8 percent) and Wotho (27.8 percent) are owners of the housing units they occupy. Almost two out of five (38.8 percent) households in Kwajalein do not pay for their housing units but occupy them with the consent of the owners. In Ujae and Wotho, half of the households live in housing units that they do not own for free, and without the owners’ consent.



Tenure Status of Lot

Six out of 10 households in the Marshall Islands own the land they occupy, 27.2 percent occupy someone else’s land for free but with the consent of the owner (Figure 3.40). All households in Jabat, Kili and Lib own the lands they occupy. By contrast, Wotho has only 16.7 percent of its households owning the lands they occupy while

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Kwajalein has 35.2 percent and Majuro, 54.3 percent. Close to one-third (31.8 percent) of households in Majuro are occupying lands they do not own for free but with the owners' consent. In Kwajalein, such households comprise 46.5 percent. More than half of households in Ujae (52.2 percent) and Wotho (55.6 percent) occupy lands they do not own rent-free, without the consent of owners.

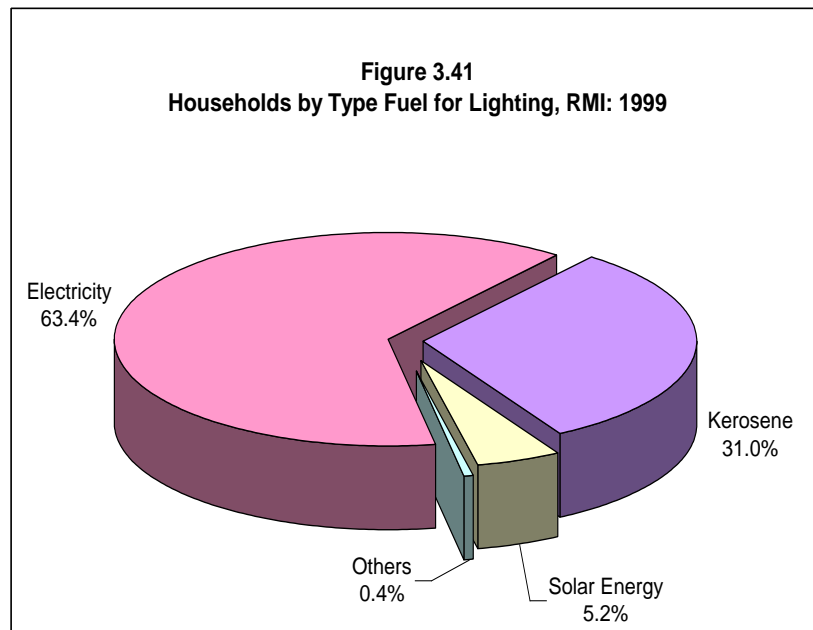
Acquisition of Housing Units and Source of Financing

Of the 4651 households who own the housing units they occupy, hereafter referred to as owner-households, 4,382 or 94 percent reported that they purchased their housing units, or these were constructed either by themselves, with or without the help of relatives and friends, or by hired workers or organized contractors. Those who inherited their housing units constitute 4.2 percent. The majority (84.7 percent) of the 4,382 owner-households purchased or constructed their housing units using their own resources. More than one-third (35.8 percent) availed of housing loans from various financial institutions - Marshall Islands Development Bank (9.1 percent of the 4,382 households), USDA Rural Economic (14.0 percent), Bank of Marshall Islands (6.1 percent), Bank of Hawaii (3.5 percent), and Bank of Guam (3.1 percent).

Fuel for Lighting

Sixty-three percent of all households in the country use electricity for lighting, 31 percent use kerosene and 5.2 percent use solar energy (Figure 3.41). The percentage of households using electricity for lighting varies widely among atolls and islands. All households in Kili use electricity for lighting, while none at all use it in Ebon, Jabat, Lae, Lib, Mejit, Namdrik and Wotho. Solar energy is the major source of fuel for lighting in Namdrik, Jabat and Utirik. Except Majuro and Kwajalein, kerosene is the most commonly used for lighting in all other atolls. In fact, all households in Lib and Mejit are using kerosene for lighting.

In Majuro, 88.3 percent of households use electricity and another 11 percent use kerosene. In Kwajalein, 89.8 percent use electricity while 9.6 percent use kerosene.



Fuel for Cooking

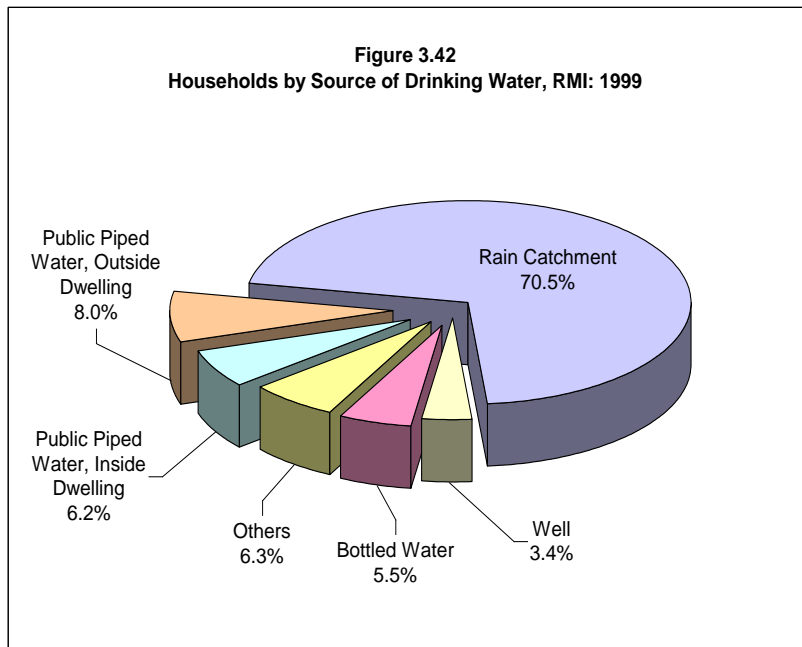
Kerosene is the most commonly used fuel for cooking in the country. This is being used in four out of 10 households, while wood, in three out of 10 households. Households using electricity constitute 26.3 percent and the remainder of the households use other types of fuel like propane gas (1.7 percent), charcoal (1.1 percent), and solar energy (0.2 percent).

In Kili, almost all households (98.9 percent) use electricity for cooking. In Majuro and Kwajalein, 35.9 percent and 38.4 percent, respectively, use electricity, and more than half use kerosene. In all other atolls and islands, most households use wood for cooking.

Main Source of Drinking Water

Seven out of 10 households obtain drinking water mainly from rain water catchments and tanks. There are 6.2 percent of households who use piped water inside the dwelling, which comes from a public or community water system, and 8.0 percent who use piped water from a public water system but fetched from outside the dwelling. Bottled water is used by 6.3 percent of all households, and wells, by 3.4 percent (Figure 3.42).

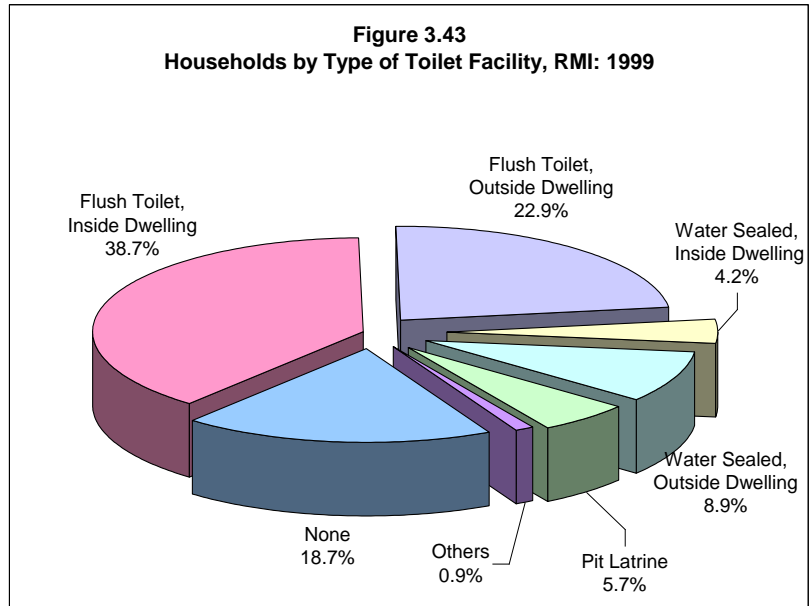
Except in Kwajalein, in all atolls and islands, rain waters from catchments and tanks is the most widely used source of drinking water. There are approximately more than 40 percent of households in Kwajalein who obtain drinking water mainly from the U.S. Military Base. This group constitutes of households who reported that they obtain drinking water mainly from piped water outside the dwelling (28.4 percent) and of those who reported that they obtain drinking water from other sources (20.3 percent).



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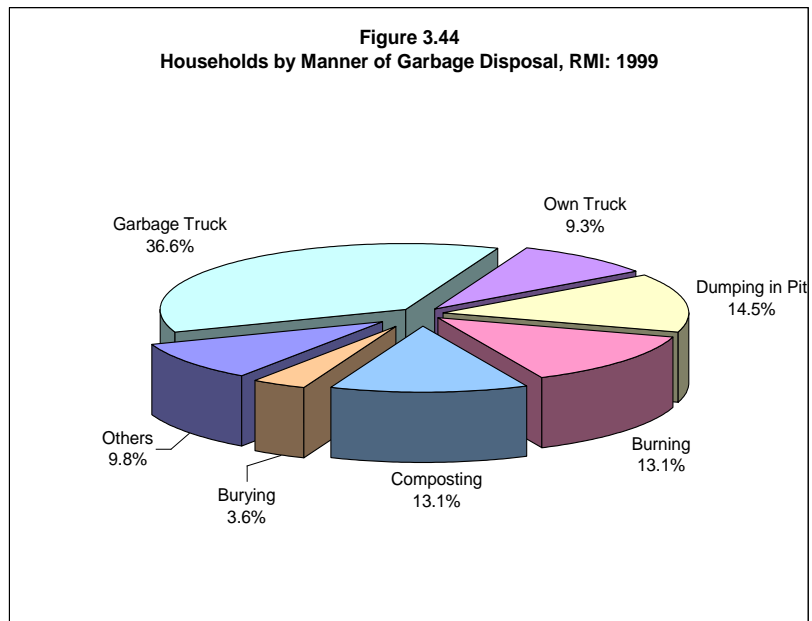
Types of Toilet Facility

Three-fourths of all households in the country use a sanitary type toilet facility. However, there are 18.7 percent of households who do not have any toilet facility (Figure 3.43). At the atoll/island level, the percentage of households without any toilet facility varies from 2.4 percent in Kwajalein to an extremely high 81.3 in Lae. In Kili, Lib, Likiep, and Mejit, all households have a toilet facility. However, all households in Lib and 86.6 percent of households in Likiep use pit latrine, which is not a sanitary type toilet facility.



Manner of Garbage Disposal

There are 36.4 percent of households who avail of garbage collection by trucks provided by the government, while 9.3 percent of households dispose their garbage using their own trucks (Figure 3.44). The other 54 percent of households usually dispose of their garbage by dumping in a pit (14.5 percent), burning (13.0 percent), composting (13.1 percent), burying (3.6 percent) and other means (9.8 percent), which include mainly feeding to animals. In Kwajalein, 72.7 percent of households dispose their garbage through garbage trucks provided by the government. The same manner of garbage disposal is used by 47.9 percent of households in Majuro. A very high percentage of households in Enewetak



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(91.7 percent), Ebon (77.9 percent), Aur (47.7 percent) and Jaluit (29.3 percent) reported animal feeding (presented as *others* in the statistical table) as means of garbage disposal. In Kili, 95.6 percent of households dispose of their garbage by using their own trucks.

Presence of Household Conveniences

The most popular household appliance in the Marshall Islands is the radio or a radio cassette recorder, which is present in 85.6 percent of households in the country. More than half (56.6 percent) of households own television sets and/or video cassette recorders and 54.8 percent have refrigerators/freezers. Households with a telephone or cell phone comprise 38.6 percent, those using air conditioning units, 30.4 percent, and those with microwave oven, 21.1 percent. Approximately two out of 10 households (21.1 percent) own a car or a van, and a slightly smaller number (19.4 percent) own a motorized boat or canoe.

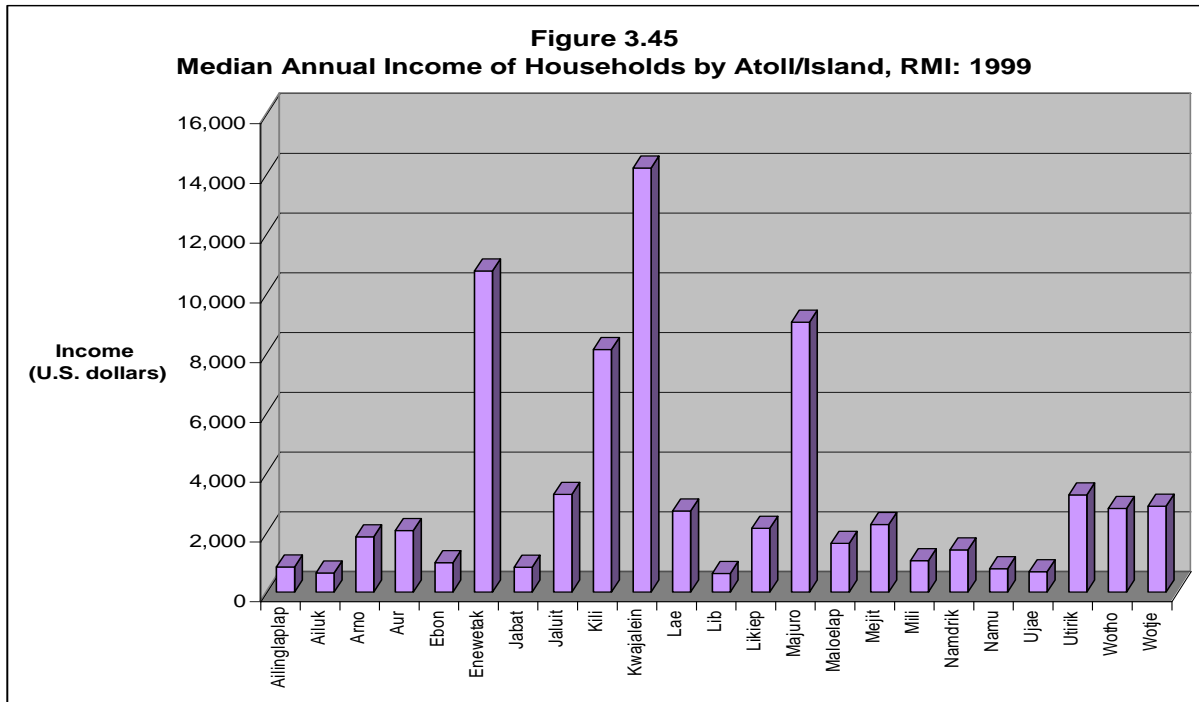
Households in Kili appear to be economically well-off in general. Radio/ radio cassettes, television sets/VCRs, refrigerators/freezers, and air conditioning units can be found in more than 90 percent of the households in the island, and microwave oven, in more than 80 percent of households. Likewise, a relatively high percentage of households in Majuro and Kwajalein reported owning the cited household conveniences.

The ownership of a car or a van is reported by a high 42.3 percent of households in Enewetak, by 33.5 percent of households in Majuro, 21.6 percent of households in Kili, and 11.8 percent in Kwajalein. The ownership of a motorized boat/canoe is most common in Lae where 82.6 percent of households had one. Likewise, more than half of households in Ailinglaplap (60.3 percent), Namu (59.1 percent) and Ebon (55.8 percent) own a motorized boat or canoe.

Household Income

Based on the 1999 census, the median annual income of households in the country is 6,840 U.S. dollars. At the sub-national level, the median annual income varies widely from 625 U.S. dollars in Lib to 14,195 U.S. dollars in Kwajalein. Aside from Kwajalein, three other atolls have a median annual household income higher than the national figure - Enewetak with 10,750 U.S. dollars, Majuro with 9,030 U.S. dollars and Kili with 8,114 U.S. dollars.

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Seventy-three percent of households in the country reported “wages and salaries” as their source of income, 29 percent cited “net receipts from business and profession” and a quarter cited “retirement/ survivor/disability pensions.” Enewetak has 89 percent of households availing of survivor or disability pensions and Utirik has 51 percent.