Cook Islands Population Census 2006

COOK ISLANDS

2006 CENSUS OF POPULATION AND HOUSING

FINAL REPORT

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ACKNOWLEDGEMENT

This report contains the final results of the 2006 Census of Population and Dwellings and presents the demographic, social and economic characteristics of the Cook Islands. It provides a measure of our country's development at a particular point in its national history. This census was conducted under the authority of the Statistics Act, 1966.

This is the ninth census undertaken by the Statistics Office, the first being in 1971. Prior to this the Cook Island censuses were conducted by the Registrar General of the Justice Department. Since the annexation of the Cook Islands by New Zealand regular census activities have been held every five years. It is certainly no simple task to visit and extract personal information from every individual and every household in the country. I would like to praise the people of the Cook Islands who gave their invaluable support and co-operation to this national undertaking.

I would also like to acknowledge the staff of the Statistics Office whose workload has been strenuous during the time of the census. They must be commended for undertaking this task while continuing to produce the wide range of statistical series. We would also like to acknowledge the invaluable assistance of the Statistics and Demography Programme of the Secretariat of the Pacific Community (SPC), particularly the assistance provided by Mr. Andreas Demmke.

This report is like every tool; it is only as good as what we make of it. I am confident you will find the report user friendly, and helpful in addressing the priority issues facing the Cook Islands.

Kia Manuia

Taggy Tangimetua
Government Statistician

SUMMARY OF MAIN INDICATORS

	Total	Males	Females
Total enumerated population (1 December 2006)	**19,342**	**9,816**	**9,526**
Resident population	**15,324**	**7,822**	**7,502**
Population density (number of people/km^2)	82		
Rarotonga	207		
Median age (in years)	27.5	26.4	28.5
Per cent of population younger than 15 years of age	31	31	30
Per cent of population 15–24 years of age (youth)	16	17	16
Per cent of population 15–59 years of age	58	58	59
Per cent of population 60 years and older	11	11	12
Age dependency ratio	72		
Visitors (tourists)	**4,001**	**1,979**	**2,022**
As proportion of			
Total population	20.8		
Rarotonga	26.4		
Urban population (Rarotonga)	13,890	7,030	6,860
Per cent urban (%)	71.8		
Households			
Number of private households (head of households)	4,237	3,164	1,073
Number of people in private households	15,874	8,086	7,788
Average household size	3.7		
Number of non-private households (institutions)	144		
Number of people in non-private households	3,468		
Fertility			
Crude birth rate (CBR), 2001-2006 (per 1000)	19.1		
Total fertility rate (TFR), 2006			2.5
Teenage fertility rate, 2006 (per 1000)			62
Mean age at childbearing, 2006			28.4
Average age at first marriage (SMAM$^+$), 2006		31.7	31.4

SUMMARY OF MAIN INDICATORS (continued)

	Total	Males	Females
Mortality			
Crude death rate (CDR), 2001-2006 (per 1000)	6.5		
Life expectancy at birth, 2001-2006	72.8	69.5	76.2
Infant mortality rate (IMR), 2001-2006 (per 1000)	14	19	9
International migration (resident population)			
Net migration (2001–2006)	-650	-380	-270
Labour force			
Employed population (number)	6,793	3,738	3,055
Paid workers (number)	6,706	3,685	3,021
Unpaid family workers (number)	87	53	34
Unemployed (number)	666	348	318
Non-labour force			
Students	820	423	397
Retired	923	499	424
Home duties	1,417	358	1,059
Labour force participation rate	70.2	76.1	64.2
Employment–population ratio	63.1	68.7	57.5
Unemployment rate (%)	8.9	8.5	9.4
Unemployment rate (%) – adjusted definition*	6.9	6.7	7.3
Education			
School enrolment rates of 5–15 year-olds (%)	97.4	96.4	98.5
Proportion of population aged 15 and older with:			
Trade and business certificate		10.9	3.8
Professional and higher certificate		0.4	0.9
Teachers & members of professional societies		0.6	1.8
Tertiary qualification		12.6	16.0
no qualification		71.2	73.6

[+] = singulate mean age at marriage (SMAM)
* = unemployed excludes people that were not available for work

EXECUTIVE SUMMARY

The aim of this report is to provide an analysis of the 2006 Cook Islands census data, and where possible, to compare the data with earlier censuses.

Analysis of census data provides timely and accurate information about demographic trends, patterns and levels. Through census data analysis, governments acquire comprehensive and consistent information about their country's population structure, population processes and socioeconomic characteristics. The population data provided in this report can be an effective tool for planning and policy-making. Understanding and anticipating population changes enables development planners to formulate effective programmes in areas as diverse as health, education, environment, poverty reduction, social progress, and economic growth.

The 2006 census determined that the total population was **19, 342**. This compares with 18,027 people in 2001, and represents an increase of 7.3% or 1,315 people. This population increase represents an **average annual growth rate of 1.4%,** or an increase of 263 people per year.

However, as the census was a *de facto* count, this number includes all persons present at census night (1 December 2006); residents and visitors; and includes 4,001 short term visitors, mainly tourists.

The 2006 resident population was only **15,324** people which compares to 15,017 people in 2001, representing an increase of 2% or 307 people; an **average annual growth rate of 0.4%,** or an increase of 61 people per year. The 2006 census enumerated 7,822 male and 7,502 female residents.

Rarotonga's population was 13,890, which constitutes 72% of Cook Islands' total population. Note that this count includes 3,647 short term visitors, accounting for 26% of the total Rarotonga population.

The average **population density was 82 people/km^2**. This varies widely between division and district. For example, Rarotonga had 207 people/km^2, while Mitiaro had only 10 people/km^2.

The census counted **4,237 private households** with 15,874 household members, which represents **3.7 people per household** on average. About 37% of all private households are one- or two person households. Eight per cent of all people lived in households with 10 or more people.

The 2006 census data show a **net flow of people from the Southern and Northern Group islands towards Rarotonga** during the 1 and 5-year period before the census. However, the main destination of migrants was most likely overseas locations.

The Cook Islands has a relatively young population with a **median age of 27.5** years. About 31% of the population was younger than 15 years of age, and 11% were 60 years and older.

The **age dependency ratio** was calculated using the 15–59 year-old age group as the "working age population". For every 100 people of working age, **72** were in the **age dependent** category.

The total fertility rate (TFR) — the average number of births per woman — declined from about 2.9 in 2001 to about **2.5 in 2006.**

The **infant mortality rate (IMR)** was estimated at **14**; 19 for males and 9 for females. This estimate is an improvement to the 1996-2001 level when the IMR was estimated at 21.

Based on the *number of registered deaths* by age and sex, and an indication of the number of deaths of residents occurring overseas, **life expectancies at birth** were estimated to be **69.5** and **76.2** years for males and females**,** respectively.

The estimated mortality indicators show more positive mortality indicators for females than for males, with females expected to live, on average, almost seven years longer than males.

Net international migration is estimated indirectly by applying the demographic balancing equation to the known 2001–2006 intercensal population growth rate, and estimated CBR and CDR. The **net migration rate** is estimated at **-8.6 per 1,000** population, which equals on average -130 people per year during the intercensal period 2001–2006.

Women marry at slightly younger ages than men. The average **age at marriage was 31.7 and 31.4 years for males and females,** respectively.

The Cook Islands Christian Church (CICC) is the **dominant religious denomination** in the Cook Islands, and 53% of the population is affiliated with the **CICC**. The Roman Catholic Church is the second largest, with 17%, followed by the Seven Day Adventists with 8% of the population.

The **ethnic composition** was as follows: 91% were either Cook Islands Maori or Part Cook Islands Maori, 3% were of New Zealand European descent, and another 2% were Australian. However, about 12% of Rarotonga's resident population were of *foreign descent* (other than Cook Islands Maori or Part Cook Islands Maori).

Data on **disabilities or health problems** indicate that **7% of the resident population** reported a **disability or health problem**. The proportion of the population with a disability increases with age, and there is very little difference in the proportion of males and females with a disability.

The 2006 census questionnaire included a question on **smoking habits** of the population aged 15 years and older**.** It was found that **29% of the population smokes on a daily basis;** 34% of males and 25% of females.

School enrolment data show that **97.4%** of children in the age group 5–15 years (compulsory school age) were enrolled in schools. School enrollment rates declined rapidly after the age of 15, and about 32% of 16 year-olds were not attending school. In general, female school enrollment rates were higher than male enrollment rates.

Data on **educational attainment** indicate that in 2006, about 7% of males and 8% of females 5 years and older had completed secondary education. Another 69% said that they attended secondary education but did not (yet) complete the level. Educational levels in general were much higher in Rarotonga than in the Southern and Northern Group islands.

With respect to **educational qualifications** gained by the population 15 years and older, the data show that there was a higher proportion of males with a *trade and business certificate* than females, the proportion were 10.9% and 3.8% respectively. On the other hand, there were a higher proportion of females (16%) than males (12.6%) with a *tertiary qualification.* However, the vast majority of the

resident population did not have a trade, vocational or professional qualification, which was 71.2 per cent of males and 73.6 per cent of females.

Although a high percentage (70%) of the Cook Islands' population 15 years and older was **economically active** (part of the labour force), a smaller proportion (63%) received a regular **paid income**; this group consisted of 69% males and 57% females.

There were 666 people that categorized themselves as **unemployed**; 348 males and 318 females. This translates into an **unemployment rate** of 8.9% for the total population, and 8.5% for males and 9.4% for females. However, only 506 of these people (267 males and 239 females) said that they were available for work if a job was offered to them. According to these figures the unemployment rate would be only 6.9%: 6.7% for males and 7.3% for females. According to the international definition of unemployment, only these people would be classified as unemployed because they look for work and indicated that they were available for work.

Twenty seven per cent of all households obtained their **drinking water** from rainwater tank, 25% from piped water and 24% from bottled water. About 83% of all households have their main source of water from the public water main and also piped inside their dwelling.

The most frequently recorded **toilet facility** used by **86%** of all Cook Islands households was a **flush toilet.** There were significant differences from Rarotonga to Southern Group Islands and to the Northern Group in terms of toilet facility. Almost all households in Rarotonga had a flush toilet, in the Southern group flush toilets still dominates but pit toilets were still used a lot, and in the Northern Group Islands lagoon toilets were largely used in Nassau and Pukapuka Islands as Manihiki, Palmerston, Penrhyn and Rakahanga had a high proportion of households using flush toilets.

The main source of **lighting** in the Cook Islands was **electricity,** used by **94%** of all households, except for Palmerston and Rakahanga who relied on generator and Pukapuka used solar power.

The main energy source for **cooking** for 81% of all households was **gas**. Although the use of gas was most common in the Cook Islands, Nassau and Pukapuka households predominantly used firewood for cooking.

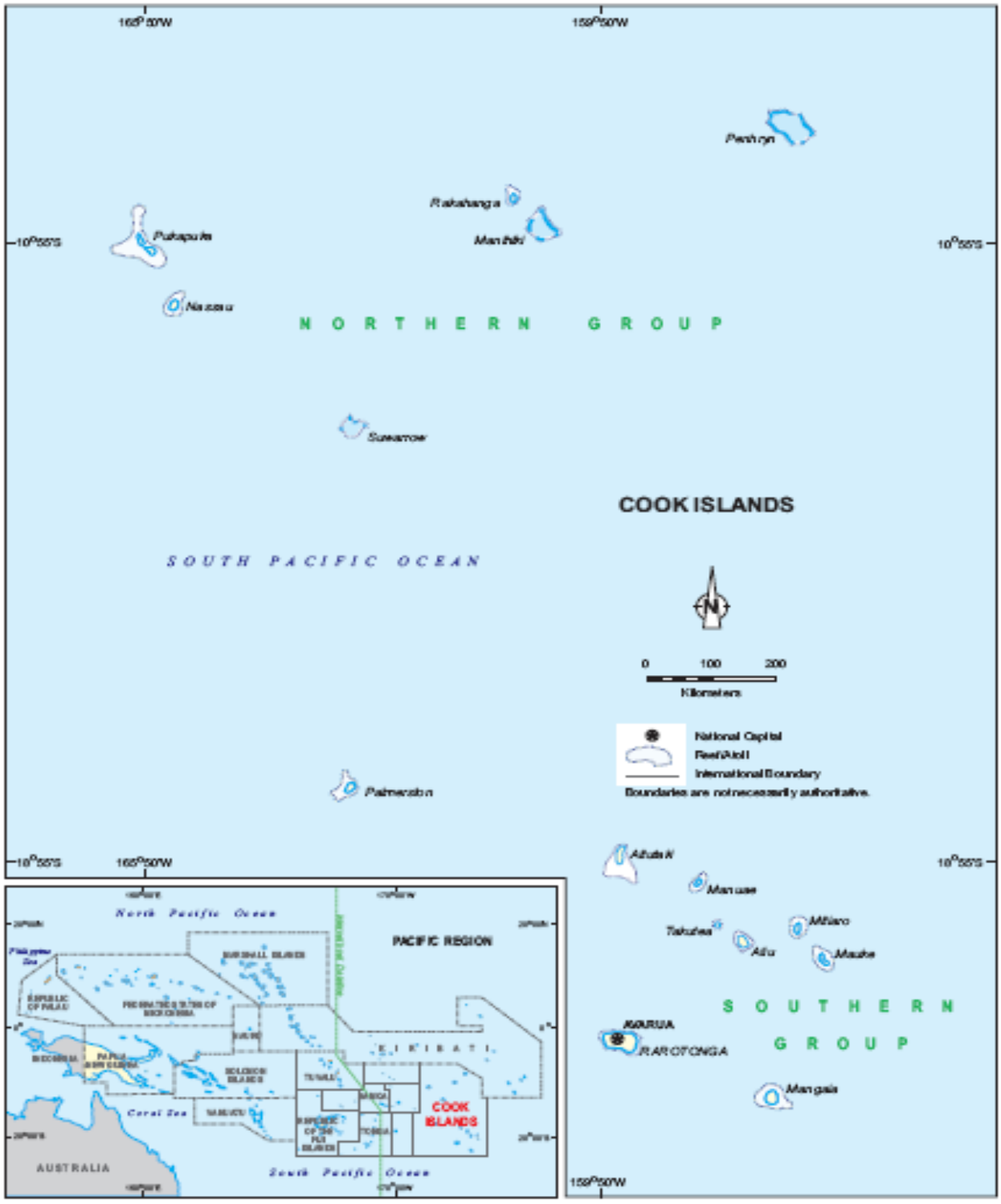
About **71% of all households recycle their waste** and about three-quarter of the households' burn their waste.

Information on **tenure** reveals that **57%** of all households **owned their dwelling** outright, while 16% rented their dwelling, and 14% resided in their dwelling rent-free.

Seventy six per cent of all households in the Cook Islands have **phone/fax** in their homes, and another 19% have Internet at home. About 10% of all households did **not have any means of communication** which was the case for all households in Palmerston and Nassau.

Regarding the availability of **household items,** a higher proportion of households in Rarotonga (compared with the Southern and Northern Group islands) used items such as a hot water system, motor vehicle, refrigerator, washing machine, TV, video/DVD player, mobile phone, and computers. Several items were used by a higher proportion of households in the Southern and Northern Group islands than in Rarotonga. For example, boats and outboard motors were more common in Manihiki, Penrhyn and Palmerston

MAP OF THE COOK ISLANDS



1. INTRODUCTION

This report provides an analysis of the Cook Islands 2006 census data and where data are available, presents comparisons with earlier census data.

1.1 Geographic setting

The self-governing territory of the Cook Islands consists of 15 islands and atolls that are spread over an area of 2 million km^2 in the South Pacific with a total land area of 23,261 hectares. The Cook Islands is defined as all the islands between 156-167° West and 8-23° South. The islands are geographically divided into two groups, commonly referred to as the Southern and Northern Group islands. The islands of Rarotonga, Mangaia, Atiu, Mauke and Mitiaro are the emergent peaks of extinct volcanoes. The islands of Takutea, Manuae, Palmerston, Penrhyn, Manihiki, Rakahanga, Pukapuka, Nassau and Suwarrow are atolls, which are coral reefs around a lagoon on the top of submerged volcanoes. Aitutaki is part volcano and part atoll.

The Cook Islands has an exclusive economic zone covering an area of 2 million km^2 or 750,000 $m^{2.}$ Rarotonga, with a total land area of 6,719 hectares is the largest and most populous island; it is also the administrative centre of the Cook Islands.

1.2 Background to report

This report is a collaborative effort between the Cook Islands Statistics Office (CISO) — particularly the Statistics Officer Tanga Morris — and the Statistics and Demography Programme of the Secretariat of the Pacific Community (SPC). For this purpose, Ms Morris visited SPC in Noumea, New Caledonia from 12–30 April 2010, and Ms Taggy Tangimetua, the Cook Islands Government Statistician, and her staff reviewed and commented on the final draft of this report.

This report is based on data collected during the population census enumeration, with 1 December 2006 being census day. The main purpose of the report is to:

- provide a general overview of the vast amount of detailed information that is available from the 2006 census enumerations;
- generate interest, curiosity, and a desire for more detailed information, especially for the Cook Islands decision-makers and the general public; and
- enhance the decision-making process by policy-makers.

Data users are encouraged to contact either CISO or SPC's Statistics and Demography Programme for further information.

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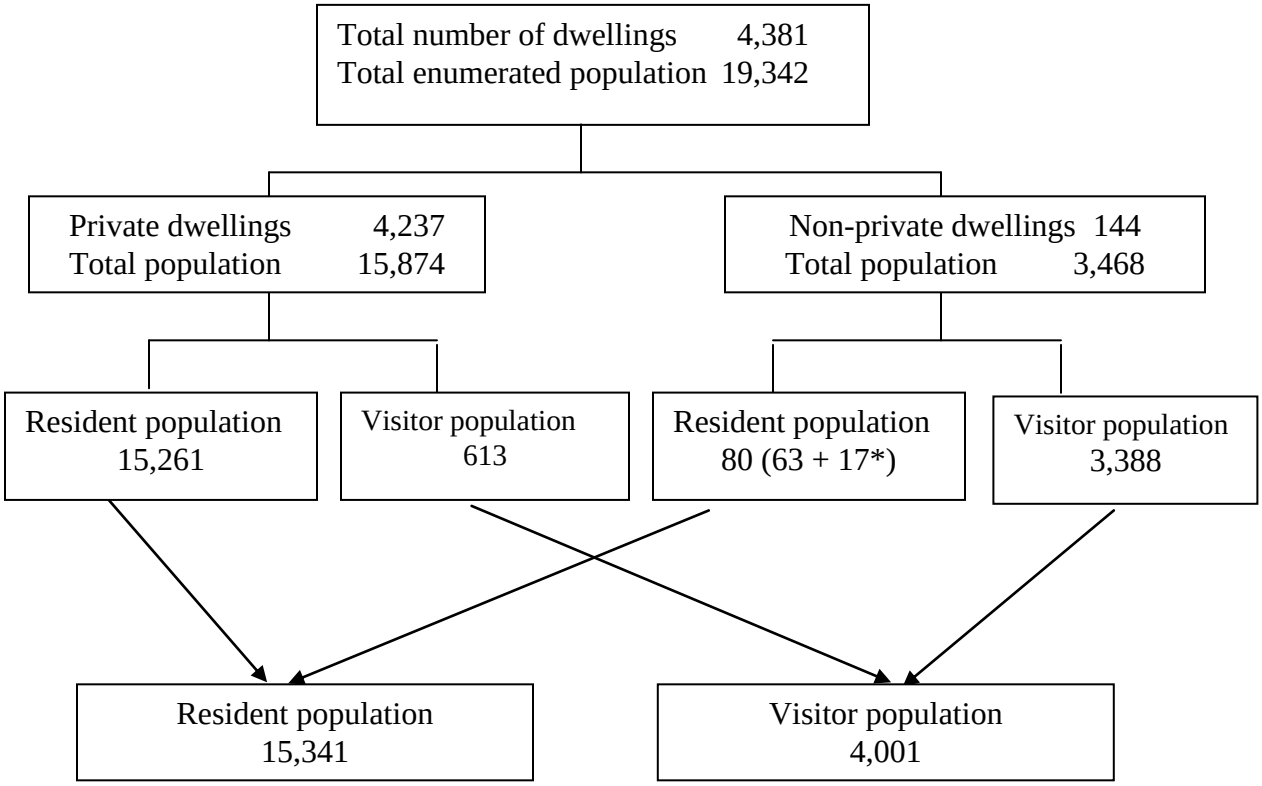
2. POPULATION SIZE, TREND, DISTRIBUTION AND STRUCTURE

2.1 Overview: Population and household count and composition

The total enumerated population of 19,342 people included 15,341 Cook Islands permanent residents and 4,001 visitors (non-residents). In this report the resident population is referred to only 15,324 residents, who answered the full census questionnaire. 17 residents (15 males and 2 females), who were imprisoned at the time of the census, were excluded.

Figure 1: Population and household count and composition



*The 17 inmates has been excluded from the analysis of Resident Population

2.2 Population size and trend

The total population of the Cook Islands stood at 19,342 in 2006. This count included a large number (4,001 persons) of temporary residents such as tourists or other short-term visitors. The resident population of the Cook Islands, those who usually lived in the Cook Islands for at least one year, was 15,324 persons at the time of the census, an increase of 307 people since the 2001 census (Figs.2 and 3, and Tables 1 and 2).

Figure 2: Total population size, Cook Islands: 1902–2006

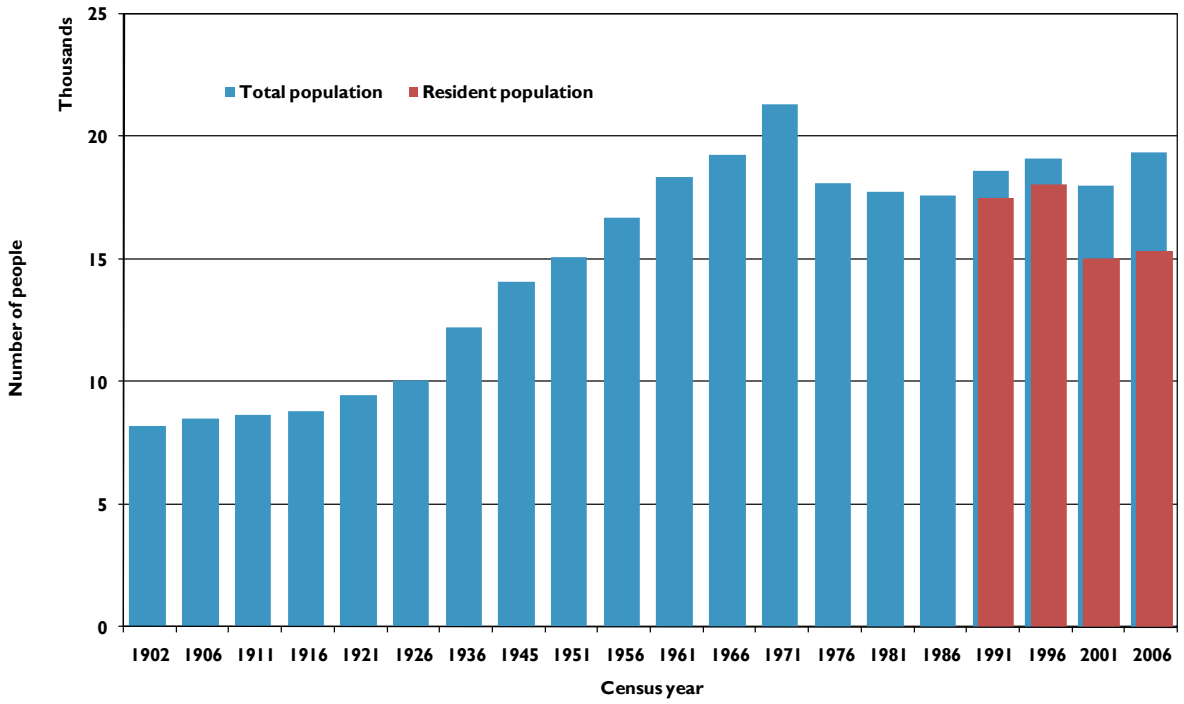
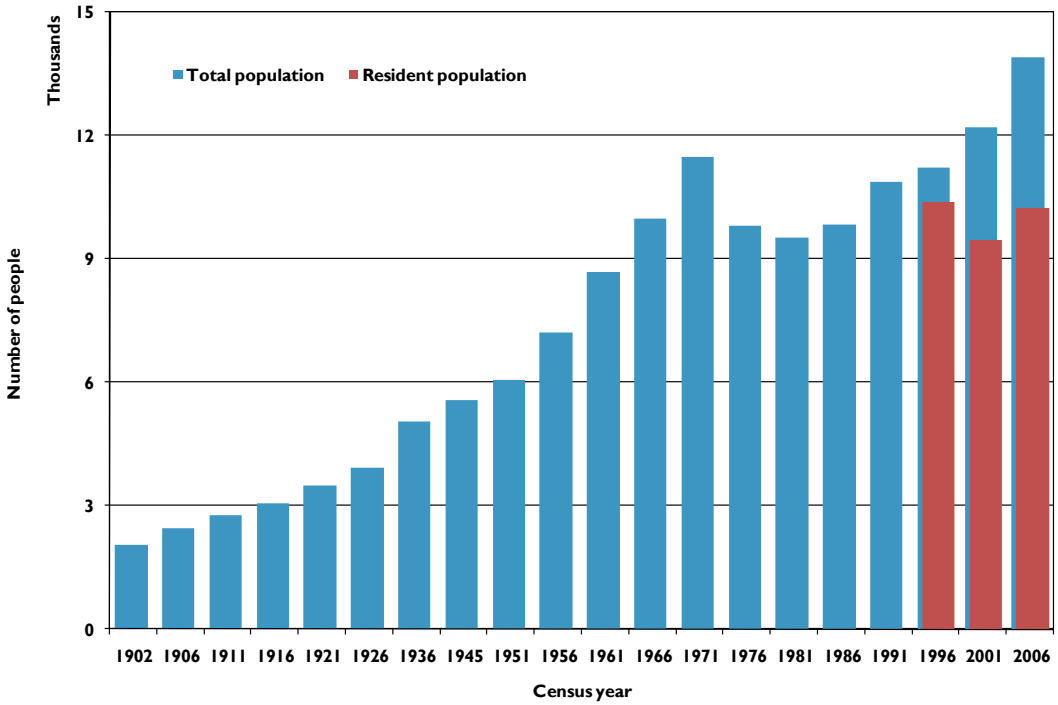


Figure 2 shows the population of the Cook Islands from 1902 to 2006 (App.10). It can be seen from this graph that the population has continuously increased from the beginning of the last century reaching 21,322 people in 1971. After that, during the early 70s, the population has declined quite dramatically, especially between 1971 and 1976, as a result of the opening of Rarotonga's International Airport in 1974, when many people took the opportunity to migrate to New Zealand.

Between 1986 and 1996, the population has slowly recovered and was growing by about 150 people per year. However, since 1996 the population decreased again, especially its resident population. One contributing factor to this decline was the Government's restructure of the public service whereby the number of public servants was reduced from 3,000 to less than 2,000 employees. Despite the overall trend of a declining Cook Islands population, Rarotonga's total population has steadily grown since the 1980s.

Figure 3: Total population size, Rarotonga: 1902–2006



The opposite is true for the outer islands; especially the population of the Southern Group islands has markedly decreased since the 1970s.

The total population increased by 1,315 people since the 2001 census when 18,027 people were enumerated. This is an increase of 7.3 per cent during the intercensal period, and represents an average annual rate of growth of 1.4 per cent.

The resident population however, only increased by 307 people during the intercensal period 2001-2006 which translates into an average annual growth rate of only 0.4%

Population growth has varied extensively by region and island (Tables 1 and 2, Figs. 2-6). While the Cook Islands' overall growth rate was 0.4% per annum, Rarotonga's population grew much faster at a rate of 1.6%, while the Southern and Northern Group Islands experienced negative growth (i.e. population loss). Especially the islands of Mauke, Pukapuka, Manihiki, Rakahanga, and Penrhyn experienced significant population losses. The only 3 outer islands with a positive growth were Aitutaki, Palmerston and Nassau (Fig.6).

It should be noted that the visitor population increased noticeably during the period 1996 to 2006 which is due to an increase in the number of tourists visiting the Cook Islands. The number of visitors increased from 1,032 in 1996, to 3,010 in 2001, and further to 4,001 in 2006 (Table 3). This means that every 5th person was a visitor or temporary resident in the Cook Islands in 2006. More than 90% of visitors were enumerated in Rarotonga, where more than a quarter of the total population was a short term visitor (tourists).

Figure 4: Total population size, Southern Group islands: 1902–2006

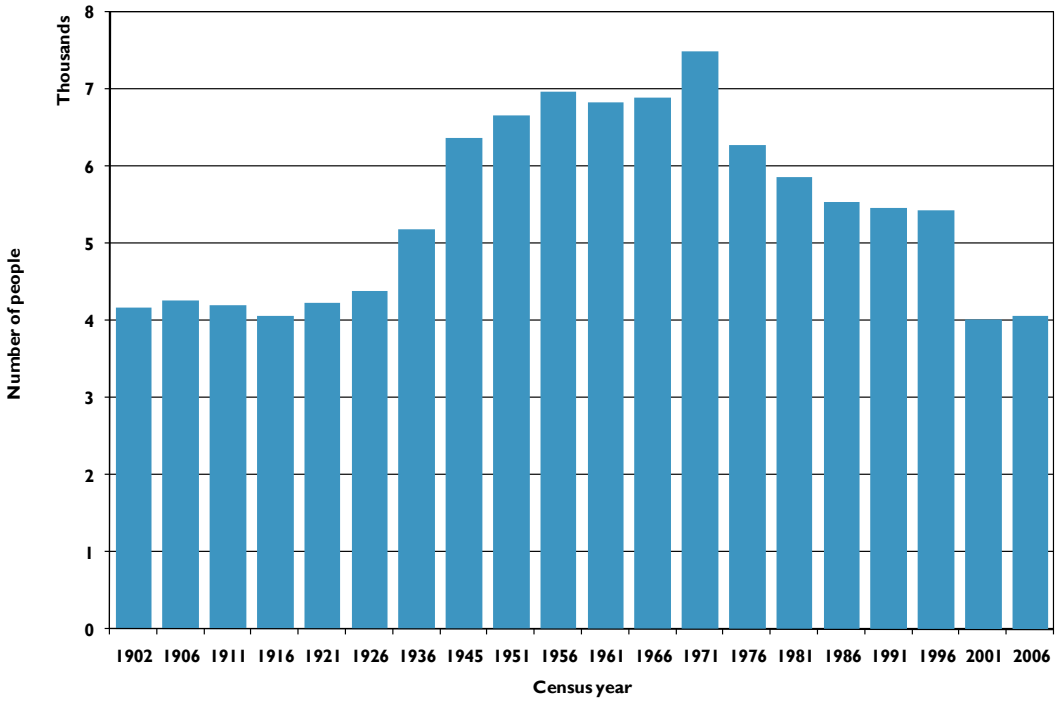


Figure 5: Total population size, Northern Group islands: 1902–2006

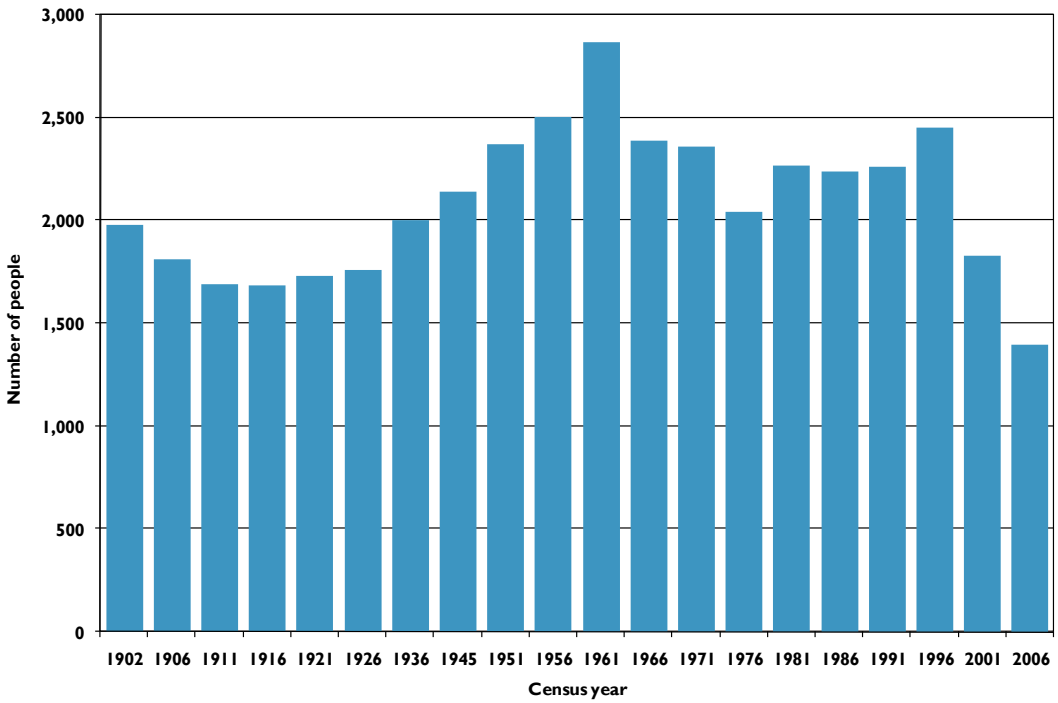


Table 1: Total population size and growth by region and island, Cook Islands: 1996, 2001 and 2006

Island/Region	Total population			Population change					
				(in numbers)		(in %)		Annual growth rate	
	1996	2001	2006	1996-2001	2001-2006	1996-2001	2001-2006	1996-2001	2001-2006
Cook Islands	**19,103**	**18,027**	**19,342**	**-1,076**	**1,315**	**-5.6**	**7.3**	**-1.2**	**1.4**
Rarotonga	**11,225**	**12,188**	**13,890**	**963**	**1,702**	**8.6**	**14.0**	**1.6**	**2.6**
Southern Group	**5,424**	**4,013**	**4,055**	**-1,411**	**42**	**-26.0**	**1.0**	**-6.0**	**0.2**
Aitutaki	2,389	1,946	2,235	-443	289	-18.5	14.9	-4.1	2.8
Mangaia	1,108	744	640	-364	-104	-32.9	-14.0	-8.0	-3.0
Atiu	956	623	570	-333	-53	-34.8	-8.5	-8.6	-1.8
Mauke	652	470	391	-182	-79	-27.9	-16.8	-6.5	-3.7
Mitiaro	319	230	219	-89	-11	-27.9	-4.8	-6.5	-1.0
Manuae	0	0	0	0	0	0.0	0.0	0.0	0.0
Northern Group	**2,454**	**1,826**	**1,397**	**-628**	**-429**	**-25.6**	**-23.5**	**-5.9**	**-5.4**
Palmerston	49	48	63	-1	15	-2.0	31.3	-0.4	5.4
Pukapuka	779	664	507	-115	-157	-14.8	-23.6	-3.2	-5.4
Nassau	99	72	75	-27	3	-27.3	4.2	-6.4	0.8
Manihiki	668	515	356	-153	-159	-22.9	-30.9	-5.2	-7.4
Rakahanga	249	169	141	-80	-28	-32.1	-16.6	-7.8	-3.6
Penrhyn	606	357	255	-249	-102	-41.1	-28.6	-10.6	-6.7
Suwarrow	4	1	0	-3	-1	-75.0	-100.0	-27.7	-

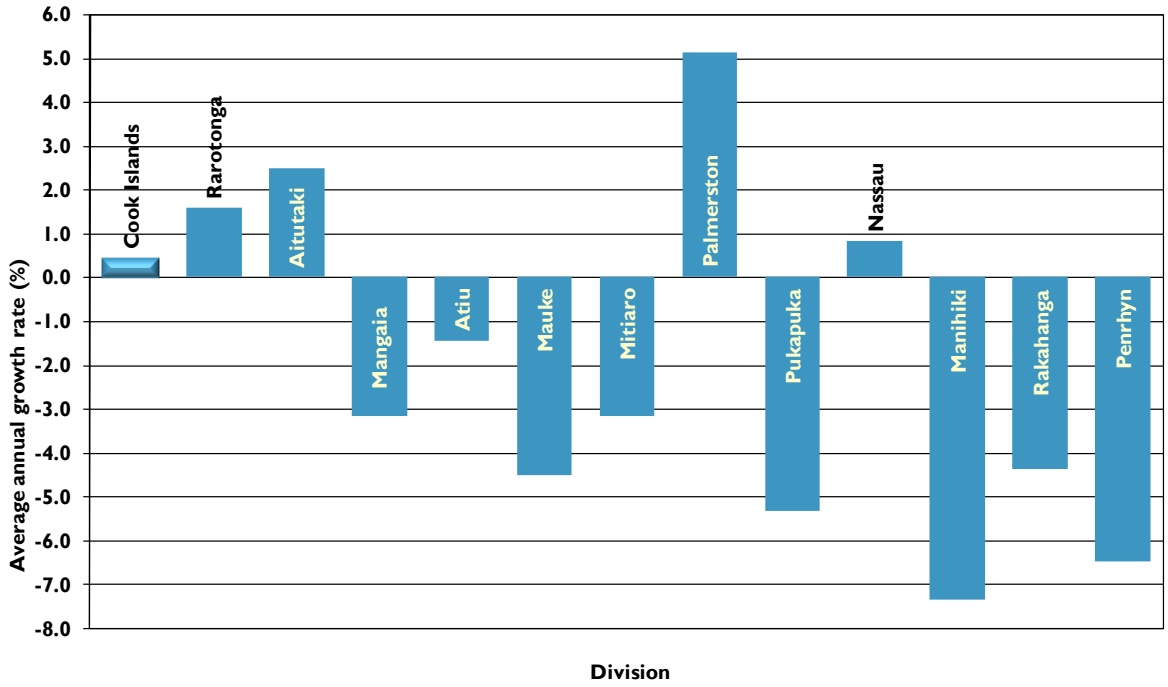
Table 2: Resident population size and growth by region and island, Cook Islands: 1996, 2001 and 2006

Island/Region	Resident population			Population change					
				(in numbers)		(in %)		Annual growth rate	
	1996	2001	2006	1996-2001	2001-2006	1996-2001	2001-2006	1996-2001	2001-2006
Cook Islands	**18,071**	**15,017**	**15,324**	**-3,054**	**307**	**-16.9**	**2.0**	**-3.7**	**0.4**
Rarotonga	**10,374**	**9,451**	**10,226**	**-923**	**775**	**-8.9**	**8.2**	**-1.9**	**1.6**
Southern Group	**5,258**	**3,777**	**3,729**	**-1,481**	**-48**	**-28.2**	**-1.3**	**-6.6**	**-0.3**
Aitutaki	2,272	1,743	1,975	-529	232	-23.3	13.3	-5.3	2.5
Mangaia	1,083	739	631	-344	-108	-31.8	-14.6	-7.6	-3.2
Atiu	942	600	558	-342	-42	-36.3	-7.0	-9.0	-1.5
Mauke	643	469	372	-174	-97	-27.1	-20.7	-6.3	-4.6
Mitiaro	318	226	193	-92	-33	-28.9	-14.6	-6.8	-3.2
Manuae	0	0	0	0	0	0.0	0.0	0.0	0.0
Northern Group	**2,439**	**1,789**	**1,369**	**-650**	**-420**	**-26.7**	**-23.5**	**-6.2**	**-5.4**
Palmerston	49	48	62	-1	14	-2.0	29.2	-0.4	5.1
Pukapuka	778	662	507	-116	-155	-14.9	-23.4	-3.2	-5.3
Nassau	99	72	75	-27	3	-27.3	4.2	-6.4	0.8
Manihiki	656	497	344	-159	-153	-24.2	-30.8	-5.6	-7.4
Rakahanga	249	158	127	-91	-31	-36.5	-19.6	-9.1	-4.4
Penrhyn	604	351	254	-253	-97	-41.9	-27.6	-10.9	-6.5
Suwarrow	4	1	0	-3	-1	-75.0	-100.0	-27.7	-

Table 3: Visitor population size and distribution by regions and islands, Cook Islands: 1996, 2001 and 2006

Island/Region	Visitor population			As percent of total population			Distribution
	1996	2001	2006	1996	2001	2006	2006
Cook Islands	**1,032**	**3,010**	**4,001**	**5.4**	**16.7**	**20.8**	**100.0**
Rarotonga	**851**	**2,737**	**3,647**	**7.6**	**22.5**	**26.4**	**91.2**
Southern Group	**166**	**236**	**326**	**3.1**	**5.9**	**8.0**	**8.1**
Aitutaki	117	203	260	4.9	10.4	11.6	6.5
Mangaia	25	5	9	2.3	0.7	1.4	0.2
Atiu	14	23	12	1.5	3.7	2.1	0.3
Mauke	9	1	19	1.4	0.2	4.8	0.5
Mitiaro	1	4	26	0.3	1.7	11.9	0.6
Northern Group	**15**	**37**	**28**	**0.6**	**2.0**	**2.0**	**0.7**
Palmerston	-	-	1	0.0	0.0	1.6	0.0
Pukapuka	1	2	-	0.1	0.3	0.0	0.0
Nassau	-	-	-	0.0	0.0	0.0	0.0
Manihiki	12	18	12	1.8	3.5	3.4	0.3
Rakahanga	-	11	14	0.0	6.5	9.9	0.3
Penrhyn	2	6	1	0.3	1.7	0.4	0.0
Suwarrow	-	-	-	0.0	0.0	0.0	0.0

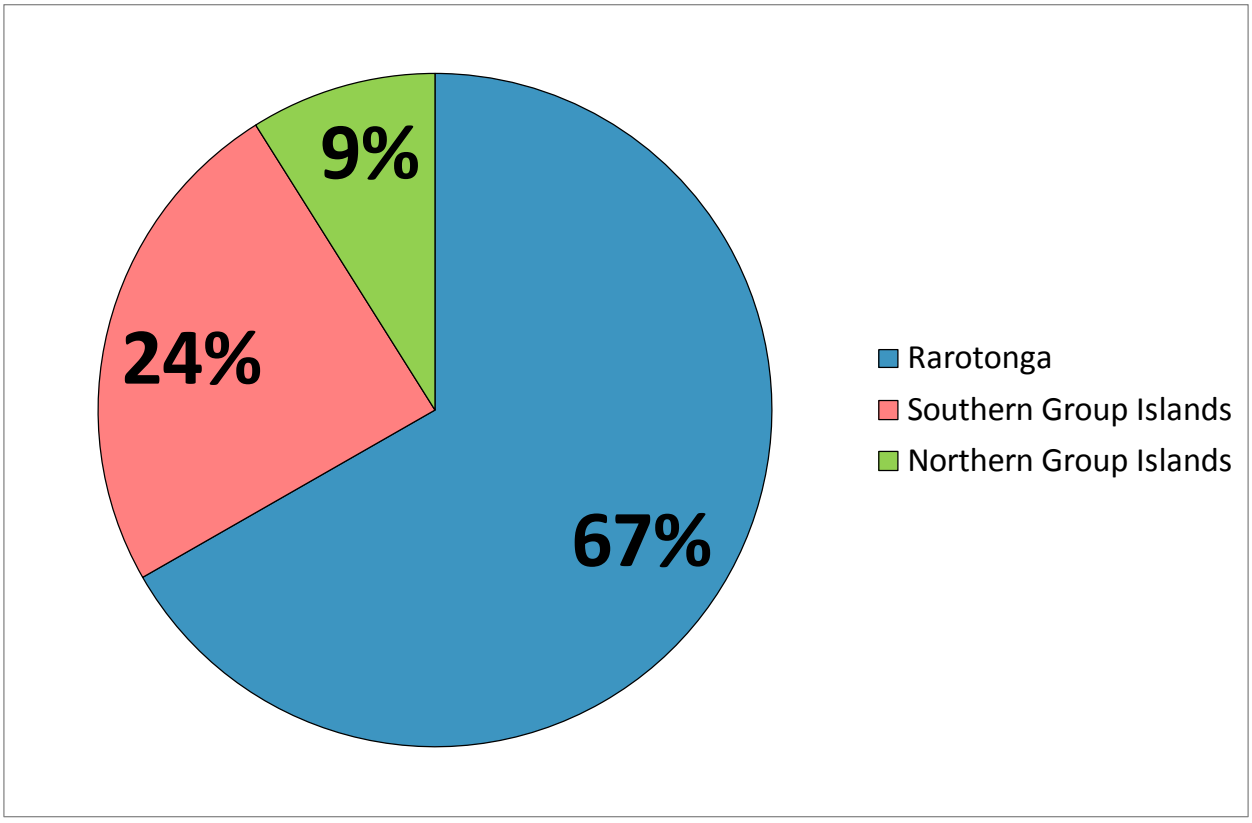
Figure 6: Average annual population growth rate (%) of the resident population by island, Cook Islands: 2001–2006



2.3 Population distribution

In 2006, 67% of the Cook Islands' resident population lived in Rarotonga, which represents an increase from 2001 when only 63% lived there. The proportion of the Cook Islands population that lived in the Southern and Northern Group islands was 24% and 9% respectively (Fig.7). In 2001, 25% and 12% of the resident population lived in these Island Groups.

Figure 7: Resident population distribution by region (%), Cook Islands: 2006



2.4 Population density

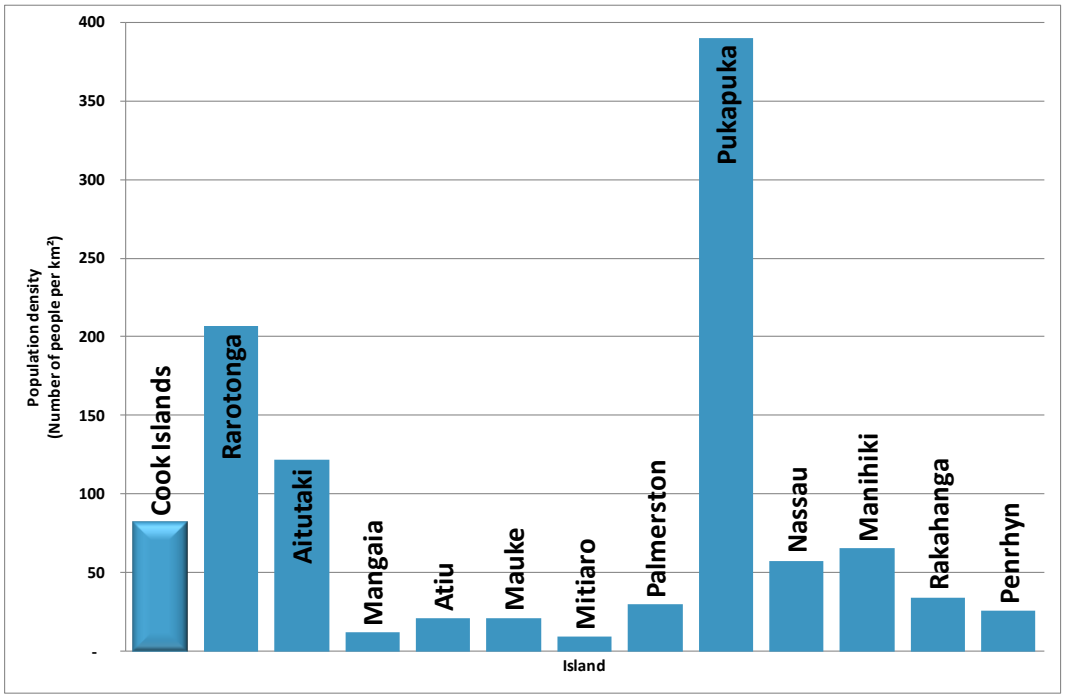
According to the 2006 census, the Cook Islands' average population density was 82 people/km^2 (Table 4 and Fig.8), an increase from 76 in 2001.

Population density varied widely by region and island. While there were 207 people/km^2 in Rarotonga, there were only 28 and 57 people/km^2 in the Southern and Northern Group islands respectively. The most densely populated island was Pukapuka with 390 people/km^2 and the least populated island was Mitiaro with only 10 people/km^2.

Table 4: Population density (number of people/km^2) by region/island, Cook Islands: 2006

Region/Island	Land area (km^2)	Total population	Population density
Cook Islands	**236.7**	**19,342**	**82**
Rarotonga	67.1	13,890	207
Southern Group	143.9	4,055	28
Aitutaki	18.3	2,235	122
Mangaia	51.8	640	12
Atiu	26.9	570	21
Mauke	18.4	391	21
Mitiaro	22.3	219	10
Manuae	6.2	-	-
Northern Group	24.4	1,397	57
Palmerston	2.1	63	30
Pukapuka	1.3	507	390
Nassau	1.3	75	58
Manihiki	5.4	356	66
Rakahanga	4.1	141	34
Penrhyn	9.8	255	26
Suwarrow	0.4	-	-

Figure 8: Population density (number of people/km^2) by island, Cook Islands: 2006



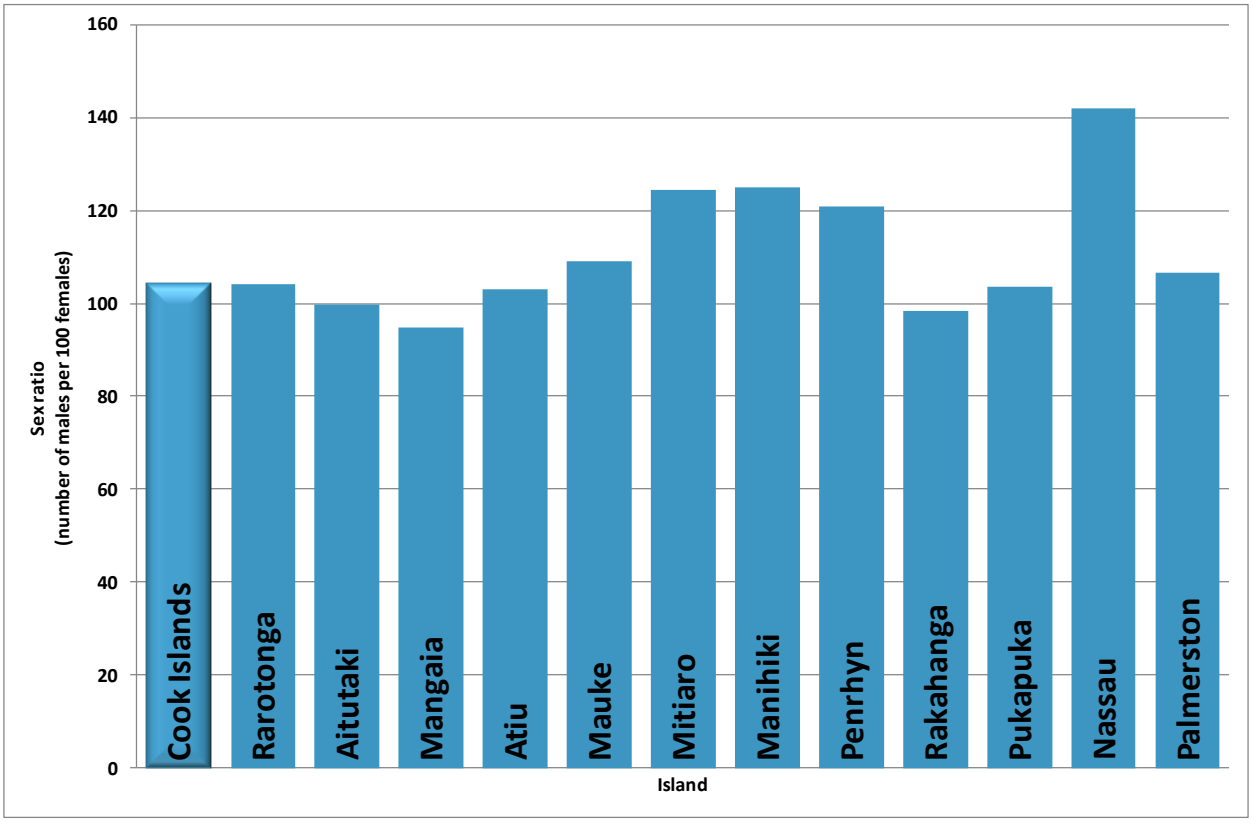
2.5 Population structure

The enumerated 2006 resident population consisted of 7,822 males and 7,502 females. Males out-numbered females by 320, resulting in a sex ratio of 104, which means that there were 104 males per 100 females. However, sex ratios varied widely by island (Fig.9).

A sex ratio of 100 means that there were equal numbers of males and females. A sex ratio lower than 100 means there were more females than males, and a sex ratio higher than 100 means there were more males than females.

Figure 9 shows there were significantly more males than females in Mitiaro, Manihiki, Penrhyn, and Nassau. The only islands with more females than males were Mangaia and Rakahanga.

Figure 9: Resident population by sex ratio and island, Cook Islands: 2006



A population pyramid (Figs. 10–15) shows the number of males and females in five-year age groups (Figs.10, 12-14) or single years (Figs.11 and 15), starting with the youngest age group at the bottom, and increasing with age towards the top of the pyramid. The number of males is depicted to the left and the number of females to the right of the pyramid's center.

The shaded area in figures shows the population count of the 2001 census, while the thickly outlined area shows the population count of the 2006 census. Note that the people counted in the 2006 census were 5 years older than in the 2001 census, if they were present in the Cook Islands, and so were enumerated during both censuses.

Figure 10: Population pyramid of the resident population by 5-year age groups, Cook Islands: 2001 and 2006

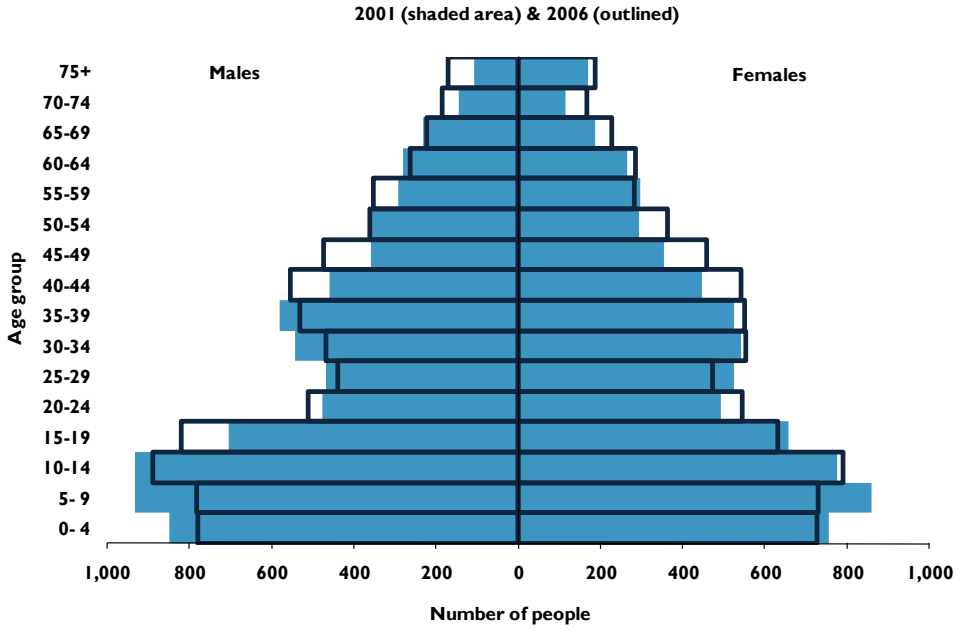
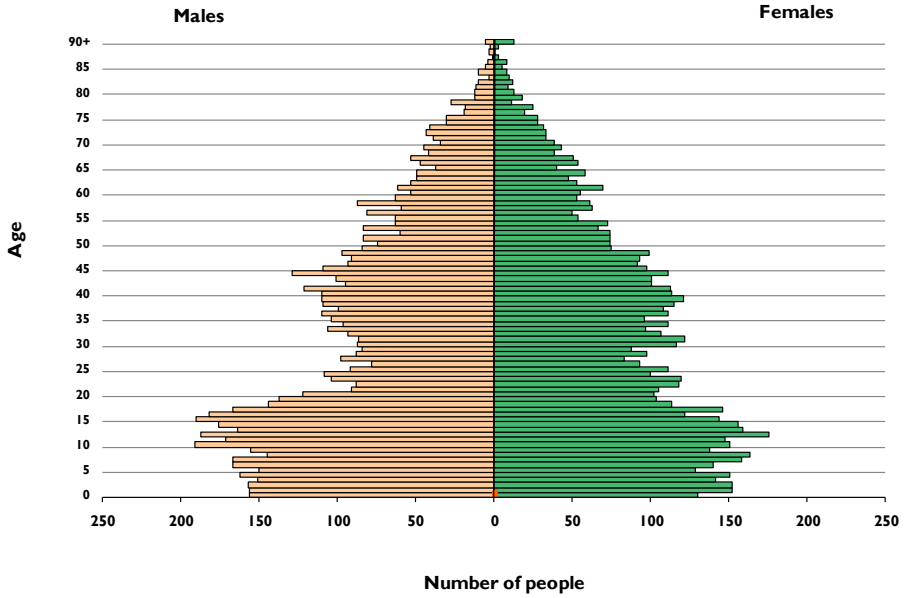


Figure 11: Population pyramid by single years of the resident population, Cook Islands: 2006



At first sight, the Cook Islands' population pyramid (Fig.10) has the distinct features of a classical pyramid: it has a wide base, meaning that a large percentage of people are in the younger age groups, with increasingly narrow bars towards the top of the pyramid, representing decreasing age groups at older ages. However, by examining the population structure of the single year pyramid (Fig.11), it can be seen that from the age of ten towards age 0, the bars narrow, usually a sign of decreasing fertility rates in recent years. Furthermore, the pyramid is characterized by a distinct 'dent' at ages 20-34, which is caused by emigration of people at these age groups.

While Rarotonga's population pyramid (Fig.12) looks similar to that of the Cook Islands' total population pyramid, it lacks the wide base at the bottom which means that a larger proportion of its population is in the working and older age groups. In addition, the dent that can be seen in the Cook Islands' pyramid is also that pronounced in Rarotonga.

The pyramids of the Southern and Northern Group islands have a very peculiar shape, characterized by the extreme narrow bars at ages 20-34, again caused by internal migration towards Rarotonga as well as to overseas destinations (Figs.13-14). Especially the Northern Group's 2006 pyramid (thickly outlined) is distinctively smaller than the shaded 2001 pyramid, illustrating the dramatic loss of population of all age groups during the intercensal period 2001-2006.

The narrowing of the 0–4 year-old population bars is both a result of a recent fertility decline (i.e. a reduction in the number of annual births), as well as migration.

The pyramid of the visitors population is characterized by very low number of children, with the majority of people aged 20-40 (Fig.15). Such age structure can be expected since the vast majority of the visitor population was adult tourists.

Figure 12: Population pyramid of the resident population, Rarotonga: 2001 and 2006

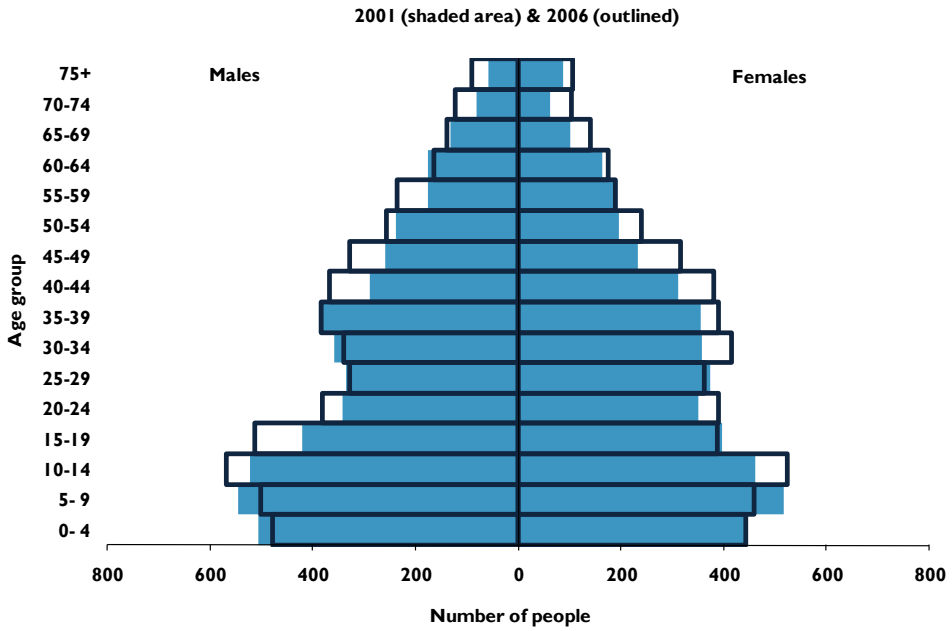


Figure 13: Population pyramid of the resident population, Southern Group islands: 2001 and 2006

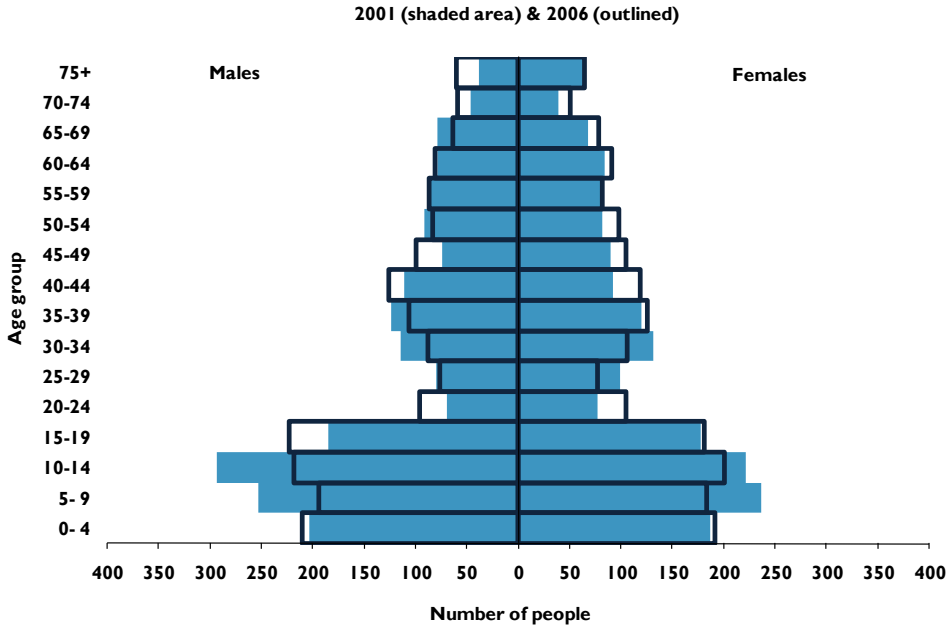


Figure 14: Population pyramid of the resident population, Northern Group islands: 2001 and 2006

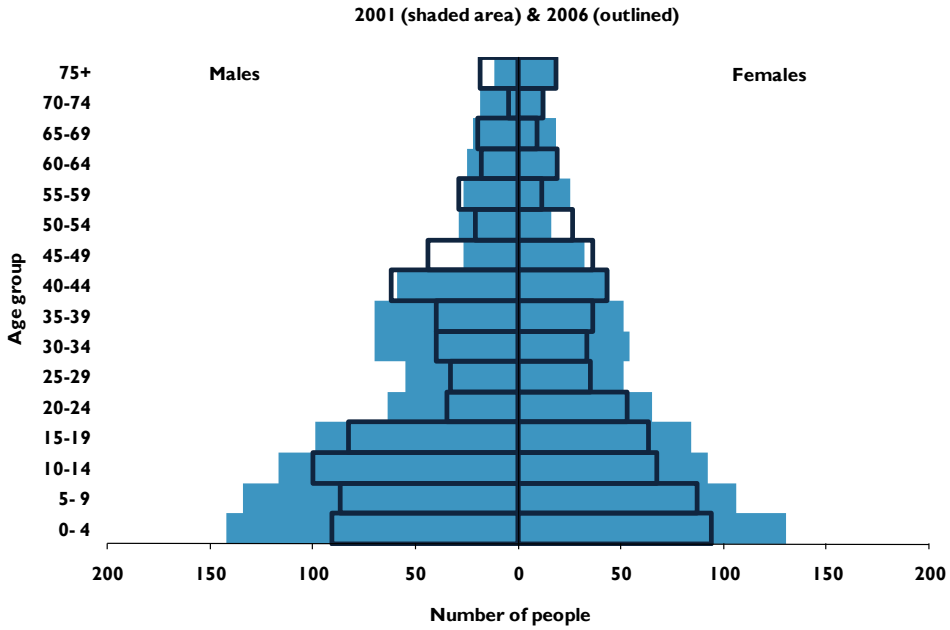
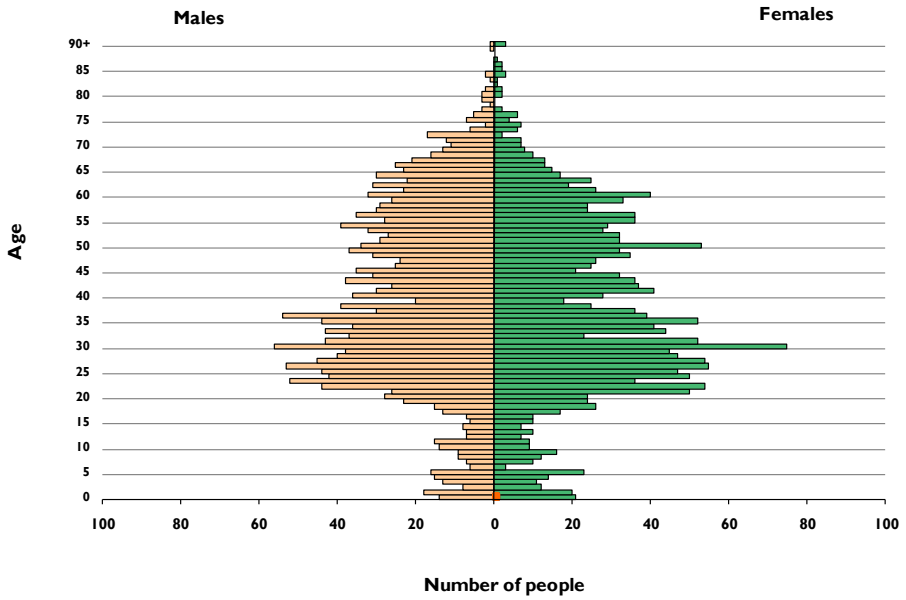


Figure 15: Population pyramid by single years of the visitors population, Cook Islands: 2006



In accordance with the overall population structure as illustrated by the population pyramids, several indicators can be calculated such as the *median age* and the *age dependency ratio*.

The Cook Islands' population has a relatively young age structure, with 31% of the population younger than 15 years of age; 58% are in the so called working age groups 15-59, and 11% were older than 60 years (Table 5 and Fig.16).

There is a direct link between the size and proportion of young people, and the median age.

The age structure is also illustrated by the median age of 27.5 years (Table 5 and Fig. 17). This means that half of the Cook Islands' population was younger and the other half older than 27.5 years. The median age in 2001 was only 25.3 years which means that the population structure is older in 2006 compared to 2001.

This was the result of a decreasing proportion of people aged 0–14 between 2001 and 2006, and to an increase in the proportion of people aged 25–59 from 40% in 2001 to 42% in 2006. In addition the proportion of the population 60 years and older increased from 10% to11% between 2001 and 2006.

Figure 17 shows a comparison of the median age by island which varies widely. While the median age was less than 17 years in Pukapuka and Nassau, it was older than 30 years in Mauke, Mitiaro, and Mangaia.

A common way to describe a population's age structure is via the *age dependency ratio*, which compares the dependent component of a country's population with its economically productive component. This is

conventionally expressed as the ratio of young people (0–14 years) plus the old (60^{+} years), to the working age population (15–59 years).

Table 5: Resident population distribution by broad age group, dependency ratio, median age, and sex ratio, Cook Islands: 2001 and 2006

Region/ Island	Year	Proportion of population by broad age group (in %)				Age dependency ratio (15–59)	Median age (years)	Sex ratio (males per 100 females)
		0–14	15–24	25–59	60+			
Cook Islands	2001	34	16	40	10	79	25.3	107
	2006	31	16	42	11	72	27.5	104
Rarotonga	2001	32	16	43	9	69	26.5	105
	2006	29	16	44	10	65	28.4	104
Southern Group	1996	37	13	36	13	100	24.5	105
	2006	32	16	37	15	88	27.0	101
Aitutaki	2001	36	15	37	12	92	23.8	104
	2006	31	19	38	12	76	25.0	100
Mangaia	2001	35	14	36	15	102	26.0	101
	2006	34	11	36	19	115	32.0	95
Atiu	2001	37	11	37	15	106	26.9	102
	2006	32	15	38	15	88	29.3	103
Mauke	2001	41	14	33	12	113	19.1	108
	2006	33	15	35	18	102	30.8	109
Mitiaro	2001	39	6	37	18	133	28.7	128
	2006	37	10	35	18	122	31.5	124
Northern Group	2001	40	17	34	8	94	19.8	119
	2006	38	17	36	9	89	20.7	113
Manihiki	2001	33	20	42	5	61	23.2	130
	2006	29	20	43	8	58	25.9	125
Penrhyn	2001	40	19	32	9	96	19.7	105
	2006	34	19	37	10	80	23.4	121
Rakahanga	2001	34	18	34	14	93	24.2	103
	2006	33	16	40	11	79	26.1	98
Pukapuka	2001	46	15	31	8	119	17.2	118
	2006	46	16	30	8	119	16.9	104
Nassau	2001	56	15	25	4	148	13.7	200
	2006	47	19	31	4	103	16.7	142
Palmerston	2001	40	21	23	17	129	21.8	85
	2006	48	5	35	11	148	18.8	107
Suwarrow	2001				100	-	-	-
	2006	-	-	-	-	-	-	-

Figure 16: Resident population by broad age groups (in %) by island, Cook Islands: 2006

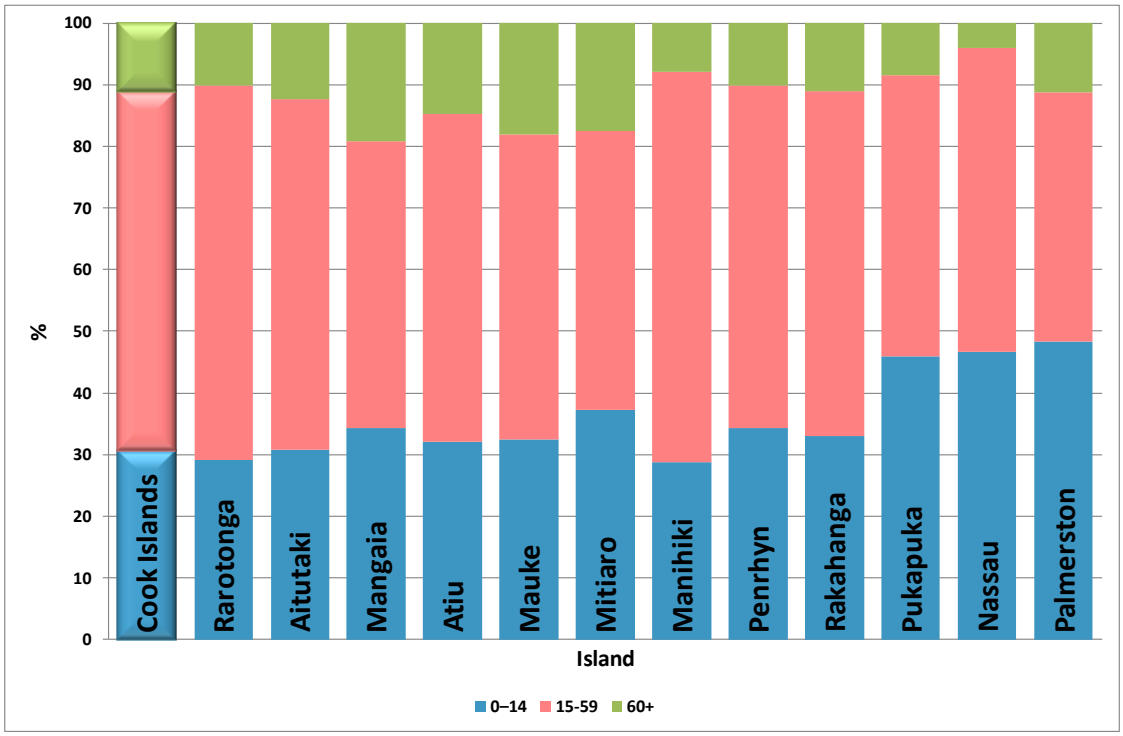
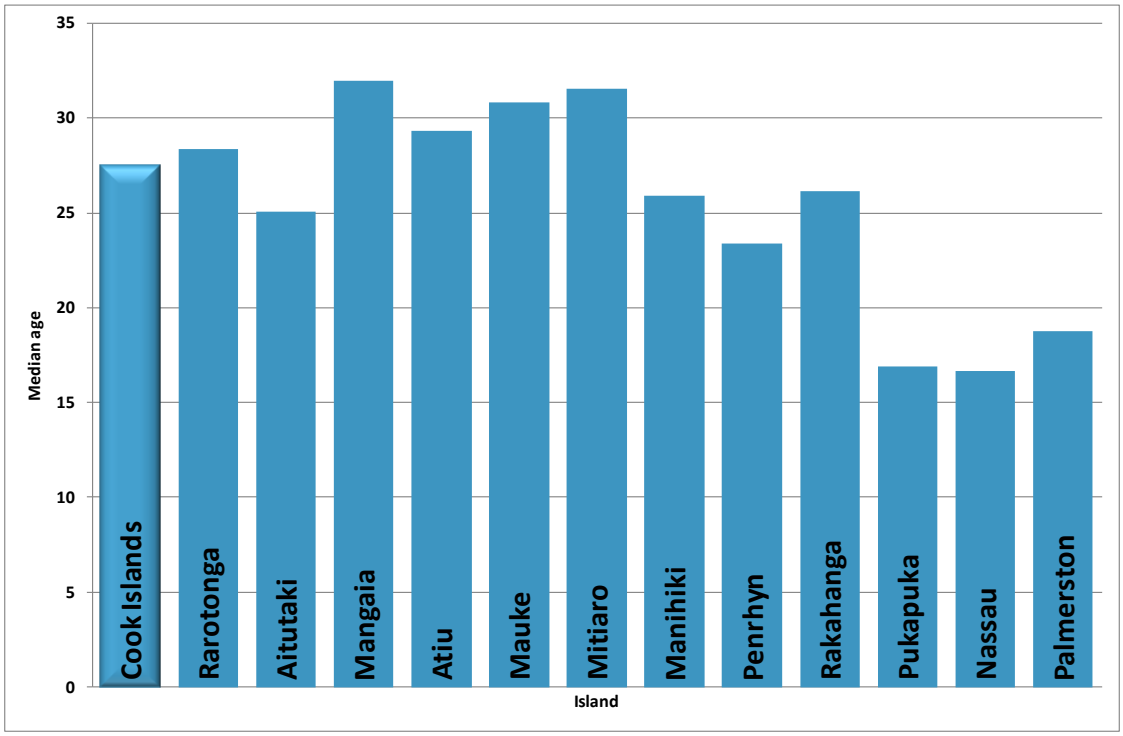


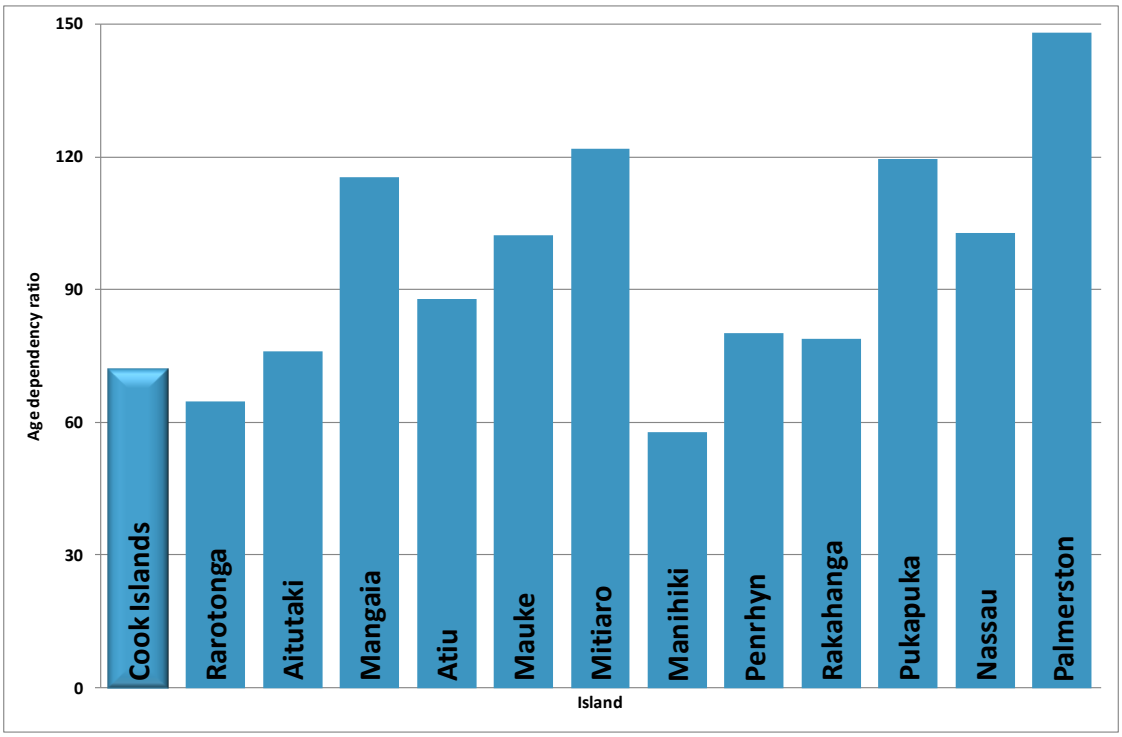
Figure 17: Resident population by median age and island, Cook Islands: 2006



The Cook Islands' dependency ratio in 2006 was 72, meaning that for every 100 people of working age, 72 people were in the age dependent category (Table 5 and Fig.18). The higher the dependency ratio, the higher the number of people that needs to be cared for by the working age population, and of this group, only those who actually work and earn a living. The dependency ratio has decreased since the 2001 census when it was 79. Based on the population structure of the different region/island populations, the age dependency ratios of the different regions/islands vary accordingly.

The most favorable dependency ratio can be found in Manihiki and Rarotonga with only 58 and 65 dependent people per 100 people of working age respectively. Dependency ratios were much higher in Mangaia, Mitiaro, Pukapuka, and especially Palmerston where the age dependency ratios was 148, meaning that there were almost 50% more young (0–14 years) and old people (60 years and older), than people aged 15–59.

Figure 18: Resident population by age dependency ratio and island, Cook Islands: 2006



3. DEMOGRAPHIC COMPONENTS

3.1 Fertility

In order to determine the level and pattern of fertility in the Cook Islands, women over 15 years of age were asked the following questions:

- How many live births a woman has ever had, and how many of those born were still alive and/or had died;
- When was their first and last child born.

The total number of children born alive to 5,256 women aged 15 and older was 14,182 (Table 6). The average number of children born alive to all women (average parity) was 2.7 children per woman.

Table 6: Female population aged 15 and older by number of children ever born alive, Cook Islands: 2006

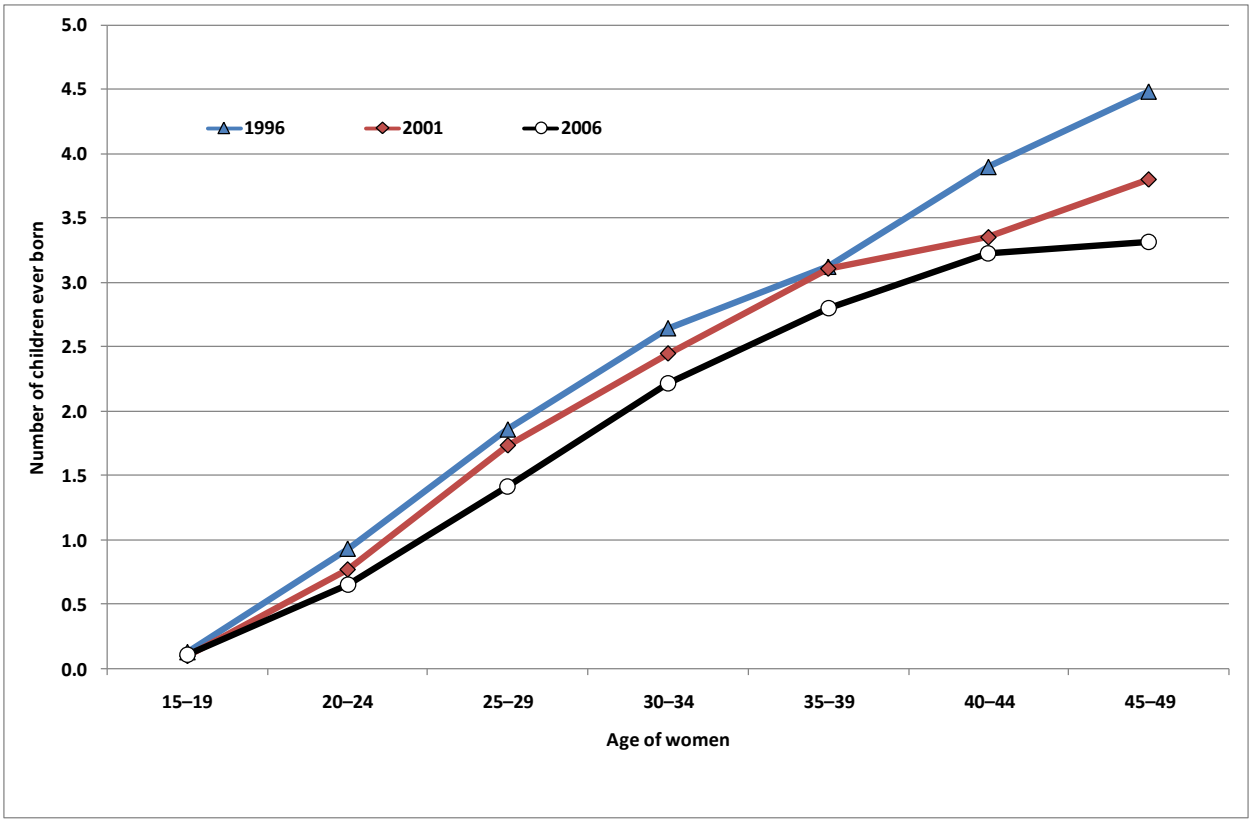
Age of women	Number of women	Number of children ever born			Average number of children ever born		
		Males	Females	Total	Males	Females	Total
15–19	630	41	27	68	0.1	0.0	0.1
20–24	545	194	163	357	0.4	0.3	0.7
25–29	473	359	310	669	0.8	0.7	1.4
30–34	554	628	601	1,229	1.1	1.1	2.2
35–39	551	810	735	1,545	1.5	1.3	2.8
40–44	540	900	847	1,747	1.7	1.6	3.2
45–49	457	792	726	1,518	1.7	1.6	3.3
50–54	362	632	679	1,311	1.7	1.9	3.6
55–59	281	634	549	1,183	2.3	2.0	4.2
60–64	284	681	662	1,343	2.4	2.3	4.7
65–69	227	638	585	1,223	2.8	2.6	5.4
70–74	165	442	455	897	2.7	2.8	5.4
75+	187	529	563	1,092	2.8	3.0	5.8
Total	**5,256**	**7,280**	**6,902**	**14,182**	1.4	1.3	**2.7**

Note: This table excludes 35 women (and their children) who did not state their age

Average parity increases with the age of women (Fig.19). While women aged 15–19 had together only 68 children, women aged 45–49 had 1,518 children, an average of 3.3 children per woman. Women older than 65 had on average more than 5 children. The average parities of women over 49 years of age is also called the *completed fertility rate*, a cohort measure demonstrating how many children a certain cohort of women who have completed their childbearing actually produced during those years.

Figure 19 shows a comparison of the average number of children born per woman of the last 3 censuses. It can be seen that there was a continues decrease in the average number of children per woman since 1996. While 45-49 year old women had 4.5 children in 1996, it was only 3.3 in 2006.

Figure 19: Female population aged 15 and older by average number of children ever born alive by age of mother, Cook Islands: 1996, 2001, and 2006



From the question on date of birth of the last born child, the number of births per year or period can be calculated (Table 7).

Table 7: Reported number of births during the one-year period before the census (1 December 2005–30 November 2006) by age group of women, Cook Islands: 2006

Age group of women	Number of women	Number of children	ASFR*
15–19	630	37	0.059
20–24	545	73	0.134
25–29	473	62	0.131
30–34	554	70	0.126
35–39	551	45	0.082
40–44	540	16	0.030
45–49	457	3	0.007
Total	**3,750**	**306**	**TFR = 2.8**

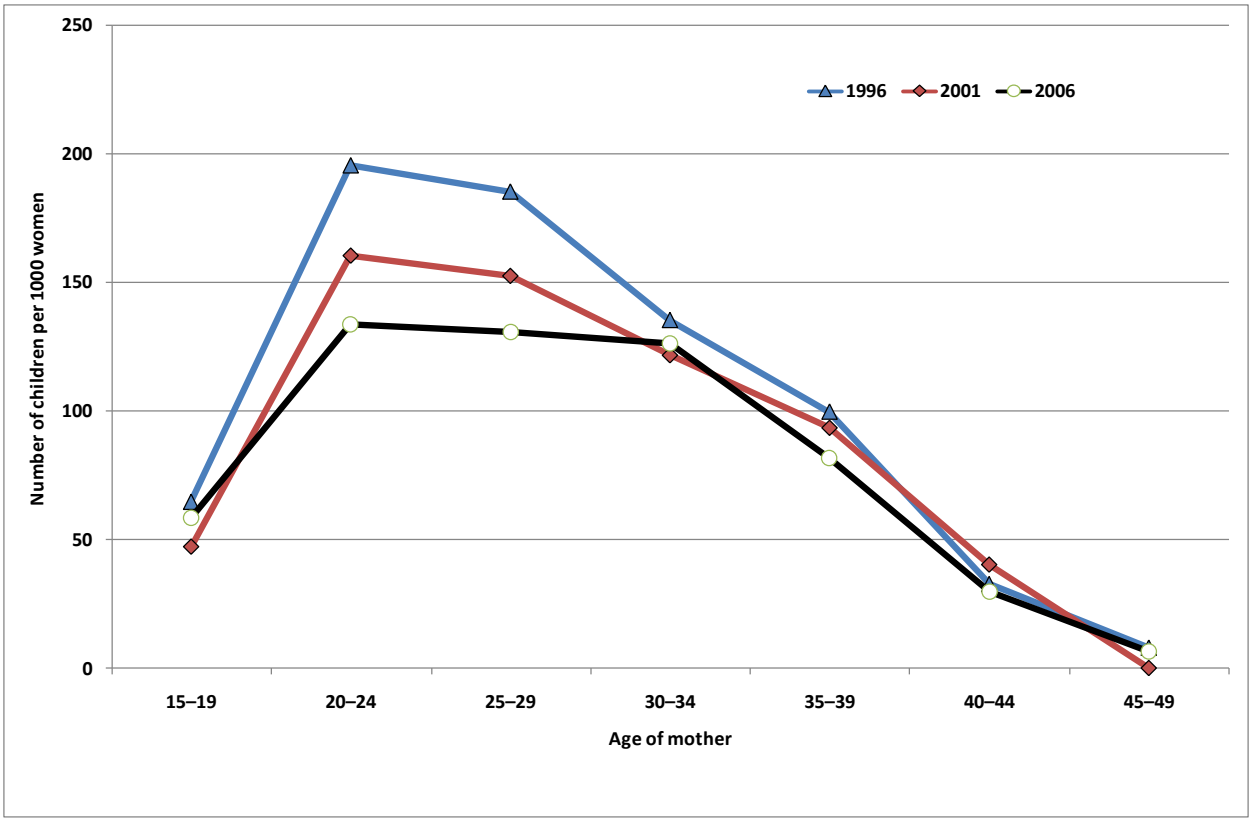
ASFR = Age-Specific Fertility Rate
TFR = Total Fertility Rate

Responses from women during the 2006 census indicated that 306 children were born during the one-year period prior to the census, between 1 December 2005 and 30 November 2006.

This count compares with 286 children younger than one year of age enumerated during the census. This mismatch of counts suggests that some children might have left the country since birth, and some might have died during infancy (3 infant deaths were registered in 2006). During the same period, 301 births were registered at the Ministry of Justice. The fact that the number of reported births (306) is slightly higher than the officially registered births suggests that not all births are registered. This is not surprising because a sizeable number of births occur in New Zealand, and will not be registered in the Cook Islands.

The demographic indicator most commonly used to describe a country's fertility situation is called the total fertility rate (TFR). This measure is an indication of the average number of children a woman gives birth to during her reproductive life (from ages 15–49 years). It is calculated from the number of live births by age of women in a given year — the age-specific fertility rates (ASFRs). The TFR calculated based on the reported number of children born during the year before the census is 2.8 (Table 7). The TFR using the same data was 3.6 and 3.1 in 1996 and 2001 respectively. The associated ASFRs are displayed in Figure 20.

Figure 20: Reported age-specific fertility rates (ASFR) for the one-year period before the 1996, 2001, and 2006 censuses, Cook Islands



Again, the depicted trend points to a decrease in the fertility level in recent years.

Table 8 contains calculated fertility rates based on registered number of births of the 5-year periods 1996-2001, and 2001-2006. Again, a decrease in the level of fertility can be observed. The average number of children (TFR) of the period 1996-2001 was 2.9, compared to 2.7 of the period 2001-2006.

Table 8: ASFR and TFR based on registered number of births, Cook Islands: 1996-2006

Age group of women	Census count of resident women			Estimated mid-period number of women		Average annual number of registered births		ASFR (number of births per 1000 women)	
	1996	2001	2006	1996-2001	2001-2006	1996-2001	2001-2006	1996-2001	2001-2006
15 – 19	785	656	630	721	643	48	33	67	51
20 – 24	777	492	545	635	519	95	76	150	147
25 – 29	728	524	473	626	499	97	68	155	136
30 – 34	627	542	554	585	548	65	56	112	101
35 – 39	530	524	551	527	538	41	41	78	75
40 – 44	424	447	540	436	494	9	15	21	30
45 – 49	360	353	457	357	405	1	2	2	5
Total	**4,231**	**3,538**	**3,750**	**3,885**	**3,644**	**357**	**290**	**585**	**546**
TFR								**2.9**	**2.7**

However, as mentioned before, the numbers of registered births does not present an accurate picture of the number of births occurring to women resident in the Cook Islands, because a sizeable number of women fly to New Zealand for the delivery of their child. Therefore the registration statistics does not include births occurring overseas.

In order to estimate the Cook Islands' fertility level, this analysis relies on indirect estimation techniques, based on census data on the number of children ever born by age of women, and the number of children born during the year prior to the census by age of women as reported in the census.

Fertility estimates are based on 1996, 2001 and 2006 census data, to which the Arriaga[1] method — that measures fertility based on data in two or three points in time — was applied. The software MORTPAK4.1 (the United Nations software package for demographic measurements), procedure FERTPF (Table 9), and PAS (from the US Census Bureau), procedure ARFE-2 (App.1) and ARFE-3 (App.2) were used. The results of all three procedures show consistent results.

The Cook Islands TFR was estimated at **2.5** in 2006, which is a decline compared to 2001 when the average number of children born per woman was about 2.9. The calculated fertility level for 2006 by age group of mother is based on an average of the adjustment factors for women aged 20–25 and 25-30 (the bold numbers in column 'Adjustment factors' in Table 9 and Apps.1-2). The adjusted ASFRs are shown

[1] Many censuses and surveys include questions related specifically to fertility, for example, the number of children women have had, and whether they had a birth in the year preceding the inquiry.

The method seeks to adjust the level of observed age-specific fertility rates, which are assumed to represent the true age pattern of fertility, to agree with the level of fertility indicated by the average parities (average number of children ever born) of women in age groups under 30 or 35, which are assumed to be accurate. During successful application of this method, the age pattern of the period fertility rates is combined with the level implied by the average parities of younger women to derive a set of fertility rates that is generally more reliable than either of its constituent parts.

Responses to such questions can be used to estimate fertility indirectly. Some techniques for doing this include the parity/fertility (P/F) ratio method developed by Brass, based on the average number of children ever born to women in five-year age groups, and women's age pattern of fertility derived from births in the year preceding the census or survey; and the Arriaga technique, which is similar to the P/F ratio method but links data for more than one date. While the Brass P/F ratio method assumes constant fertility in the past, the Arriaga method does not.

in the last column at the far right side of Table 9, and in the 4th column from the right of the tables in Apps.1-2).

Table 9: Arraiga's approach for estimation of ASFR for two points in time and the age patterns of fertility (Arriaga-Brass), Cook Islands: 2001-2006

First enumeration: Nov 2001

Fertility pattern is tabulated by age of woman at enumeration

Age Group of Woman	Children Ever Born	Age Specific Fertility rates (ASFR)	Fertility Consistent with C.E.B. (ASFR)	Fertility Pattern by Age at Survey Date	Fertility Pattern by Age at Birth of Child	Cumulation of		Adjustment factors	Age Specific Fertility Rates Based on Adjustment Factor for the Age Group		
						ASFR	Fertility Pattern by Age at Birth		20 - 25	25 - 30	20 - 30
December 2001 to December 2002											
				Recorded	Calculated						
15 - 20	0.100	0.047	0.070	0.047	0.059	0.070	0.059	1.200	0.059	0.053	**0.056**
20 - 25	0.800	0.161	0.157	0.161	0.166	0.227	0.225	**1.012**	0.168	0.149	**0.159**
25 - 30	1.700	0.153	0.110	0.153	0.151	0.337	0.375	**0.898**	0.152	0.135	**0.144**
30 - 35	2.500	0.122	0.086	0.122	0.119	0.423	0.494	0.856	0.120	0.107	**0.114**
35 - 40	3.100	0.094	0.027	0.094	0.090	0.450	0.584	0.771	0.091	0.080	**0.086**
40 - 45	3.400	0.040	0.003	0.040	0.033	0.454	0.617	0.735	0.034	0.030	**0.032**
45 - 50	3.800	0.000	0.001	0.000	0.000	0.455	0.617	0.737	0.000	0.000	**0.000**
Total Fertility Rate:			2.3		3.1				3.12	2.77	**2.95**

Last enumeration: Nov 2006

Fertility pattern is tabulated by age of woman at enumeration

Age Group of Woman	Children Ever Born	Age Specific Fertility rates (ASFR)	Fertility Consistent with C.E.B. (ASFR)	Fertility Pattern by Age at Survey Date	Fertility Pattern by Age at Birth of Child	Cumulation of		Adjustment factors	Age Specific Fertility Rates Based on Adjustment Factor for the Age Group		
						ASFR	Fertility Pattern by Age at Birth		20 - 25	25 - 30	20 - 30
December 2005 to December 2006											
				Recorded	Calculated						
15 - 20	0.100	0.059	0.068	0.059	0.070	0.068	0.070	0.968	0.065	0.060	**0.062**
20 - 25	0.700	0.134	0.124	0.134	0.136	0.192	0.207	**0.931**	0.127	0.116	**0.121**
25 - 30	1.400	0.131	0.094	0.131	0.131	0.286	0.337	**0.848**	0.122	0.111	**0.116**
30 - 35	2.200	0.126	0.090	0.126	0.123	0.376	0.460	0.817	0.114	0.104	**0.109**
35 - 40	2.800	0.082	0.031	0.082	0.077	0.407	0.537	0.757	0.072	0.065	**0.068**
40 - 45	3.200	0.030	0.014	0.030	0.027	0.420	0.564	0.745	0.025	0.023	**0.024**
45 - 50	3.300	0.007	0.005	0.007	0.005	0.425	0.569	0.747	0.005	0.004	**0.005**
Total Fertility Rate:			2.1		2.8				2.65	2.41	**2.53**

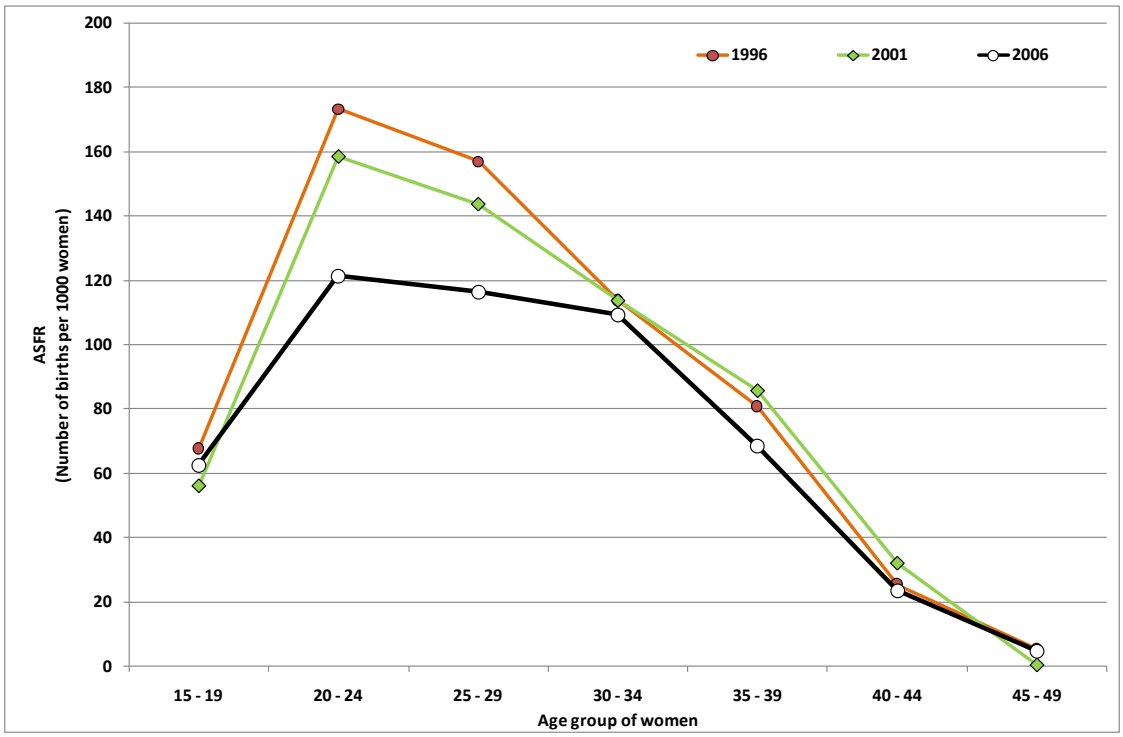
The estimated ASFRs are shown in Figure 21. It shows the number of births per 1000 women by age group, and it includes the data of the 1996 census. During the 10-year period, 1996–2006 there has been a

clear reduction of the fertility level of women aged 20-24 years, and to a lesser extend women aged 25-29. However, the most fertile age group for women continued to be women aged 20-24 years.

The *teenage fertility rate*, the average number of births of women aged 15-19 has been more or less constant, and remained at about 60 births per 1000 women aged 15-19.

The mean age at childbearing was calculated at 28.4 years.

Figure 21: Estimated age-specific fertility rates (ASFRs), Cook Islands: 1996, 2001 and 2006



ASFR = number of births per 1,000 women by age group

The CBR can then be calculated by dividing the average annual number of registered births of the period 2001-2006 (290) by the mid-period (2001-2006) population size (15,171), multiplied by 1,000.

CBR = 290/15,171 X 1,000 = **19.1**

(there were 191 births/1,000 population during the period 2001-2006)

3.2 Mortality

The questions relating to mortality in the 2006 census were:

- How many live births a woman has ever had, and how many of those born were still alive and/or had died;
- Whether a respondent's marital status was "widowed" (widowhood);

From all children that were ever born to women aged 15 and older (14,182), 95.6% (13.556) were still alive, and 626 children had died (Table 10).

The proportion of surviving females was higher than that of males (Table 11). While 96.1% of all female children ever born were still alive, only 95.1% of all male children had survived.

The proportion of surviving children decreases with the age of mothers (Table 11 and Fig.22). While 99.2% of all children that were ever born to women now aged 20–24 were still alive, only 97.0% of children born to women now aged 45–49 were still alive, and only 87.4% of children born to women now aged 75 and older remained alive.

This general trend is explained by the fact that as the age of mothers increases, so does the age of their children; the proportion of birth cohorts that have died rises with an increase in the age of mothers.

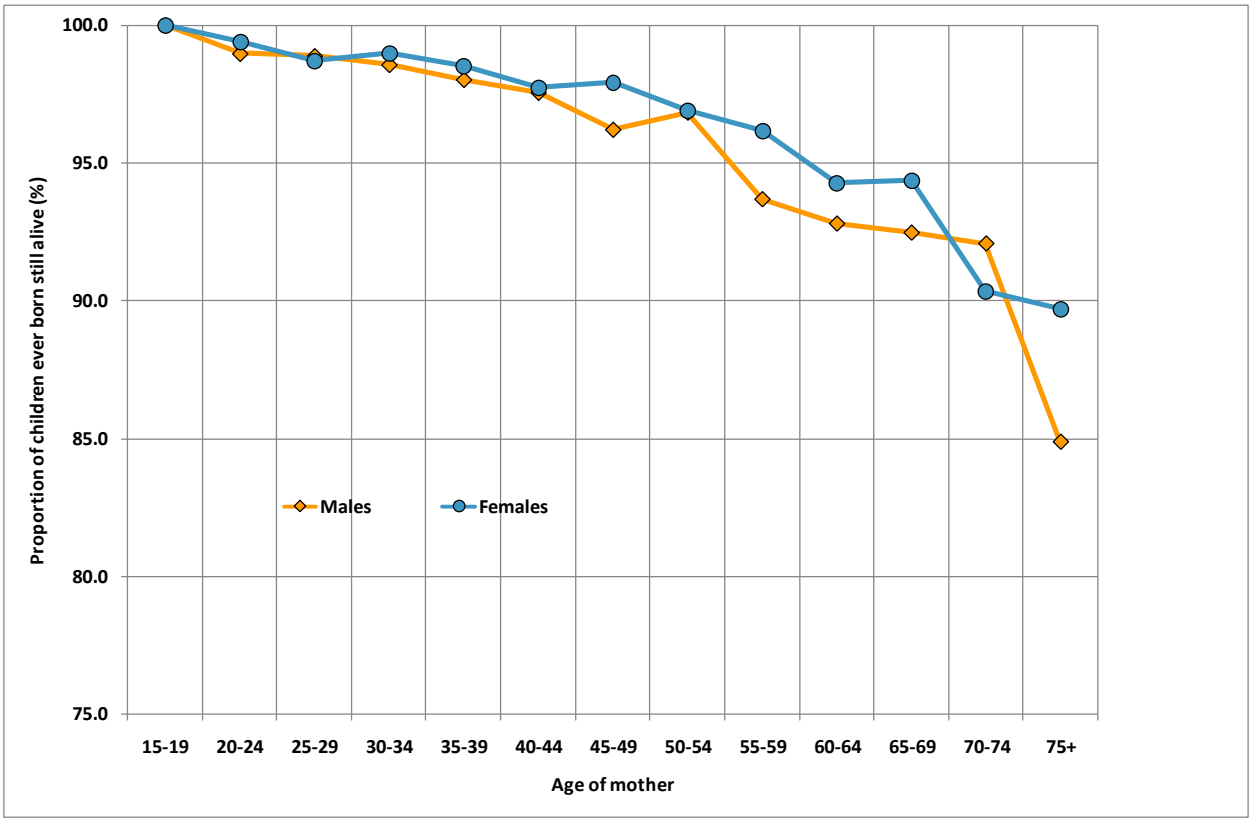
Table 10: Female population aged 15 and older by number of children ever born, number of children still alive, and number of children dead, Cook Islands: 2006

Age of women	Number of women	Number of children ever born			Number of children still alive			Number of children dead		
		Males	Females	Total	Males	Females	Total	Males	Females	Total
15-19	630	41	27	68	41	27	68	0	0	0
20-24	545	194	163	357	192	162	354	2	1	3
25-29	473	359	310	669	355	306	661	4	4	8
30-34	554	628	601	1,229	619	595	1,214	9	6	15
35-39	551	810	735	1,545	794	724	1,518	16	11	27
40-44	540	900	847	1,747	878	828	1,706	22	19	41
45-49	457	792	726	1,518	762	711	1,473	30	15	45
50-54	362	632	679	1,311	612	658	1,270	20	21	41
55-59	281	634	549	1,183	594	528	1,122	40	21	61
60-64	284	681	662	1,343	632	624	1,256	49	38	87
65-69	227	638	585	1,223	590	552	1,142	48	33	81
70-74	165	442	455	897	407	411	818	35	44	79
75+	187	529	563	1,092	449	505	954	80	58	138
Total	**5,256**	**7,280**	**6,902**	**14,182**	**6,925**	**6,631**	**13,556**	**355**	**271**	**626**

Table 11: Female population aged 15 and older by proportion of children ever born and still alive, and proportion now dead, Cook Islands: 2006

Age of women	Number of women	Proportion of children ever born still alive (%)			Proportion of children ever born now dead (%)		
		Males	Females	Total	Males	Females	Total
15-19	630	100.0	100.0	100.0	0.0	0.0	0.0
20-24	545	99.0	99.4	99.2	1.0	0.6	0.8
25-29	473	98.9	98.7	98.8	1.1	1.3	1.2
30-34	554	98.6	99.0	98.8	1.4	1.0	1.2
35-39	551	98.0	98.5	98.3	2.0	1.5	1.7
40-44	540	97.6	97.8	97.7	2.4	2.2	2.3
45-49	457	96.2	97.9	97.0	3.8	2.1	3.0
50-54	362	96.8	96.9	96.9	3.2	3.1	3.1
55-59	281	93.7	96.2	94.8	6.3	3.8	5.2
60-64	284	92.8	94.3	93.5	7.2	5.7	6.5
65-69	227	92.5	94.4	93.4	7.5	5.6	6.6
70-74	165	92.1	90.3	91.2	7.9	9.7	8.8
75+	187	84.9	89.7	87.4	15.1	10.3	12.6
Total	**5,256**	**95.1**	**96.1**	**95.6**	**4.9**	**3.9**	**4.4**

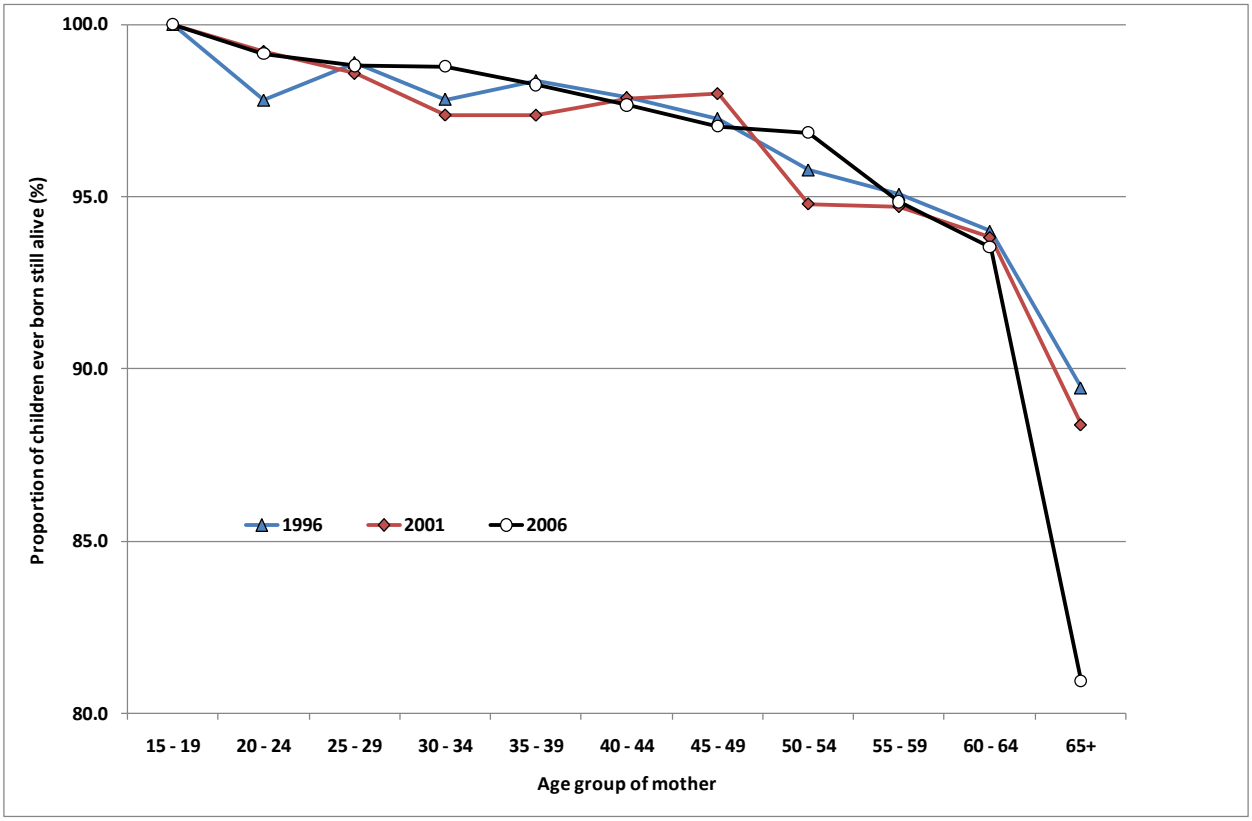
Figure 22: Proportion of children ever born and still alive by age of mother and sex of child, Cook Islands: 2006



A comparison of data on children ever born and still alive from the 1996, 2001 and 2006 census data (see Fig.23) shows little improvements in the survival of children born to young women aged 15-29, but it

shows some improvements in the survival of children born to women aged 30-39. The survival of children born to women aged 60 years and older seems to be much lower in 2006 than compared to earlier censuses. However, since these data are based on very low numbers, it is difficult to ascertain the findings.

Figure 23: Proportion of children ever born and still alive by age of mother, Cook Islands: 1996, 2001, and 2006



The calculation of the Cook Islands mortality indicators are based on vital statistics – the registration of the number of deaths by age and sex[2]. Information on the number of referrals of residents to New Zealand who have died there have been included in the calculations. However, the calculated mortality indicators need to be treated as the absolute minimum as it is likely that many more deaths of residents occur overseas that are not included in the officially registered number of referrals.

Based on the average annual number of deaths by age and sex of the years 2001-2007 (taking the number of referrals into account), and the estimated mid-period population (mid-year 2004), age-specific death rates – expressed as m(x)-values – were calculated (Table 12 and App.3).

[2] Data provided by Ministry of Health and Ministry of Justice

Table 12: Average annual number of deaths of the period 2001-2007, estimated mid period (2004) population by age and sex, and age specific death rates [M(x)], Cook Islands: 2001-2007

Age group	Average annual number of deaths of the period 2001-2007*			Estimated population for mid-year 2004			Age-specific death rates [m(x)]		
	T	M	F	T	M	F	T	M	F
0-1	4	3	1	309	169	140	0.0144	0.0188	0.0091
1-4	1	0	1	1,253	659	595	0.0011	0.0007	0.0016
5-9	1	1	0	1,647	864	783	0.0004	0.0007	0.0000
10-14	1	1	0	1,701	911	791	0.0004	0.0008	0.0000
15-19	2	2	1	1,383	744	639	0.0017	0.0022	0.0010
20-24	2	1	0	1,048	514	534	0.0018	0.0027	0.0009
25-29	1	0	1	954	451	503	0.0013	0.0010	0.0016
30-34	1	1	0	1,039	506	534	0.0013	0.0018	0.0009
35-39	1	1	0	1,105	555	551	0.0012	0.0022	0.0003
40-44	3	2	1	1,023	526	497	0.0027	0.0032	0.0022
45-49	3	2	1	803	409	394	0.0036	0.0052	0.0020
50-54	5	3	2	681	357	324	0.0074	0.0098	0.0049
55-59	8	5	2	615	321	294	0.0125	0.0170	0.0075
60-64	8	6	2	535	265	270	0.0152	0.0234	0.0070
65-69	11	7	4	443	233	210	0.0247	0.0299	0.0189
70-74	13	9	4	314	172	142	0.0416	0.0502	0.0313
75-79	12	7	5	175	87	88	0.0695	0.0817	0.0575
80+	20	7	13	141	53	87	0.1420	0.1363	0.1455
Total	**98**	**60**	**39**	**15,169**	**7,795**	**7,374**	**0.0065**	**0.0076**	**0.0052**

*includes number of registered referrals

The software package PAS, procedure LTPOPDTH, of the US Census Bureau has been used to calculate a life table for males and females (Tables 15 and 16) with data shown in Table 12 as inputs.

A summary of the life table indicators are shown in Table 13.

Table 13: Mortality indicators, Cook Islands: 2006

Indicator	Total	Males	Females
Life expectancy at birth, E(0)	72.8	69.5	76.2
Infant mortality rate (IMR)	13.9	18.5	9.0
Child mortality rate ($4q1^{*}$)	4.5	2.8	6.4
Under 5 mortality rate ($q5^{+}$)	18.4	21.2	15.3

* = the probability of dying between age 1 and age 5
$^{+}$ = the probability of dying between birth and age 5

According to the assumptions made, and the procedures and methods used, life expectancy at birth was calculated at 69.5 and 76.2 years for males and females, respectively (Table 13). This compares with estimates of 68.0 and 74.3 years for males and females for the period 1996-2002.

IMR based on the calculated life tables is estimated at 18.5 and 9 for males and females, respectively, which is considerably lower than those calculated for the period 1996-2002, when it was 24 and 18 for males and females. It needs to be noted that the infant mortality rates during the period 1996-2002 were unusually high due to the devastating effects of cyclone Martin in Manihiki and Rakahanga on 1

November 1997. IMR measures the number of deaths of children under one year of age per 1,000 live births.

Child mortality, the probability of dying between age 1 and age 5, was estimated at 3 male deaths and 6 female deaths per 1,000 people of that age.

Under 5 mortality, the probability of dying between birth and age 5, was estimated at 21 and 15 for males and females, respectively per 1,000 people.

Table 14 presents the directly calculated IMRs of the years 2001-2009 based on the registered number of births and infant deaths. Please note that these data do not include referrals.

Table 14: Registered number of births, infant deaths, and calculated infant mortality rate (IMR) by sex: Cook Islands: 2001-2009

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2001-2007	2001-2009
Total number of births											
Males	165	133	157	153	139	147	149	151	129	1,043	1,323
Females	150	146	137	144	136	132	147	110	126	992	1,228
Total	**315**	**279**	**294**	**297**	**275**	**279**	**296**	**261**	**255**	**2,035**	**2,551**
Infant deaths											
Males	3	1	3	4	4	3	3	1	1	21	23
Females	1	1	2	1	2	0	1	0	1	8	9
Total	**4**	**2**	**5**	**5**	**6**	**3**	**4**	**1**	**2**	**29**	**32**
IMR											
Males	18.2	7.5	19.1	26.1	28.8	20.4	20.1	6.6	7.8	20.1	17.4
Females	6.7	6.8	14.6	6.9	14.7	0.0	6.8	0.0	7.9	8.1	7.3
Total	12.7	7.2	17.0	16.8	21.8	10.8	13.5	3.8	7.8	**14.3**	**12.5**

Finally, a crude death rate (CDR) can be calculated based on the average annual number of deaths as presented in Table 12.

CDR = 98/15,169 x 1,000 = **6.5** (6.5 deaths per 1,000 population during the period 2001-2007)

The above mortality indicators clearly show more positive mortality indicators for females than for males, with females living longer, on average almost six years longer, than males. The findings are supported by the following data:

- Based on the reported number children ever born and still alive, the proportion of male children still alive is lower than the proportion of female children (Table 11, Fig.22)
- Significantly more male than female deaths have been registered (App. 3)
- More females than males survive to older ages (Figs.10-11, App.10)
- The proportion of widowed females was considerably higher than that for widowed males (Fig.27), indicating earlier death of male spouses.

Table 15: Abridged life table for males, Cook Islands: 2006

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)
0	0.0188	**0.0185**	100,000	1,852	98,325	0.9805	6,954,821	**69.5**
1	0.0007	**0.0028**	98,148	271	391,942	0.9965	6,856,496	69.9
5	0.0007	0.0035	97,878	343	488,530	0.9962	6,464,554	66.0
10	0.0008	0.0042	97,535	405	486,660	0.9936	5,976,023	61.3
15	0.0017	0.0086	97,130	834	483,564	0.9911	5,489,363	56.5
20	0.0018	0.0091	96,296	881	479,278	0.9912	5,005,799	52.0
25	0.0017	0.0085	95,415	811	475,047	0.9918	4,526,522	47.4
30	0.0016	0.0080	94,604	754	471,133	0.9902	4,051,474	42.8
35	0.0023	0.0117	93,849	1,094	466,511	0.9859	3,580,341	38.1
40	0.0033	0.0166	92,755	1,535	459,937	0.9782	3,113,830	33.6
45	0.0055	0.0271	91,220	2,474	449,914	0.9631	2,653,894	29.1
50	0.0096	0.0470	88,746	4,170	433,305	0.9386	2,203,980	24.8
55	0.0159	0.0765	84,576	6,470	406,705	0.9078	1,770,675	20.9
60	0.0231	0.1092	78,106	8,530	369,204	0.8701	1,363,970	17.5
65	0.0332	0.1531	69,576	10,651	321,250	0.8147	994,766	14.3
70	0.0503	0.2233	58,925	13,160	261,721	0.7260	673,516	11.4
75	0.0817	0.3393	45,764	15,528	190,001	0.5386	411,795	9.0
80	0.1363	1.0000	30,236	30,236	221,794	...	221,794	7.3

e(0) = life expectancy at birth
q(0) = an approximation of the infant mortality rate as calculated in Apps. 3 and 4 and Table 9
4q1 = an approximation of the probability of dying between age 1 and age 5 (Apps. 3 and 4, Table 9)

Table 16: Abridged life table for females, Cook Islands: 2006

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)
0	0.0091	**0.0090**	100,000	901	99,168	0.9880	7,624,547	**76.2**
1	0.0016	**0.0064**	99,099	631	394,822	0.9967	7,525,379	75.9
5	0.0000	0.0000	98,467	0	492,336	1.0000	7,130,557	72.4
10	0.0000	0.0000	98,467	0	492,336	0.9999	6,638,221	67.4
15	0.0000	0.0001	98,467	12	492,306	0.9970	6,145,885	62.4
20	0.0012	0.0059	98,455	579	490,829	0.9942	5,653,579	57.4
25	0.0011	0.0057	97,876	555	487,994	0.9952	5,162,750	52.7
30	0.0008	0.0039	97,321	379	485,659	0.9959	4,674,756	48.0
35	0.0009	0.0044	96,942	424	483,651	0.9949	4,189,097	43.2
40	0.0011	0.0057	96,518	553	481,207	0.9898	3,705,446	38.4
45	0.0030	0.0147	95,965	1,408	476,303	0.9817	3,224,239	33.6
50	0.0044	0.0219	94,556	2,075	467,596	0.9725	2,747,936	29.1
55	0.0067	0.0331	92,482	3,065	454,746	0.9578	2,280,340	24.7
60	0.0106	0.0515	89,417	4,607	435,566	0.9339	1,825,594	20.4
65	0.0170	0.0815	84,809	6,912	406,767	0.8821	1,390,028	16.4
70	0.0342	0.1576	77,897	12,274	358,801	0.7995	983,261	12.6
75	0.0575	0.2514	65,623	16,497	286,874	0.5406	624,460	9.5
80	0.1455	1.0000	49,126	49,126	337,586	...	337,586	6.9

e(0) = life expectancy at birth
q(0) = an approximation of the infant mortality rate as calculated in Apps. 3 and 4 and Table 9
4q1 = an approximation of the probability of dying between age 1 and age 5 (Apps. 3 and 4, Table 9)

Brief explanation of a life table (Tables 15 and 16)

A life table is used to simulate the lifetime mortality experience of a population. It does so by taking that population's age-specific death rates and applying them to a hypothetical population of 100,000 people born at the same time. For each year on the life table, death inevitably thins the hypothetical population's ranks until, in the bottom row of statistics, even the oldest people die.

Column "m(x,n)" shows the proportion of each age group dying in each age interval. These data are based on the observed mortality experience of a population. Column "l(x)" shows the number of people alive at the beginning of each age interval, starting with 100,000 at birth. Column "d(x,n)" shows the number who would die within each age interval. Column "L(x,n)" shows the total number of person-years that would be lived within each age interval. Column "T(x)" shows the total number of years of life to be shared by the population in the age interval and in all subsequent intervals. This measure takes into account the frequency of deaths that will occur in this and all subsequent intervals. As age increases and the population shrinks, the total person-years that the survivors have to live necessarily diminish.

Life expectancy is shown in Column "e(x)" — the average number of years remaining for a person at a given age interval.

The first value in column "**e(x)**" represents **life expectancy at birth**.
The first value in column "**q(x,n)**" is an approximation of the **infant mortality rate (IMR)**.
The second value in column "**q(x,n)**" is an approximation of the **child mortality rate**.

m(x,n) = age-specific death rate
q(x,n) = the probability of dying between two exact ages
l(x) = the number of survivors at exact age x
d(x,n) = the number of deaths between two exact ages, x and x+n
L(x,n) = the number of person-years that would be lived within the indicated age interval (x and x+n) by the cohort of 100,000 births assumed.
S(x,n) = probability of surviving between two exact ages, x and x+n
T(x) = total number of person-years that would be lived after the beginning of the indicated age interval by the cohort of 100,000 births assumed.
e(x) = expectation of life from age x

3.3 Migration

3.3.1 Internal migration

Internal migration — the movement of people from one island or region of Cook Islands to another — can be estimated by comparing:

- place of residence one year prior to the census with the place of residence during the census enumeration, and/or
- place of residence five years prior to the census with the place of residence during the census enumeration, and/or
- place of birth with the place of residence during the census enumeration.

3.3.1.1 Residence one year prior to the census

Based on the question regarding place of residence in 2005 (one year prior to the census), 92% of the total population aged 1 year and older answered that they had not moved from their current (November 2006) place of residence, 3% (423 people) said that they lived elsewhere in Cook Islands, and 849 people (6%) said that they were overseas (Table 17).

Rarotonga had a net gain from the Southern Group Islands of 46 (170 minus 124), and from the Northern Group Island a net gain of 57 people (88 minus 31. There was little movement between the Southern and Northern Group islands.

Table 17: Resident population by place of enumeration and usual residence one year ago (in 2005), Cook Islands: 2006

Place of residence at time of census		Usual residential address 1 year ago			
Island/Region	**Total**	**Rarotonga**	**Southern Group**	**Northern Group**	**Overseas**
Rarotonga	10,047	9,124	170	88	665
Southern Group	3,649	124	3,394	4	127
Northern Group	1,342	31	6	1,248	57
Cook Islands	**15,038**	**9,279**	**3,570**	**1,340**	**849**

□ = non-movers (i.e. those people who did not change their residence during the reference period

* people aged 1 and younger could not state their residence one year prior to the census, because they were not yet born then

Overall, Rarotonga gained 103 people from the other island groups during the one-year period prior to the census (Table 18). The Southern Group island the other hand had a net loss of 48 people to the other island groups, and the Northern Group islands had a net loss of 55 people.

Table 18: Interregional migration during the one-year period prior to the 2006 census, Cook Islands 2006

Island/Region	In-Migrants	Out-Migrants	Net Migrants
Rarotonga	258	155	103
Southern Group	128	176	-48
Northern Group	37	92	-55
Cook Islands	**423**	**423**	**0**

3.3.1.2 Residence five years prior to the census

Based on the question regarding place of residence in 2001 (five years prior to the census), 80% of the total population aged 5 years and older answered that they had not moved from their current (November 2006) place of residence, 6% (781 people) said that they lived elsewhere in Cook Islands, and 1,993 people (14%) said that they were overseas (Table 19).

Table 19: Resident population by place of enumeration and usual residence five years ago (in 2001), Cook Islands: 2006

Place of residence at time of census		Usual residential address 5 years ago			
Island/Region	**Total**	**Rarotonga**	**Southern Group**	**Northern Group**	**Overseas**
Rarotonga	9,304	7,164	358	194	1,588
Southern Group	3,327	167	2,845	15	300
Northern Group	1,184	42	5	1,032	105
Cook Islands	**13,815**	**7,373**	**3,208**	**1,241**	**1,993**

□ = non-movers (i.e. those people who did not change their residence during the reference period

* people aged 5 and younger could not state their residence five years prior to the census, because they were not yet born then

Rarotonga had a net gain of 191 people from the Southern Group Islands (358 minus 167), a net gain of 152 people (194 minus 42) from the Northern Group islands. There was little movement between the Southern and Northern Group islands during the 5-year period before the census.

Overall, Rarotonga gained 343 people from the other Island Groups (Table 20). The Southern Group islands on the other hand had a net loss of 181 people, and the Northern Group islands a net loss of 162 people.

Table 20: Interregional migration during the five-year period prior to the 2006 census, Cook Islands 2006

Island/Region	In-Migrants	Out-Migrants	Net Migrants
Rarotonga	552	209	343
Southern Group	182	363	-181
Northern Group	47	209	-162
Cook Islands	**781**	**781**	**0**

3.3.1.3 Place of birth (lifetime migration)

Data on lifetime migration (number of people by place of residence and place of birth) show the same pattern as data of place of residence 1 and 5 years before the census: the direction of internal migration flows was directed towards Rarotonga.

Fifty-eight per cent of the Cook Islands' population was living at the same place where they were born, 19% (2,962 people) were born in the Cook Islands but not at their current (November 2006) place of residence, and 23% (3,521 people) of the population was born overseas (Table 21).

Table 21: Resident population by place of residence in 2006 and place of birth (lifetime migration), Cook Islands: 2006

Place of residence at time of census		Place of birth			
Island/Region	**Total**	**Rarotonga**	**Southern Group**	**Northern Group**	**Overseas**
Rarotonga	10,226	5,514	1,432	430	2,850
Southern Group	3,729	771	2,407	54	497
Northern Group	1,369	234	41	920	174
Cook Islands	**15,324**	**6,519**	**3,880**	**1,404**	**3,521**

 = non-movers (i.e. those people who did not change their residence during the reference period

Less than half (6,519) of the population was born in Rarotonga, 25% in the Southern Group islands, and 9% (1,404) in the Northern Group islands.

Overall, only just over half (54%) of Rarotonga's residents were born there, while 65% and 67% of the residents of the Southern and Northern Group islands were also born there.

Rarotonga had the highest proportion of residents born overseas, with 28% of its 2006 residents. Only 13% of the Southern and Northern Group island residents were born overseas.

Based on the above data, it can be seen that Rarotonga had a net gain of 857 people, mainly from the Southern Group islands (648) (Table 22).

Table 22: Interregional lifetime migration, Cook Islands: 2006

Island/Region	In-Migrants	Out-Migrants	Net Migrants
Rarotonga	1,862	1,005	857
Southern Group	825	1,473	-648
Northern Group	275	484	-209
Cook Islands	**2,962**	**2,962**	**0**

3.3.2 International migration

International migration refers to people who cross national boundaries to move to another country. In addition to this spatial consideration, time also plays a major role in the analysis of migration. People are usually regarded as migrants only after spending a minimum period of time in their country of destination. Usually the minimum time required to qualify as a migrant is half a year in-country, and sometimes even a full year. Someone coming for a short visit is not considered to be a migrant — he or she is considered to be a visitor or tourist.

Intent is also of crucial importance, as migration usually involves a change of a person's permanent residential address in pursuit of employment or educational opportunities.

The need to consider time and intent highlights one of the key problems concerning migration. Whether or not a particular person qualifies as a migrant can only be established after a certain period of time, usually at least six months, in order to determine whether the arriving and departing person qualifies as a visitor or migrant.

The net impact of migration flows (net migration) is measured as the difference between the number of arrivals (immigrants) and departures (emigrants) during a certain time period.

Net migration = **Arrivals (immigrants)** minus **Departures (emigrants)**

Therefore, if **net migration** was positive it means that the number of arrivals (immigrants) was higher than the number of departures (emigrants); if net migration was negative, the number of departures (emigrants) was higher than the number of arrivals.

The 2006 census included three questions that provide an indication of the level of immigration. Questions were asked about a respondent's:

- residence one and five years prior to the census, and
- place of birth.

Regarding residential address one year prior to the census, 849 people (6%) one year and older answered that they lived overseas (Table 17). Regarding residential address five years ago, 1,993 people (14%) five years and older answered that they lived overseas (Table 19). Regarding place of birth, 3,521 people (23%) answered that they were born overseas (Table 21).

However, these questions only give an indication of long-term immigration, and includes all visitors and short-term residents that were present at the time of the census, and whose usual place of residence is overseas.

The only reliable method for deriving a crude indication of Cook Islands' net migration level is to apply the balancing equation to the intercensal 2001–2006 population growth rate (Table 23).

Table 23: Components of population change of the intercensal period 2001-2006

Components of population change	Total number of intercensal period	Average annual number	Rate*	
Births	1,450	290	19.1	CBR
Deaths	490	98	6.5	CDR
Net migrants	-653	-131	-8.6	Migration rate
Overall change	307	61	0.4	Average annual growth

CBR = crude birth rate
CDR = crude death rate

Between 2001 and 2006 the Cook Islands' population increased from 15,017 to 15,324 people, which equates to a total increase of 307 people during the intercensal period 2001-2006, an average of 61 people per year, or an annual average growth rate of 0.4%.

In section 3.1 and 3.2, average annual number of births and deaths of the period 2001-2006 were estimated at 290 and 98 respectively. Therefore the **natural growth** was about **192** people annually (290 – 98).

The **natural growth rate** is the CBR – CDR = 19.1 – 6.5 = 12.6‰[3] (about 1.3% annually).

According to the **Balancing equation**

Population growth = Births – Deaths + Net migration

the number of net migrants, and the net migration rate can be calculated as follows:

Net migration	=	Overall population change	–	Births	+	Death			
Net migration (intercensal)	=	307	–	1,450	+	490	=	**-653**	
Net migration (annually)		61	–	290	+	98		**-131**	
Net migration rate	=	Population growth (‰)	–	CBR	+	CDR			
Net migration rate	=	4	–	19.1	+	6.5	=	**-8.6**	**‰**

In conclusion, the Cook Islands suffered from a net loss of 653 people during the intercensal period 2001-2006, which translates into a net loss of approximately **130 people annually**.

[3] Note: the CBR and CDR are usually shown in per 1000 population (‰)

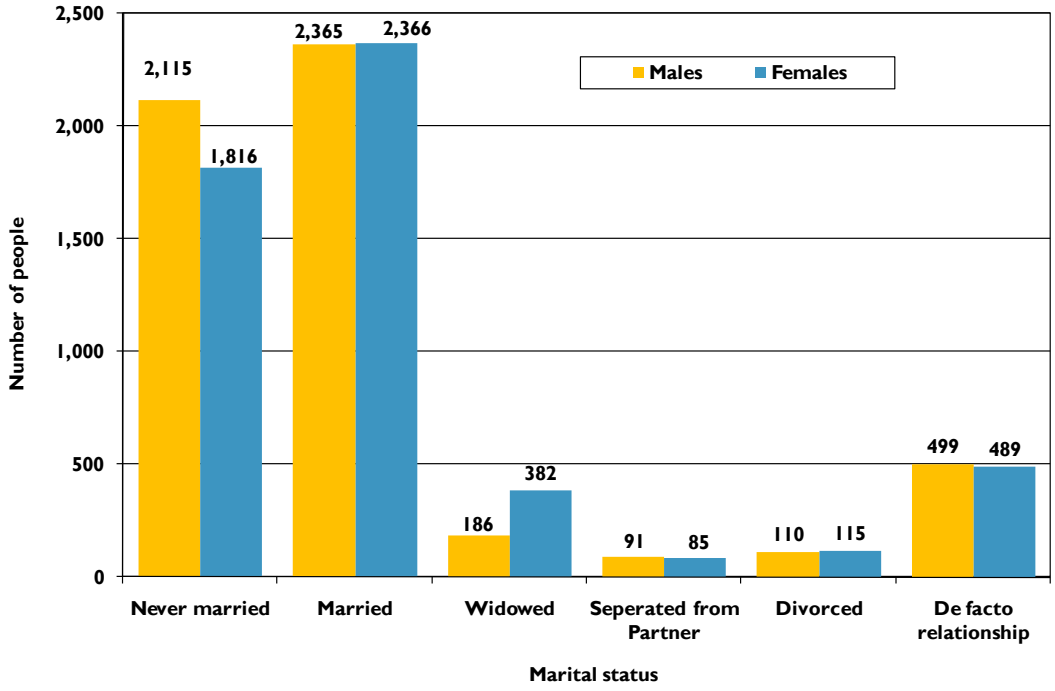
4. SOCIAL CHARACTERISTICS

4.1 Marital status

During the 2006 census, 44% of males (2,365) and 45% of females (2,366) aged 15 and older were married, and another 9% of males and females were living in a de facto relationship. The proportion never married (single), were 39% of males (2,115) and 35% of females (1,816).

A higher proportion of females (7%) were widowed than males (3%) (Fig.24).

Figure 24: Resident population aged 15 and older by marital status, Cook Islands: 2006



The higher proportion of young married women compared with men of the same age indicates that women generally marry at younger ages than men (Fig. 25), although the age difference between married couples is only very small in the Cook Islands (0.3 years). The average age at marriage was 31.7 and 31.4 years for males and females, respectively, and was calculated based on the proportion of those never married/single by age (Table 24).

Only 1.7% of males and 2.2% of females were married at ages 15-19, compared with 8.2% and 10.1% of males and females at age 20-24. These calculations classify the persons living in a *de facto relationship* as *never married* in order to be comparable to earlier censuses, where the question on *de facto relationship* was not asked.

Table 24: Singulate mean age at marriage (SMAM[4]), Cook Islands: 1991, 1996, 2001, and 2006

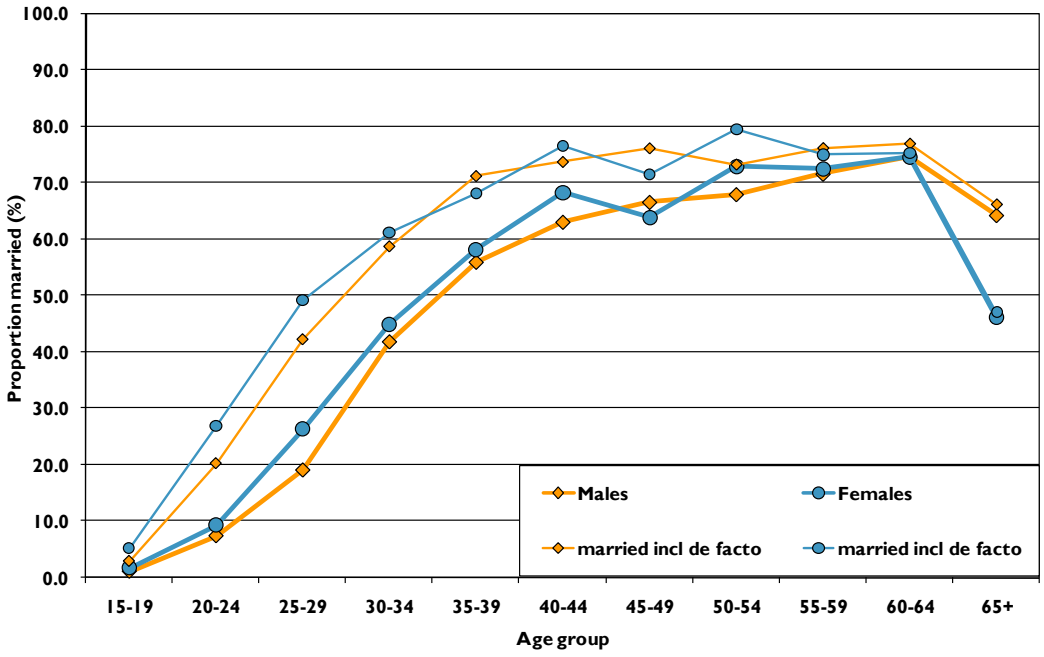
Year	Average age at first marriage			Percentage ever married by age group (%)			
	SMAM*		Difference	15-19		20-24	
	Males	Females	(Men - Women)	Males	Females	Males	Females
2006	31.7	31.4	0.3	1.7	2.2	8.2	10.1
2001	32.0	31.0	1.0	0.4	0.9	5.9	12.0
1996	31.2	29.6	1.6	1.4	2.2	12.1	17.4
1991	30.1	28.5	1.7	1.9	2.8	11.3	17.7

If persons living in a de fact relationship were treated as married, then the proportions of males and females married at age 15-19 would be 3.5% and 5.7%, and the proportion married at ages 20-24 would be 21.1% and 27.7% for males and females.

Figures 25 and 26 display the proportion of males and females married/never married by age. The graphs show different proportions based on whether or not to include the de facto relationship in the category of married/never married.

The thin line in Figures 25 and 26 includes people living in a de facto relationship in either the married category (Fig.25) or in the category never married (Fig.26).

Figure 25: Resident population aged 15 and older by sex and proportion married, Cook Islands: 2006



[4] 1983. United Nations. Manual X, indirect techniques for demographic estimation. New York: United Nations. 304 p.

Figure 26: Resident population aged 15 and older by sex and proportion never married (single), Cook Islands: 2006

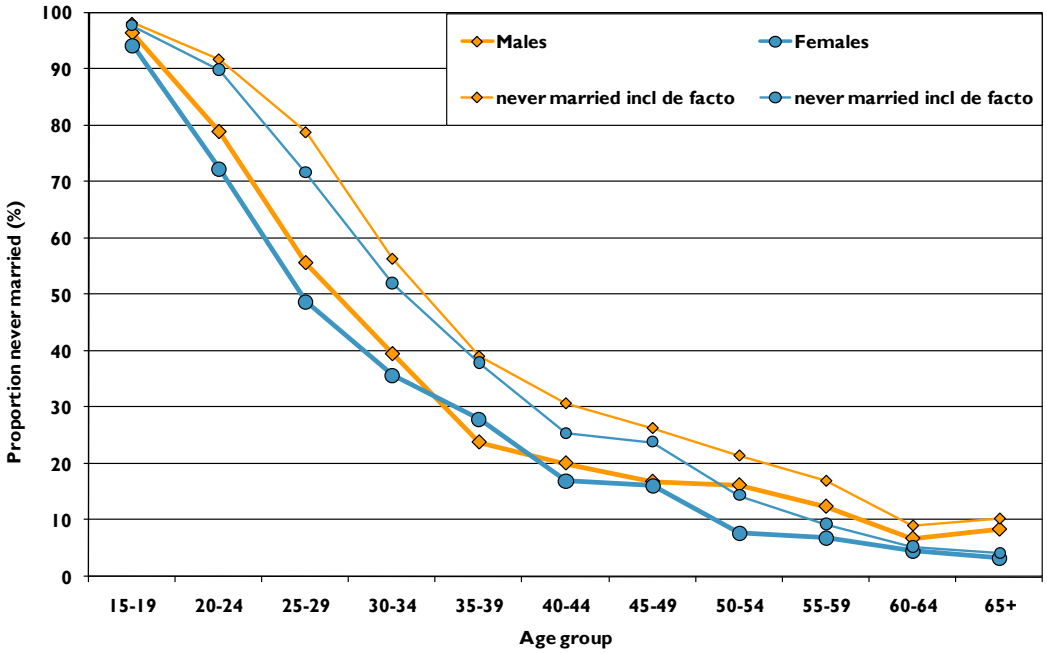
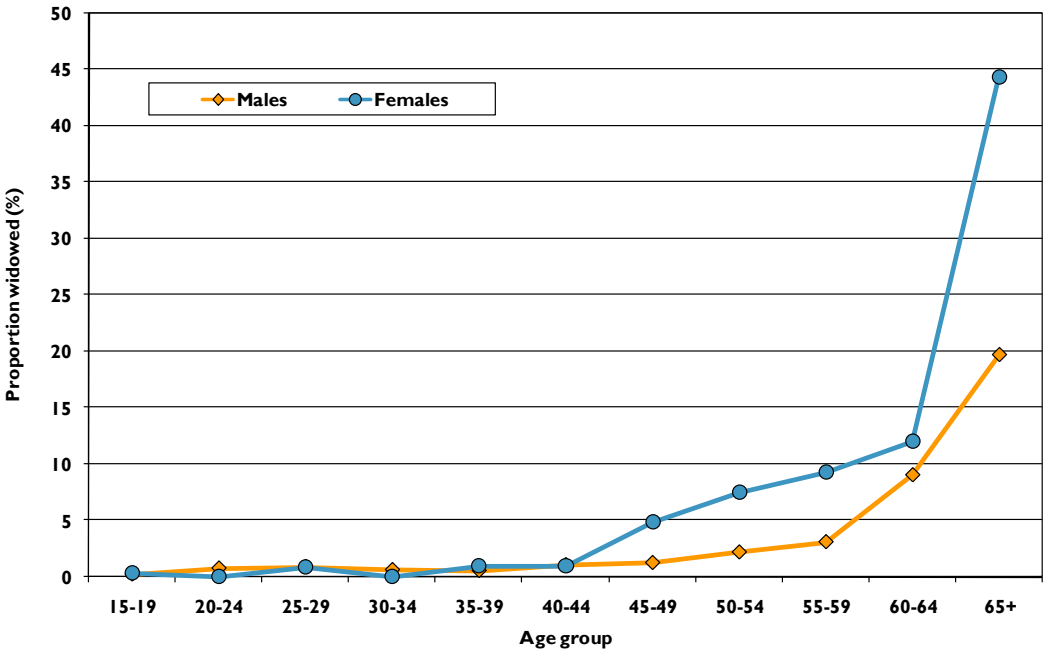


Figure 27: Resident population aged 15 and older by sex and proportion widowed, Cook Islands: 2006



Clearly Figures 25 and 26 complement each other. When the proportion of the population married at a certain age is low, it is high for the proportion of the population never married at the same age, and vice versa.

Furthermore, the proportion of females in a married status is higher than that of males at almost all ages, while the proportion of males never married is higher than females at almost all ages.

The discrepancy between the proportion of widowed males and widowed females, at ages 40 and older, increased continuously (Fig. 27). Between ages 55–59, only 3% of males were widowed, compared with 9% of females. At age 65 and older, only 20% of males were widowed, compared with 44% of females.

The higher proportion of widowed females is explained by:

- lower female mortality rates, and therefore longer life expectancies of female spouses,
- older age at marriage of males compared with their female partners.

Therefore, male spouses usually die before their female partners.

4.2 Religion

The question on religion was not compulsory. Nevertheless, only 3% or 383 people refused to respond or did not respond to this question (Table 25).

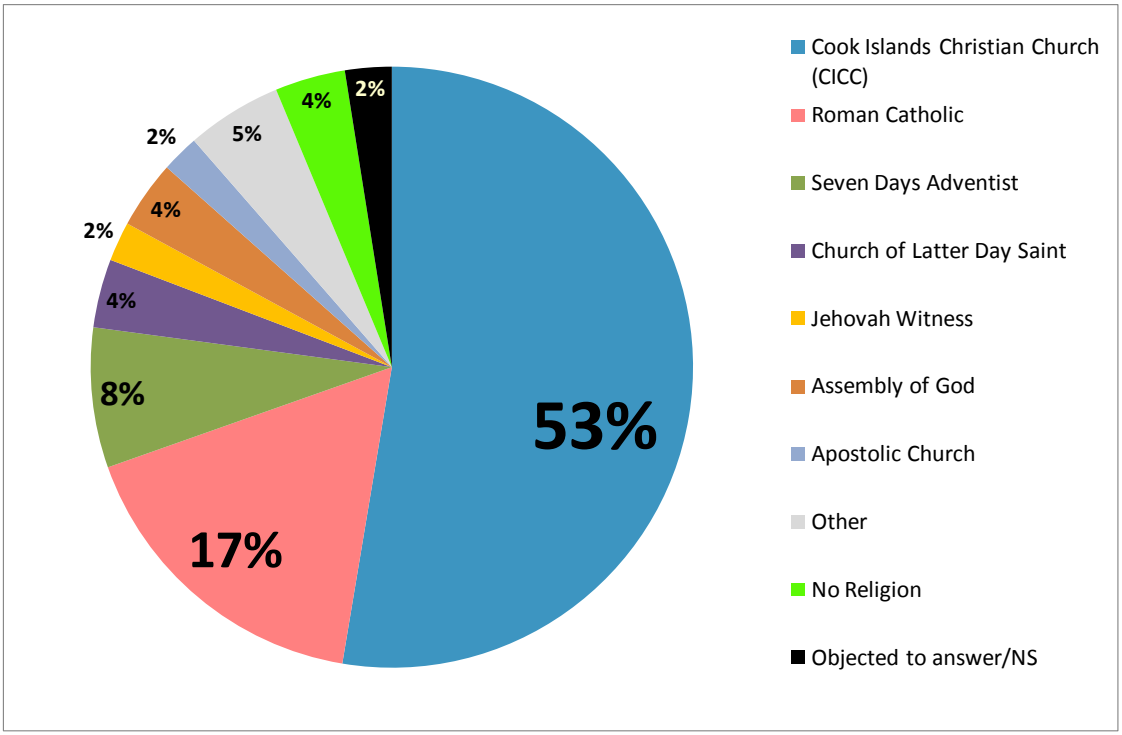
Table 25: Resident population by religious affiliation, Cook Islands: 1996, 2001 and 2006

Religion	1996	2001	2006
Cook Islands Christian Church (CICC)	10,498	8,384	8,065
Roman Catholic	3,076	2,519	2,599
Seven Days Adventist	1,365	1,178	1,154
Church of Latter Day Saint	642	568	565
Jehovah Witness	280	260	325
Assembly of God	355	347	558
Apostolic Church	315	266	310
Other	668	616	786
No Religion	485	455	579
Objected to answer/NS	350	397	383
Total	**18,034**	**14,990**	**15,324**

The Cook Islands Christian Church (CICC) continues to be the dominant religious denomination of the resident population of the Cook Islands; however, its share has declined from 55% in 2001 to 53% or 8,065 persons (Figure 28).

The next largest group was the Roman Catholic Church with 2,599 members, with a share of 17% of all denominations, followed by the Seventh Day Adventist Church (SDA) with 1,154 members or 8%. All other denominations had less than 6% of the resident population as members and persons with no religion comprised of 4% of the resident Cook Islands population.

Figure 28: Resident population by religious affiliation (as percent of total population), Cook Islands: 2006



4.3 Ethnic origin

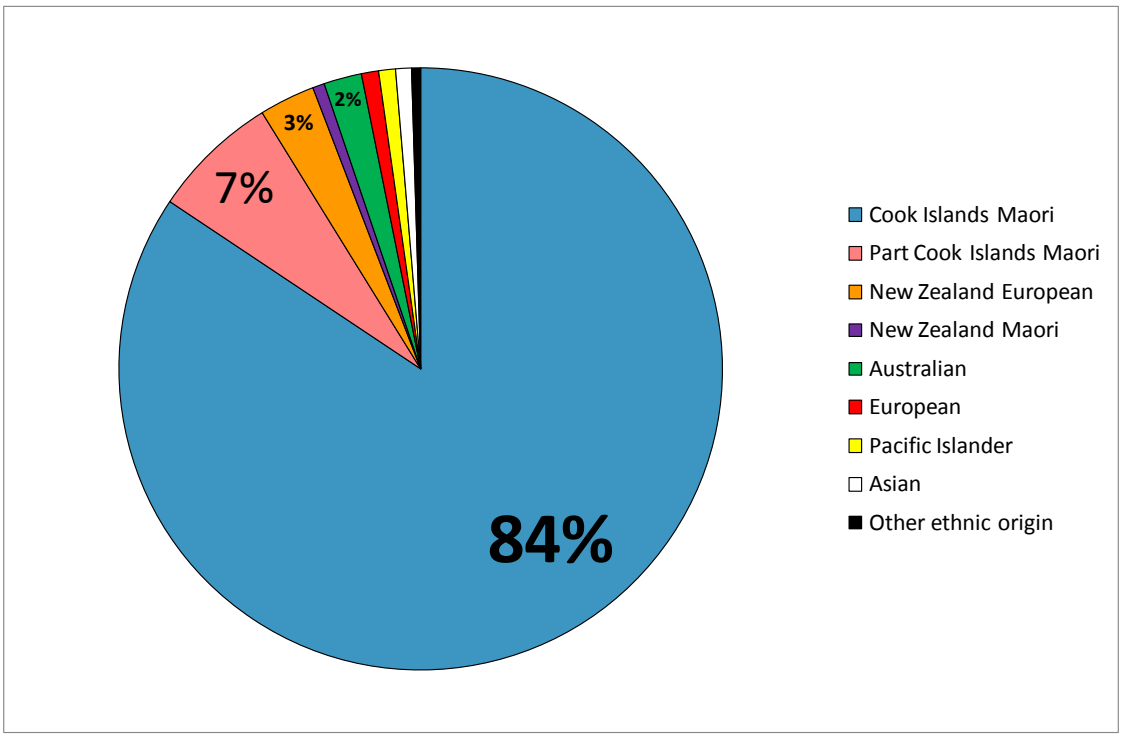
Cook Island Maori made up the bulk of the resident population with 84% or 12,930 persons, 7% or 1,045 persons were Part Cook Island Maori and 9% or 1,349 persons were of foreign descent (Table 26 and Figure 29).

Table 26: Resident population by ethnic origin, Cook Islands: 2006

Ethnic origin	Total	%
Cook Islands Maori	12,930	84
Part Cook Islands Maori	1,045	7
New Zealand European	458	3
New Zealand Maori	97	1
Australian	311	2
European	141	1
Pacific Islander	138	1
Asian	130	1
Other ethnic origin	74	0
Total	**15,324**	**100**

The largest single groups of foreign descent were of New Zealand European origin (458 people), and Australian (311).

Figure 29: Resident population by ethnic origin (in % of resident population), Cook Islands: 2006



Most of the people of *foreign decent* (those other than Cook Island or Part Cook Island Maori) were living in Rarotonga (1,189). In total 12% of the Rarotonga resident population was of *foreign descent* in 2006, which is an increase from 9% in 2001 (Table 27).

Table 27: Resident population by region and ethnic origin, Cook Islands: 2006

Region/Islands	Cook Island Maori				Part Cook Island Maori				Other Ethnic Origin			
	1991	1996	2001	2006	1991	1996	2001	2006	1991	1996	2001	2006
	numbers											
Rarotonga	8,493	8,848	7,886	8,146	596	754	676	891	878	735	862	1,189
Southern Group	5,057	5,070	3,550	3,475	142	111	143	126	95	77	84	128
Northern Group	2,138	2,366	1,702	1,309	94	55	52	28	25	18	35	32
COOK ISLANDS	**15,688**	**16,284**	**13,138**	**12,930**	**832**	**920**	**871**	**1,045**	**998**	**830**	**981**	**1,349**
	%											
Rarotonga	85	86	84	80	6	7	7	9	9	7	9	12
Southern Group	96	96	94	93	3	2	4	3	2	1	2	3
Northern Group	95	97	95	96	4	2	3	2	1	1	2	2
COOK ISLANDS	**90**	**90**	**88**	**84**	**5**	**5**	**6**	**7**	**6**	**5**	**7**	**9**

4.4 Health

4.4.1 Disability

During the census enumeration, each person aged 15 and older was asked if they have any disability or health problem lasting six months or more. From the result 764 persons reported to have a disability or a health problem which was 7% of the resident population 15 years and older (Table 28).

There were about equal numbers of males (386) and females (378) with a disability/health problem.

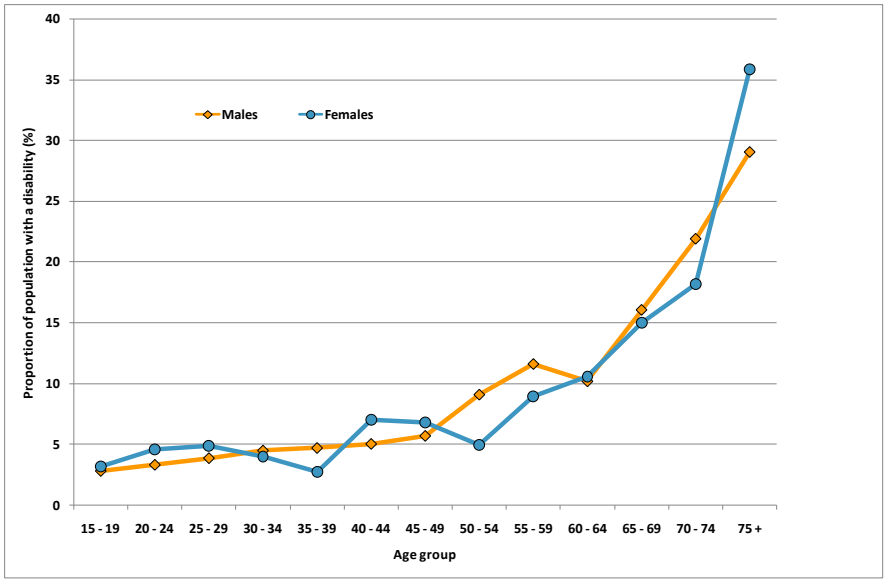
The majority of these disabilities were caused by Health and Medical conditions (352 or 46%) followed by *Physical-Intellectual* handicaps with 177 or 23%. Exactly 50 people had a physical disability.

Table 28: Proportion of the resident population with a disability or health problem, Cook Islands: 2006

Disability, Health and Medical conditions	Total	Male	Female
Physical Disability	50	33	17
Physical-Intellectual Handicap	177	82	95
Intellectual	12	5	7
Deaf/Hearing	81	39	42
Blind/Visual	74	30	44
Speech/Stuttering/Mute	10	8	2
Health and Medical Conditions	352	170	182
Multiple Disability	83	50	33
Old Age (Senility)	52	20	32
Other	46	28	18
Not Stated	4	3	1
Total	**764**	**386**	**378**

The proportion of the population with a disability increased with age (Fig. 30). From age 45 the proportion of the population with a disability increased continuously until it reached about 33% of the population aged 75 and older.

Figure 30: Proportion of the resident population with a disability or health problem, Cook Islands: 2006



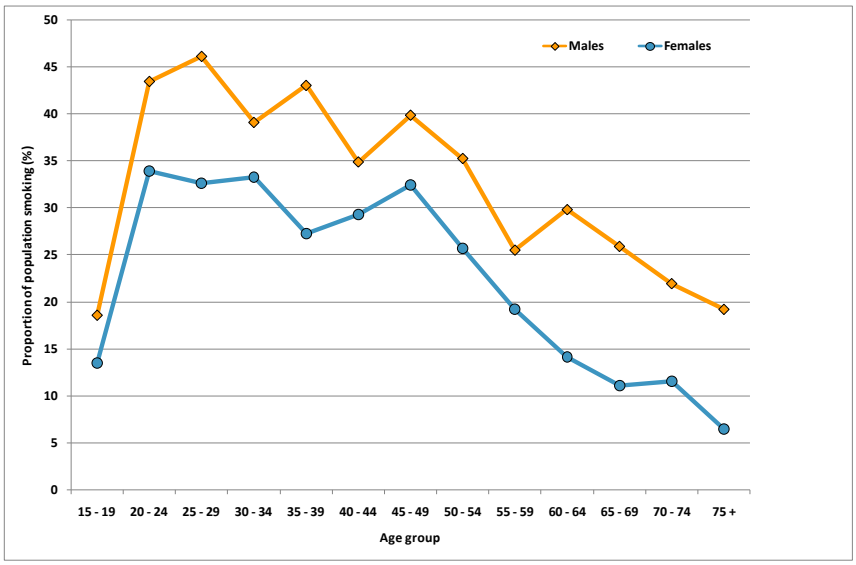
4.4.2 Smoking habits

During the 2006 census, every person aged 15 and older was asked whether they smoked tobacco or cigarettes regularly (that is one or more a day). About 29% of the population 15 years and older smoked on a daily basis; 34% of males and 25% of females.

The heaviest smokers were the 20–29 year old males and 20-34 year old females (Fig.31). At any age there were more male smokers than female smokers.

From age 50, the proportion of smokers of both males and females declined continuously.

Figure 31: Resident population aged 15 and older that smokes regularly, Cook Islands: 2006



4.5 Educational characteristics

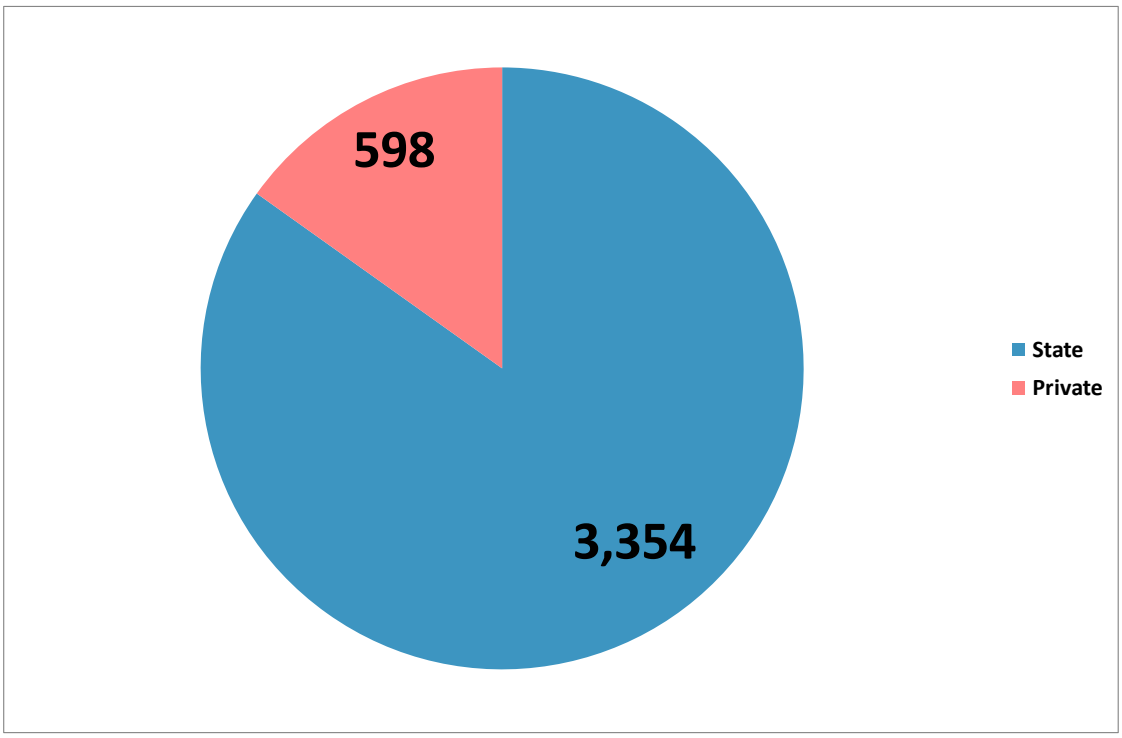
4.5.1 School enrollment

Education in the Cook Islands is free and compulsory from ages 5–15. This has ensured access to primary (grades 1-6) and secondary (forms 1-7) level of education for all.

Based on the 2006 census data, 3,952 persons aged 5 and older were enrolled in school: 2,067 males and 1,885 females.

The majority (85%) of all pupils were enrolled in public schools, while 15% were enrolled in private schools (Fig.32).

Figure 32: Number of students by type of school, Cook Islands: 2006

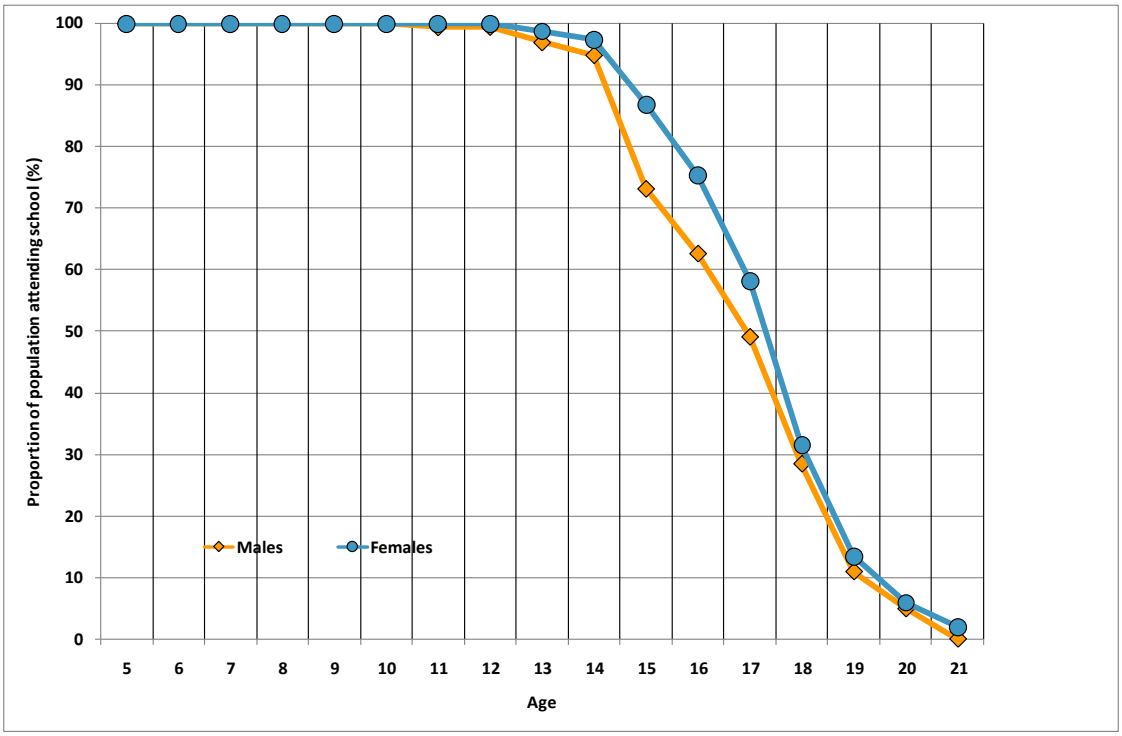


Based on the question of whether a person was currently attending school, 97% of the population 5-15 years attended school: 96.4% of males, and 98.5% of females.

Nearly all (99.9 per cent) of the 5-12 year old did attend school (Fig.33). From that age onward, enrollment rates declined: while still 96% of the 14 year old were at school, it was only 79% of the 15 year old population. Just over half of the 17 year old were at school, and it was less than a third of the 18-year old population. At age 19, only 11-13 per cent of all males and females were still attending school, and the age of 20, 5 per cent of males and 6 per cent of females were still in school.

However, Figure 33 clearly shows the difference in enrollment rates by males and females. At every age a higher proportion of females attended school than males. One might say ‘the drop-out rates’ of males is higher than that of females.

Figure 33: Resident population 5 years and older by sex enrolled in school, Cook Islands: 2006



4.5.2 Highest primary or secondary level completed

Based on data on the highest primary or secondary level completed of the population 5 years and older, 7% of males and 8% of females responded that they had completed secondary education (form 7[5]). Another 69% said that they attended secondary education but did not (yet) complete the level. About 2 % completed primary level, and 12% attended primary without completing the level (Table 29).

The proportion of the population 5 years and older living in Rarotonga that completed secondary education was much higher than those in the Southern and Northern Group islands.

Overall there was little difference in the proportion of males and females that attended or completed the different educational levels.

[5] Form 7 was only introduced in the early 1990s

Table 29: Resident population 5 years and older by sex, region and highest primary or secondary level completed (in %), Cook Islands: 2006

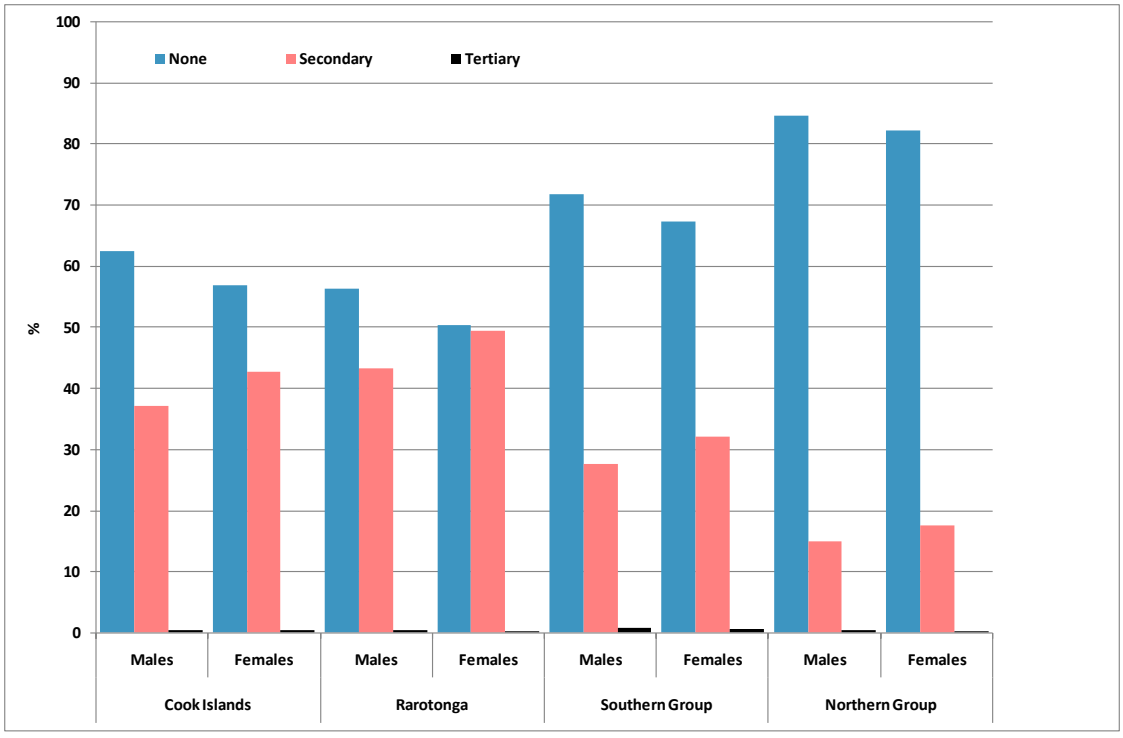
Highest level completed	Cook Islands		Rarotonga		Southern Group		Northern Group	
	Males	Females	Males	Females	Males	Females	Males	Females
No Schooling	0.3	0.5	0.2	0.3	0.5	1.0	0.5	0.4
Special Education	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.0
Pre-School	2.1	1.9	2.6	1.9	1.3	1.8	1.3	3.1
Primary attended	12.6	11.5	10.9	10.3	15.2	12.3	18.7	18.8
Primary completed	5.6	4.9	4.8	4.2	7.5	6.1	6.8	6.6
Secondary attended	69.1	69.7	69.2	69.0	68.8	72.5	68.9	67.0
Secondary completed	6.9	8.0	9.1	11.0	2.7	2.3	1.4	1.1
Not stated	3.3	3.3	3.2	3.2	3.8	3.7	2.5	3.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: 'Primary attended' incl. Grade 1-5, 'Primary completed' incl. Grade 6,
'Secondary attended' incl. Form 1-6, 'Secondary completed' incl. Form 7

4.5.3 School qualification

The proportion of the resident population with no educational qualifications was 62 per cent of males and 57 per cent of females (Fig.34).

Figure 34: Resident population 5 years and older by sex, region and school qualification (in %), Cook Islands: 2006



The proportion of males and females with a secondary education was 37% and 43% respectively. Only exactly 49 people had a tertiary qualification.

Again, the proportion of people with a secondary qualification was much higher in Rarotonga than in the Southern and especially the Northern Group islands. Vice versa, the proportion of the population 5 years and older without a qualifications was much higher in the 'Outer Islands' than in Rarotonga.

4.5.4 Trade, vocational, and professional qualification

The vast majority of the resident population did not have a trade, vocational or professional qualification, which was 71.2 per cent of males and 73.6 per cent of females (Table 30).

There were a higher proportion of males with a *trade and business certificate* than females, the proportion were 10.9% and 3.8% respectively. On the other hand, there were a higher proportion of females (16%) than males (12.6%) with a *tertiary qualification*.

As seen in the educational topics before, the proportion of the population with a qualification was significantly higher in Rarotonga than in the Southern and Northern Group islands, where about 80% of the population 15 years and older was without a qualification.

It needs mentioning that many, if not most, people that were currently pursuing a tertiary education were absent at the time of the census to attend tertiary schooling overseas, and therefore, were not included in the census data.

Table 30: Resident population 15 years and older by sex, region and educational qualification (in %), Cook Islands: 2006

Trade Vocational/ Professional Qualification	Cook Islands		Rarotonga		Southern Group		Northern Group	
	Males	Females	Males	Females	Males	Females	Males	Females
Trade and business certificate	10.9	3.8	13.1	4.9	6.2	1.5	5.8	1.5
Professional and higher certificates	0.4	0.9	0.4	0.9	0.4	1.1	0.0	0.5
Teachers & members of professional societies	0.6	1.8	0.7	2.0	0.6	1.7	0.4	0.5
Fellow & members of professional societies	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0
Other vocational qualification	2.0	1.4	2.3	1.4	1.1	1.6	2.4	0.3
Tertiary qualification	12.6	16.0	14.4	18.7	9.1	11.0	7.1	8.6
None	71.2	73.6	67.3	70.1	80.2	80.7	78.2	81.7
Not Stated	2.1	2.4	1.6	2.0	2.3	2.4	6.0	6.9
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

4.6 Labour market status

4.6.1 Introduction

The 2006 census included a question on labour market activity. Enumerators were instructed to ask each respondent aged 15 and over whether they worked during the month of November 2006. The different activity categories were defined as follows:

1. *Employer, own business/plantation without employees* – The respondent works in own business (shop, etc) or plantation alone and does not employ any persons.
2. *Employer, own business/plantation with employees* – The respondent works in own business (shop, etc) or plantation and employs workers.
3. *Working full time for wages/salary* – The respondent works for 6 hours a day or more, or 30 hours a week or more for wages or salary.
4. *Working part-time for wages/salary or on casual basis* – The respondent works regularly for less than 6 hours a day, or less than 30 hours a week.
5. *Unpaid family worker in plantation/store/business* – The respondent could be working in the family plantation or the family stores and is not receiving any wages. Respondents maybe receiving food or other items, in this case disregard this kind of payment.
6. *Unemployed* – The respondent was not employed in the month of November 2006, and was looking for work.
7. *Full time students* – The respondent attends school full time. If the respondent has a job, it will be captured in question on secondary activity.
8. *Home Duties* – The respondent voluntarily stays home.
9. *Retired* – The respondent is retired from the public and private sector and is not active in any other form of activity for 'gain'.

Based on the above, data collected from the Cook Islands census have been assigned to the three categories of:

- **employed** (categories 1-5);
- **unemployed** (category 6);
- **not in the labour force** (categories 7-9).

4.6.2 The labor force: the employed and unemployed people

The total labor force of 7,459 people is defined as those being employers or self employed (964), employees (5,742), those that did unpaid work (87) and the unemployed (666) (Figs.35-36 and App.5).

The total number of employed people consisted of 6,706 people, 3,685 (55%) males and 3,021 (45%) females. From an urban–rural perspective, 5,149 (77%) of the paid workers were in the urban area (Rarotonga), and 1,557 (23%) held paying jobs in rural areas (Southern and Northern Group islands).

Figure 35: Resident population aged 15 and older by sex and labour market status, Cook Islands: 2006

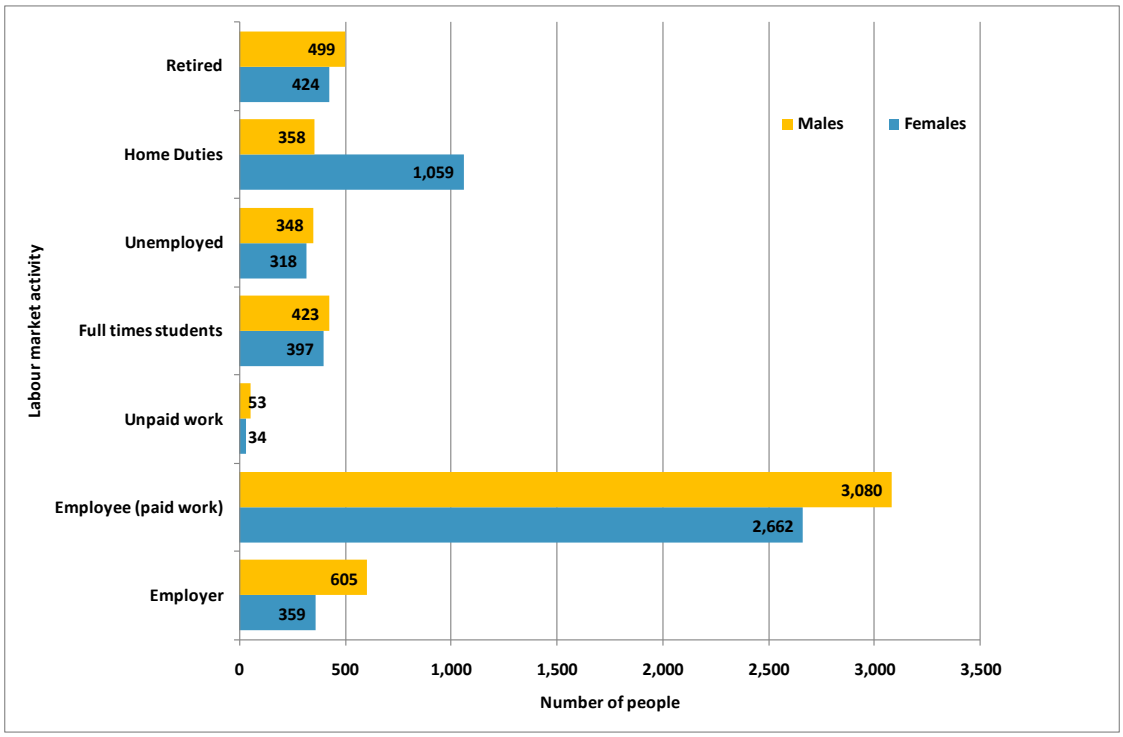
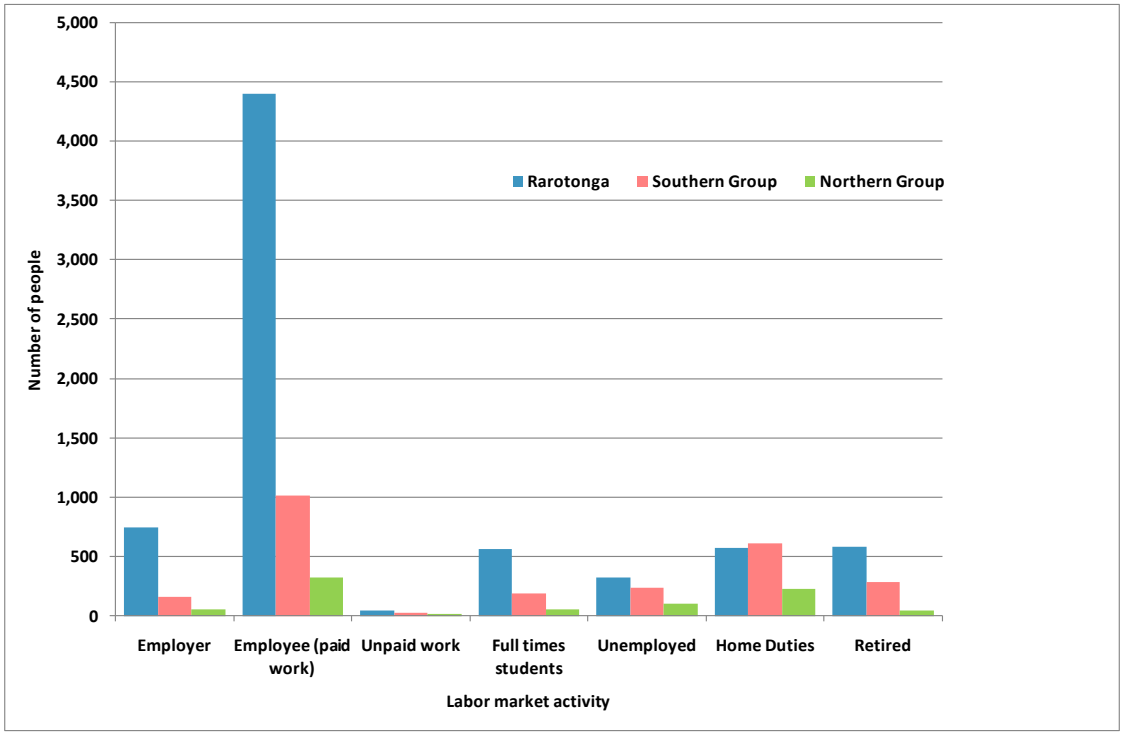


Figure 36: Resident population aged 15 and older by region and labour market status, Cook Islands: 2006



4.6.3 Labour force participation rate and employment–population ratio

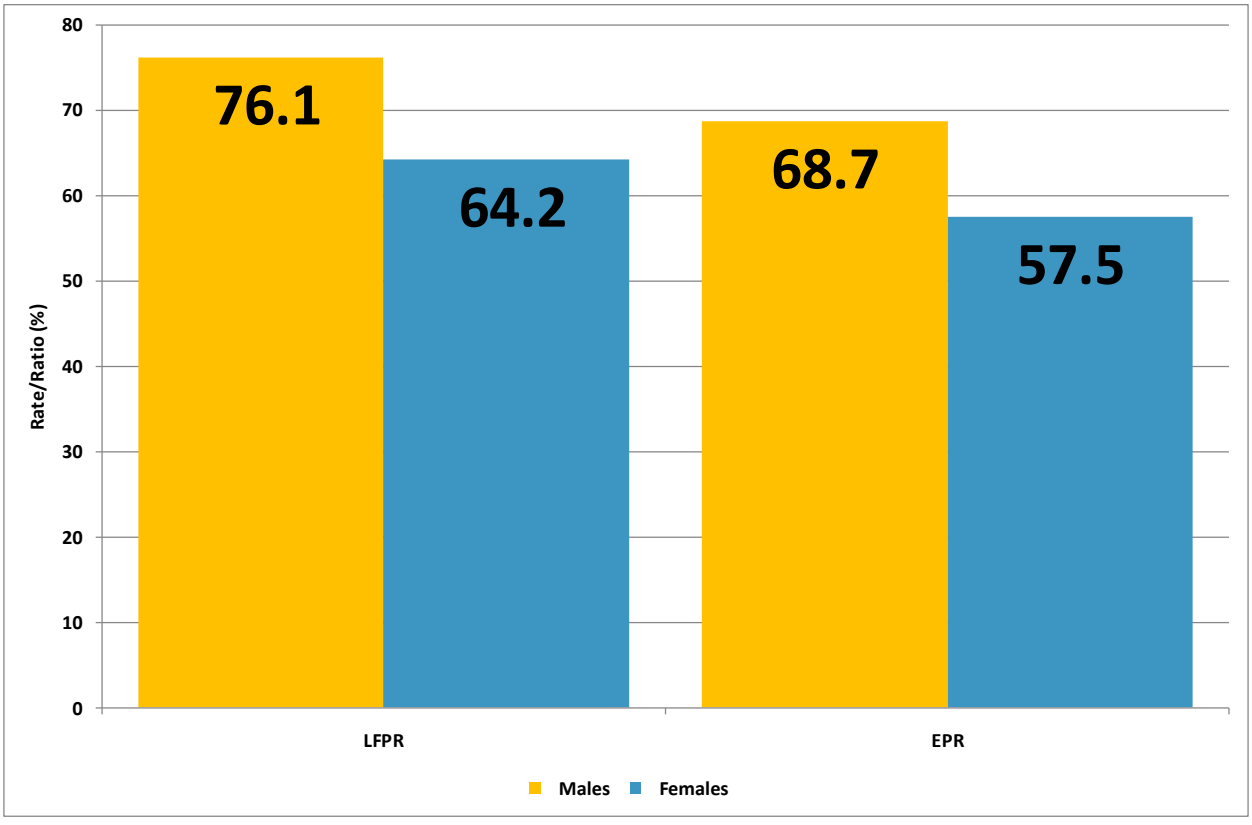
The labour force participation rate (LFPR) is the number of people in the labour force by a given age and sex and/or place of rural–urban residence, divided by the corresponding total population with the same characteristics, multiplied by 100.

The employment–population ratio (EPR) is the number of people employed in cash work by a given age and sex and/or place of rural–urban residence, divided by the corresponding total population with the same characteristics, multiplied by 100.

The LFPR is calculated at 70.2% in the Cook Islands in 2006 (Fig.37 and Table 31). At the same time the EPR was 63.1.

Labour force participation rates were higher for males (76.1) than for females (64.2), so was the employment-population ratio with 68.7 and 57.5 for males and females respectively.

Figure 37: Resident population aged 15 and older by labour force participation rate and employment–population ratio by sex: Cook Islands: 2006



The two labor force indicators (LFPR/EPR) were significantly higher in Rarotonga (76.2/71.0) compared to the Southern (56.7/46.4) and Northern Group islands (59.5/45.4).

Table 31: Resident population aged 15 and older by sex, region, labour force participation rate, and employment–population ratio, Cook Islands: 2006

Region/Sex	Labour force participation rate	Employment-population ratio	Unemployment rate*	
			a	b
Cook Islands	**70.2**	**63.1**	**8.9**	**6.9**
Males	76.1	68.7	8.5	6.7
Females	64.2	57.5	9.4	7.3
Rarotonga	**76.2**	**71.0**	**5.9**	**4.6**
Males	80.4	75.3	5.2	4.1
Females	71.8	66.6	6.8	5.1
Southern Group	**56.7**	**46.4**	**16.5**	**13.1**
Males	64.6	54.0	15.6	12.5
Females	48.8	39.0	17.6	13.8
Northern Group	**59.5**	**45.4**	**20.3**	**16.3**
Males	73.1	55.2	20.7	15.9
Females	44.2	34.3	19.5	17.2

a = the respondent was not employed in the month of November 2006, and was looking for work, regardless of whether the respondent was available for work or willing to work

b = the respondent was not employed in the month of November 2006, and was looking for work, and was available to work or willing to work

Note that the number of people in the labour force will be adjusted according to the definition of the *unemployed*

The LFPR and EPR by age and sex are presented in figures. The general pattern is low participation rates for the population 15-19 years when many of the teenagers are still attending school, before the rates sharply increase. They reach a plateau at ages 20-49, after which the rates gradually decrease.

It is interesting to see that a large proportion (27%) of the population aged 60 years and older was still in the labour force; this was 34% and 21% for males and females respectively, indicating that many older people keep providing economically for themselves and their household/families.

The labour force participation rate and the employment–population ratio were higher for males than for females at all ages (Figs.38-39).

The labour force participation rate for females did not exceed 86% at any age, while that of males was more than 90% at ages 20–49, with a peak of 96% at age 30-34.

In terms of the employment–population ratio, more than 80% of all males at aged 20–54 were employed as paid workers, with a peak employment rate at age 30-34 when almost 90% of all males were gainfully employed. In contrast, the age group with the highest percentage of females employed was age 25-29 when just less than 80% of females were employed.

Figure 38: Resident population aged 15 and older by age, sex and labour force participation rate, Cook Islands: 2006

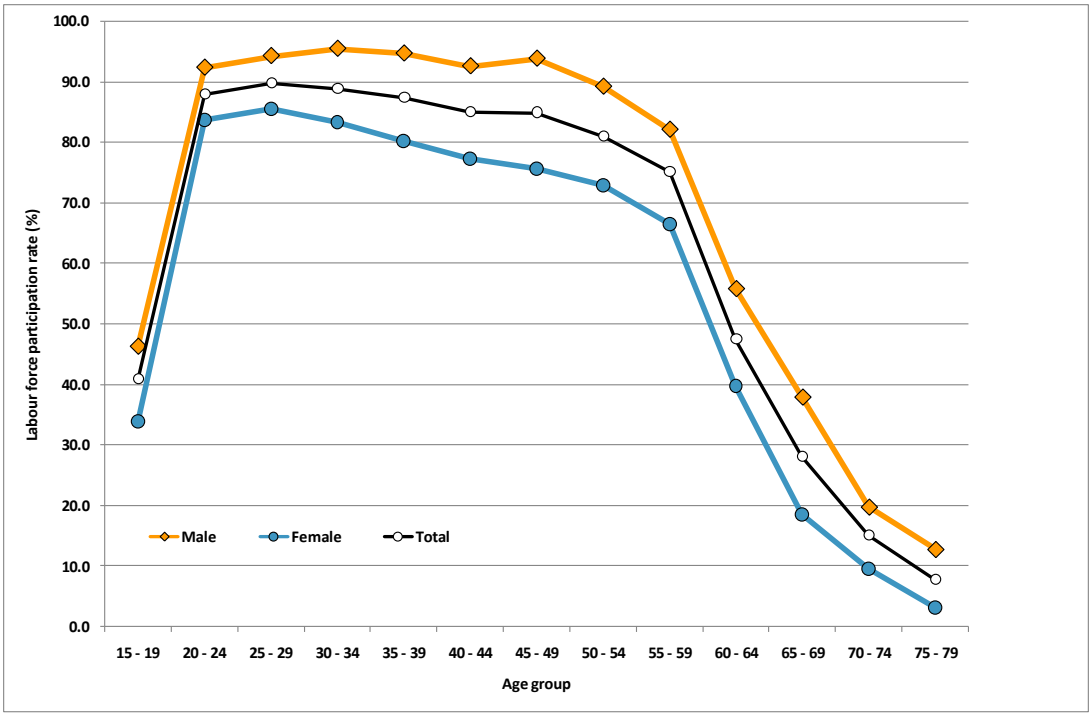
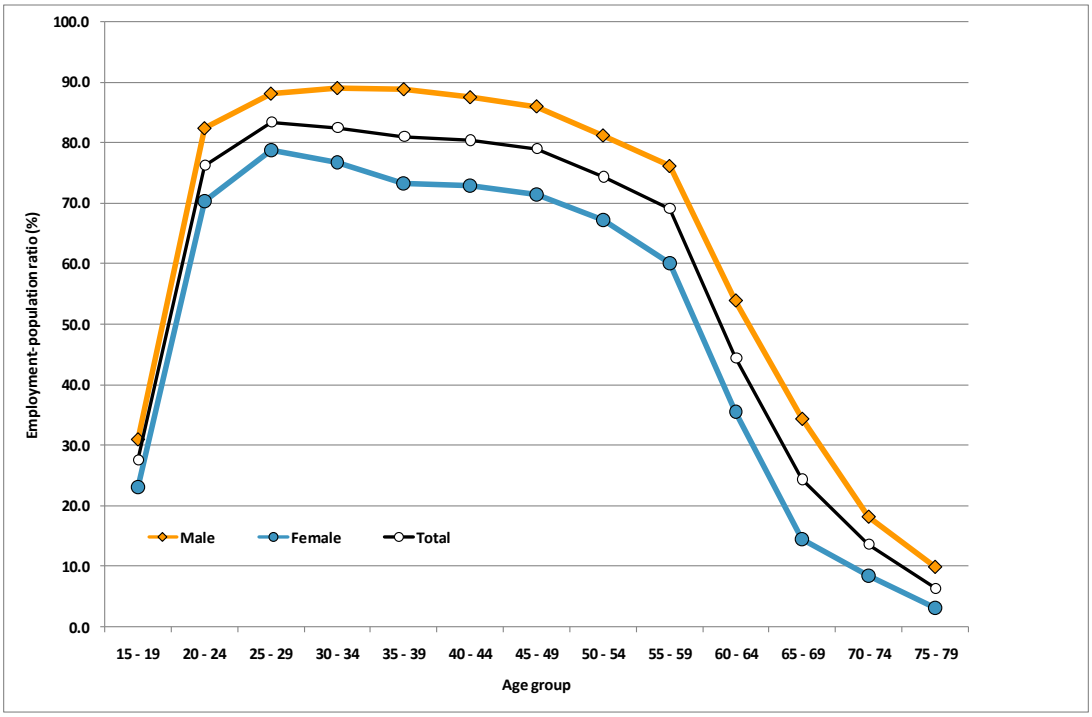


Figure 39: Resident population aged 15 and older by age, sex and employment–population ratio, Cook Islands: 2006



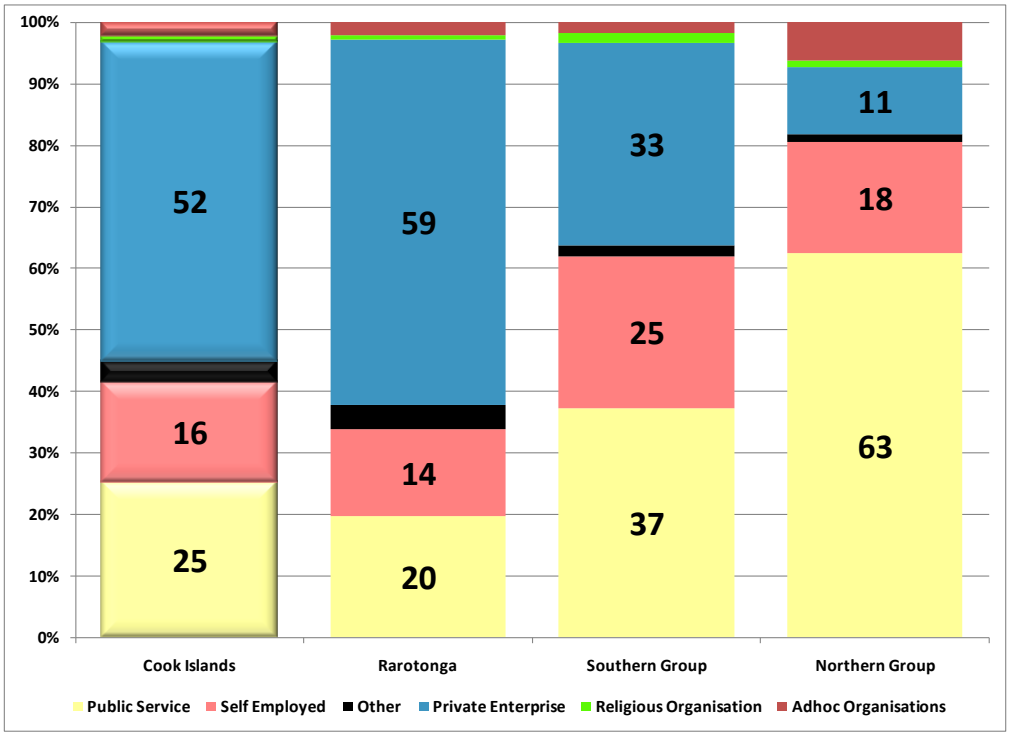
4.6.4 Employment status

About 52% of all employed people (8,361 males, 4,900 females) were working for a private enterprise, one in four employees were working in the public service, and 16% were self employed. (Fig.40).

However, this pattern is very different per region. While only 20% of all employed people in Rarotonga worked for the public service, this percentage was 37% in the Southern Group Islands, and even 63% in the Northern Group islands.

On the other hand, more than half of all employers worked for a private enterprise in Rarotonga; this was only 33% in the Southern Group Islands, and only 11% in the Northern Group islands. Every forth employed person in the Southern Group islands was self employed.

Figure 40: Employed population by employment status and region, Cook Islands: 2006

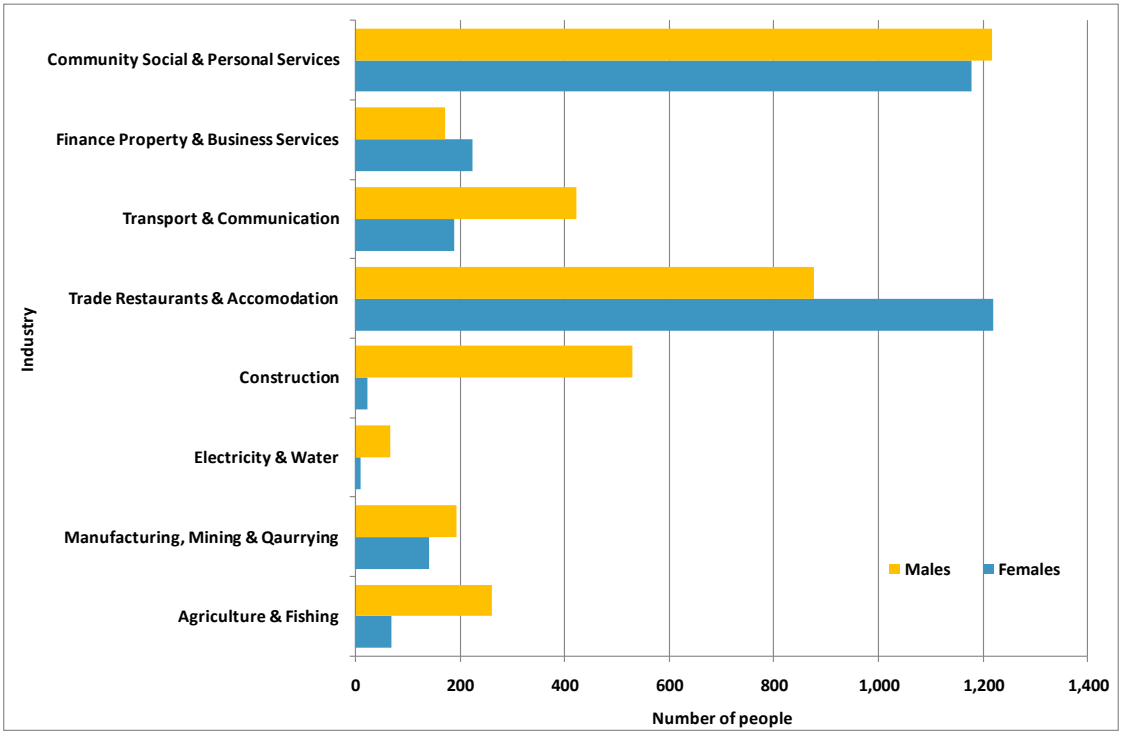


4.6.5 Employed population by industry group

The largest group of employed people in the Cook Islands was employed in the *Community Social & Personal Services* with 2,395 people and 35% of the employed people. This was closely followed by people employed in the industry of *Trade Restaurants & Accommodation* with 2,097 people or 31% of all employed persons (Fig.41).

While *Trade Restaurants & Accommodation* was dominated by females, mostly men were employed in *Construction, Electricity & Water*, and in *Agriculture & Fishing*.

Figure 41: Employed population by industry, Cook Islands: 2006

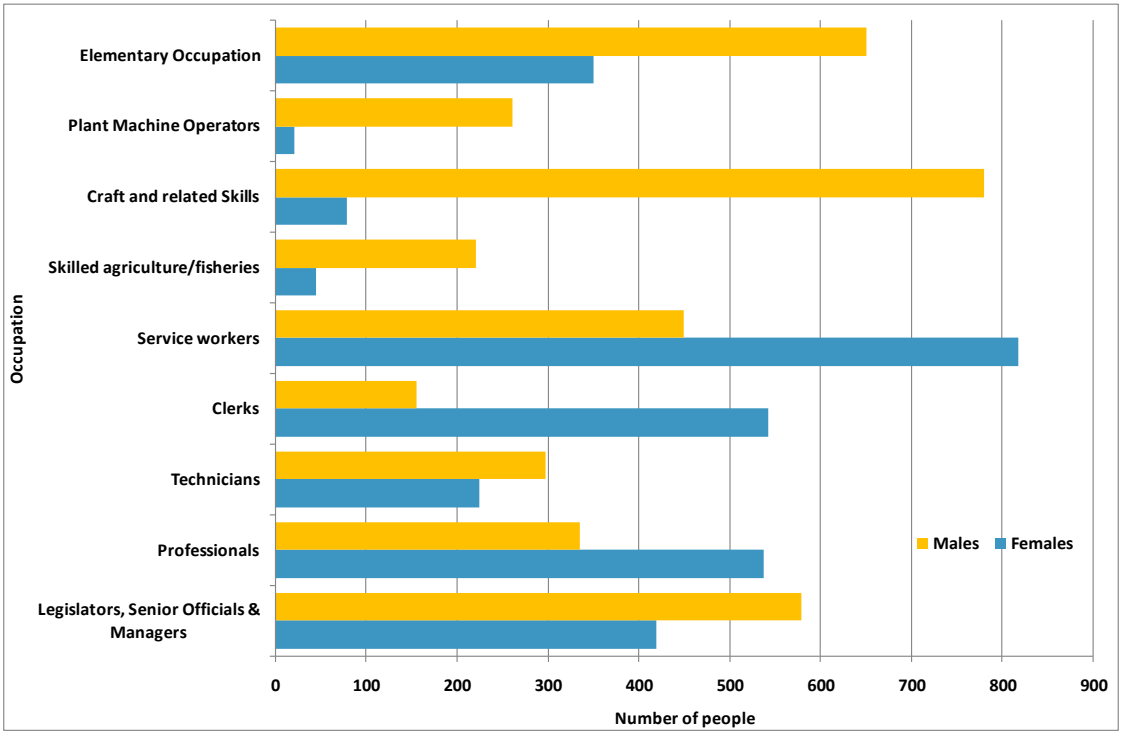


4.6.6 Employed population by occupational group

The largest number of employed workers were in the category of *Service workers* with 1,267 people or 19% of all employed people, closely followed by *Elementary Occupation* with 1001 people, and *Legislators, Senior Officials & Managers* with 998 people (Fig.42). Other major occupational groups are people employed as *Professionals* (873) and in *Craft and related Skills* (859).

While the *Clerks, Service workers, and Professionals* were dominated by females, all other categories were dominated by males. This was especially so for *Plant Machine Operators, Craft and related Skills,* and *Skilled agriculture/fisheries*.

Figure 42: Employed population by occupation, Cook Islands: 2006



4.6.7 Unemployment

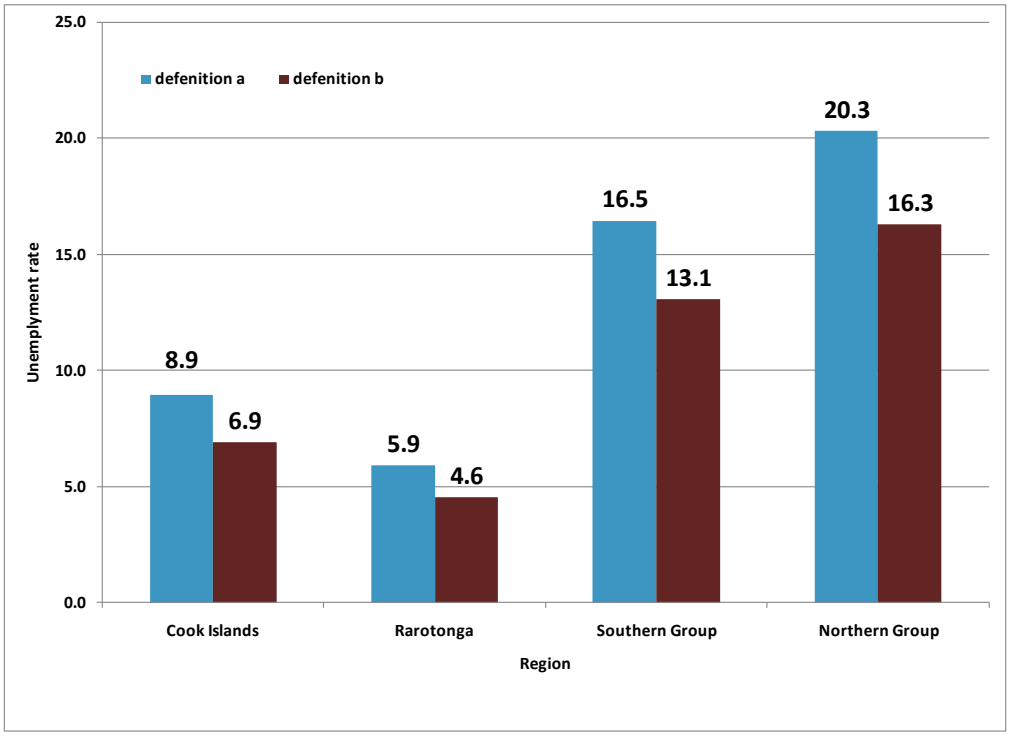
The number of people aged 15 and older who were not employed in the month of November 2006, and were looking for work was 666 people, 348 males and 318 females (Table 31, App.5). This translates into a unemployment rate of 8.9%; for males and females this was 8.5% and 9.4% respectively.

However, the initial response of people on their employment status was further tested by asking all people who claimed to be unemployed whether or not they were actually available and willing to work.
Taking these responses into account, only 506 people were actually willing to work if a job was available to them. This was 267 males and 239 females. According to these data, the unemployment rate would be only 6.9%: for males and females this was 6.7% and 7.3% respectively.

Regardless of the unemployment concept used, unemployment levels were higher for females than for males, and they were much higher in the Southern and Northern Group islands than in Rarotonga.

While the unemployment rate was between 4.6-5.9% in Rarotonga, it was between 13.1-16.5% in the Southern Group islands, and even higher in the Northern Group islands with between 16.3-20.3% (Table 31, Fig.43).

Figure 43: Unemployment rates by region according to different unemployment definitions, Cook Islands: 2006



definition a: all those that have no job, and are looking for a job regardless of whether being available for work or willing to work

definition b: only those that have no job, are looking for a job, and are available to work and are willing to work if a job was offered to them

4.6.8 Not in labour force

The number of people 15 years and older that were not in the labour force in the 2006 Cook Islands census was 3,164; 60% were women (1,883), and 40% (1,281) were men (Figs.35-36, App.5).

The largest category of people in the non-labor force was people engaged in *home duties* (1,417). Three-quarter of those were women.

There were more male full-time students (423) than female students (397), and 923 people regarded themselves as *retired*.

5. HOUSEHOLD CHARACTERISTICS

5.1 Household size

The number of (private) households increased from 3,880 in 2001 to 4,237 in 2006, an overall increase of 357 households (Table 32).

Table 32: Number of private households, and average household size by region/island, Cook Islands: 1991, 1996, 2001 and 2006

Island/Region	Number of private households				Average household size			
	1991	1996	2001	2006	1991	1996	2001	2006
Cook Islands	**3,677**	**4,153**	**3,880**	**4,237**	**4.9**	**4.4**	**4.0**	**3.7**
Rarotonga	**2,222**	**2,569**	**2,531**	**2,899**	**4.6**	**4.1**	**3.9**	**3.7**
Southern Group	**1,035**	**1,127**	**965**	**1,015**	**5.2**	**4.7**	**4.0**	**3.8**
Aitutaki	440	496	435	515	5.2	4.6	4.1	4.0
Mangaia	228	237	197	177	5.3	4.7	3.8	3.6
Atiu	192	197	161	157	5.2	4.8	3.9	3.6
Mauke	120	133	110	105	5.3	4.9	4.3	3.7
Mitiaro	55	64	62	61	4.5	5.0	3.7	3.2
Northern Group	**420**	**457**	**384**	**323**	**5.4**	**5.4**	**4.8**	**4.3**
Palmerston	10	11	12	18	4.9	4.5	4.0	3.5
Pukapuka	112	120	124	96	6.0	6.5	5.4	5.3
Nassau	18	21	15	16	5.7	4.7	4.8	4.7
Manihiki	134	149	117	96	4.9	4.5	4.4	3.7
Rakahanga	44	42	32	31	6.0	5.9	5.3	4.5
Penrhyn	101	113	83	66	5.0	5.4	4.3	3.9
Suwarrow	1	1	1	0	10.0	4.0	1.0	0.0

In addition, there were 144 non-private dwellings (institutions) in 2006, including accommodations such as hotels and hostels for short-term visitors, institutions such as hospitals and a prison.

While the number of households increased by 15% (368) in Rarotonga during the intercensal period 2001-2006, it decreased substantially in the Northern Group islands from 384 in 2001 to 323 in 2006.

The same trend can be observed in the Southern Group islands where all islands experienced a decrease in the number of households, except Aitutaki, where the number of households increased by 18%.

As can be expected, the change in the number of households coincides with the change in population size.

The overall average household size decreased from 4.0 to 3.7 people per household between 2001 and 2006. It was almost 5 persons per household in 1991.

In general, the average household size of 3.7 people in Rarotonga was lower than the average in the Southern and Northern Groups islands, where the average household size was 3.8 and 4.3 people per household respectively (Figs.44-45).

Figure 44: Average household size (number of people per household) by island, Cook Islands: 2006

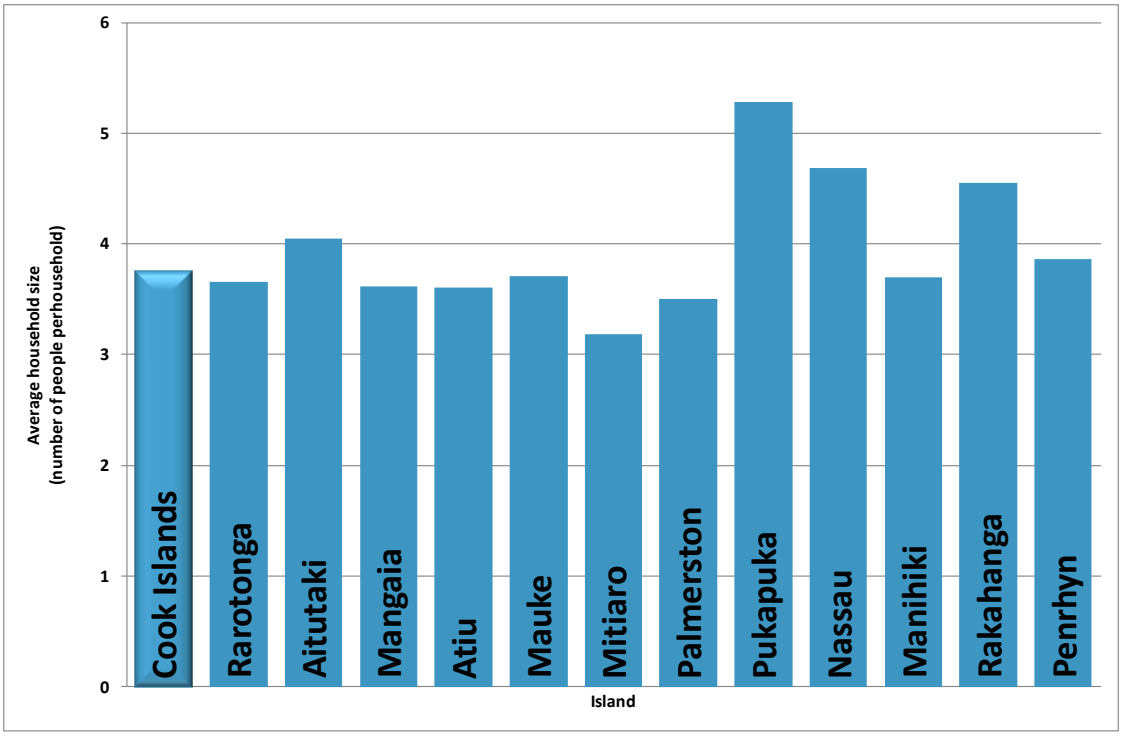
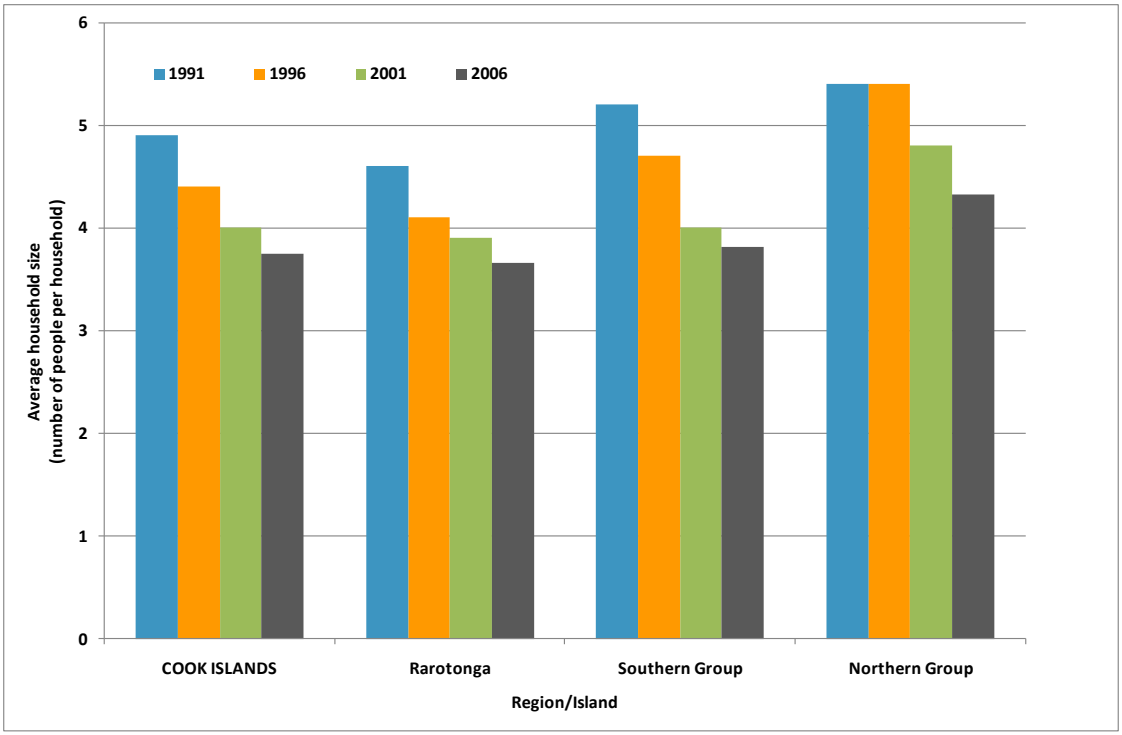


Figure 45: Average household size (number of people per household) by region/island, Cook Islands: 1991, 1996, 2001, and 2006

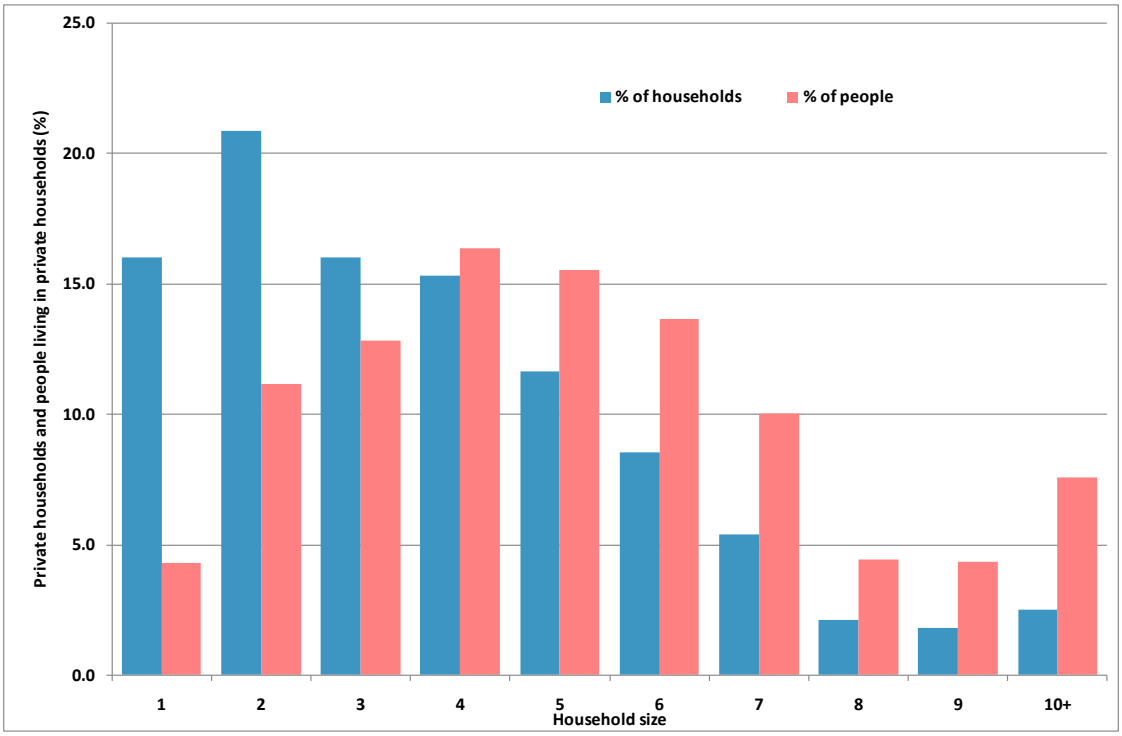


The islands with the highest number of people per household were Pukapuka (5.3), Nassau (4.7) and Rakahanga (4.5). The islands with the lowest number of people per household were Mitiaro (3.2) and Palmerston (3.5).

Table 33: Number of private households by household size and people per household, Cook Islands: 2006

Household size	Private households		People per household size	
	Number	%	Number	%
1	678	16.0	678	4.3
2	884	20.9	1,768	11.1
3	678	16.0	2,034	12.8
4	648	15.3	2,592	16.3
5	492	11.6	2,460	15.5
6	361	8.5	2,166	13.6
7	227	5.4	1,589	10.0
8	88	2.1	704	4.4
9	76	1.8	684	4.3
10+	105	2.5	1,199	7.6
Total	**4,237**	**100**	**15,874**	**100**

Figure 46: Distribution of households and people living in private households, by household size, Cook Islands: 2006



In 2006, the most common household size was 2, accounting for 20.91% of all households (Table 33 and Fig. 46). The highest proportion of people, however, lived in households with 4 people, which accounted for 16.3% of all people.

More than 7% of the population lived in households with 10 or more people, while exactly 4.3% of the population lived in single-person households, which accounted for 16% of all households.

5.2 Household composition

Data on household composition were established by identifying a head of household who served as a reference person to whom all other people in the household, in terms of family membership, are related (Table 34).

Exactly 3 out of 4 head of household (75%) in the Cook Islands were men (3,164) with one quarter (1,073) of households headed by women.

Seventy-seven per cent of all household members consisted of a husband and wife and their children (nuclear family).

About 11% of households consisted of grandchildren (incl. great grand children). Another 6% of all household members were other relatives, such as uncles and aunts, brother and sisters, nieces and nephews, etc.

Four per cent of all household members were a non-relative (no relation).

Table 34: Population by household composition (relationship to head of household), Cook Islands: 2006

Relationship	Total	Males	Females	Total	Males	Females
	Total number			Percentage		
Head of household	4,237	3,164	1,073	17	27	7
Spouse	2,610	259	2,351	11	0	23
Son/Daughter (incl.in laws)	5,096	2,602	2,494	42	43	40
Step/Adopted Child	292	140	152	2	2	2
Grandchild (incl. greatgrand child)	1,774	982	792	12	12	11
Brother or Sister of Head or Spouse	220	119	101	2	2	2
(Grand)Parent of Head or Spouse	116	37	79	1	0	1
Other relatives	774	407	367	11	11	11
No relation	705	352	353	2	2	1
Not stated	50	24	26	0	0	0
Total	**15,874**	**8,086**	**7,788**	**100**	**100**	**100**

5.3 Amenities and capital goods

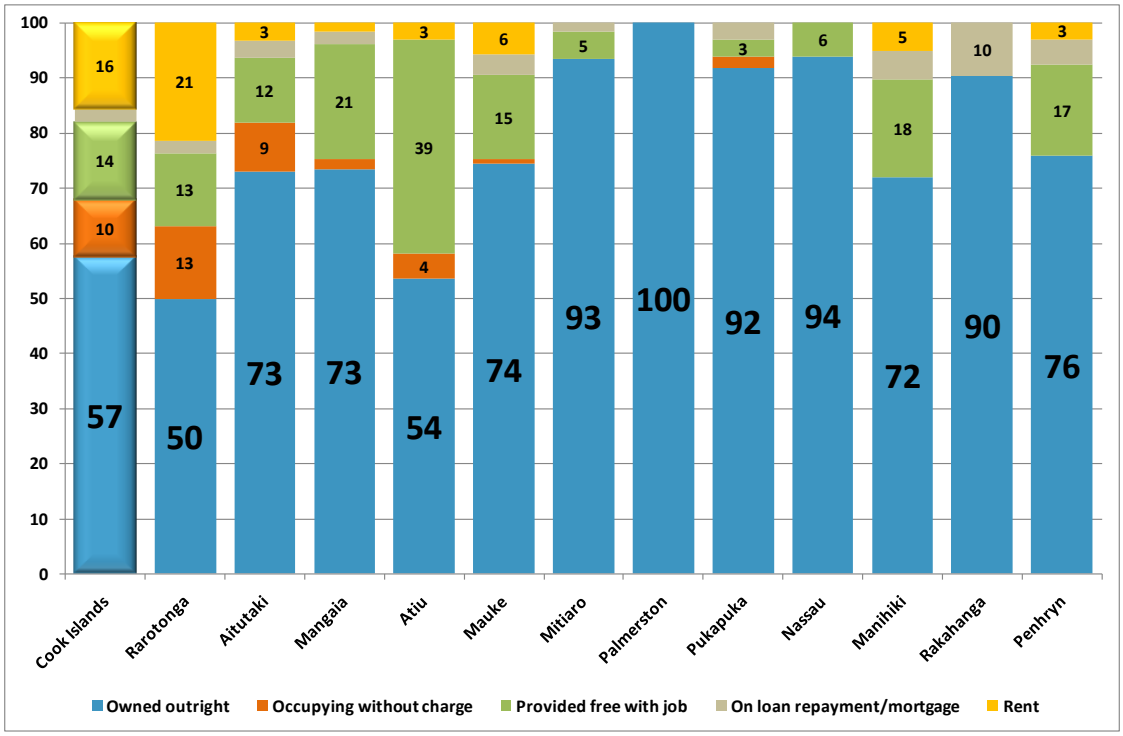
Please note that the following data for this section are presented as percentages of all private households by island (see table in section 5.2).

5.3.1 Private households by tenure

The majority of households (57%) owned their dwelling outright (Fig.47), 16% rented their dwelling, 14% stayed in their dwelling rent-free as part of their job, and 10% occupied it without charge.

The proportion of households renting was with 21% the largest in Rarotonga, everywhere else in the Cook Islands the vast majority owned their dwelling outright.

Figure 47: Proportion of private households by island and tenure, Cook Islands: 2006



The renting condition of the rented dwellings was as follows: 39% were partly furnished, 37% fully furnished, and 24% were unfurnished.

The average rent paid was approximately $150 per week.

The distribution of rented dwellings by rent paid is shown in Table 35.

Table 35: Rented dwellings by rent paid (in %), Cook Islands: 2006

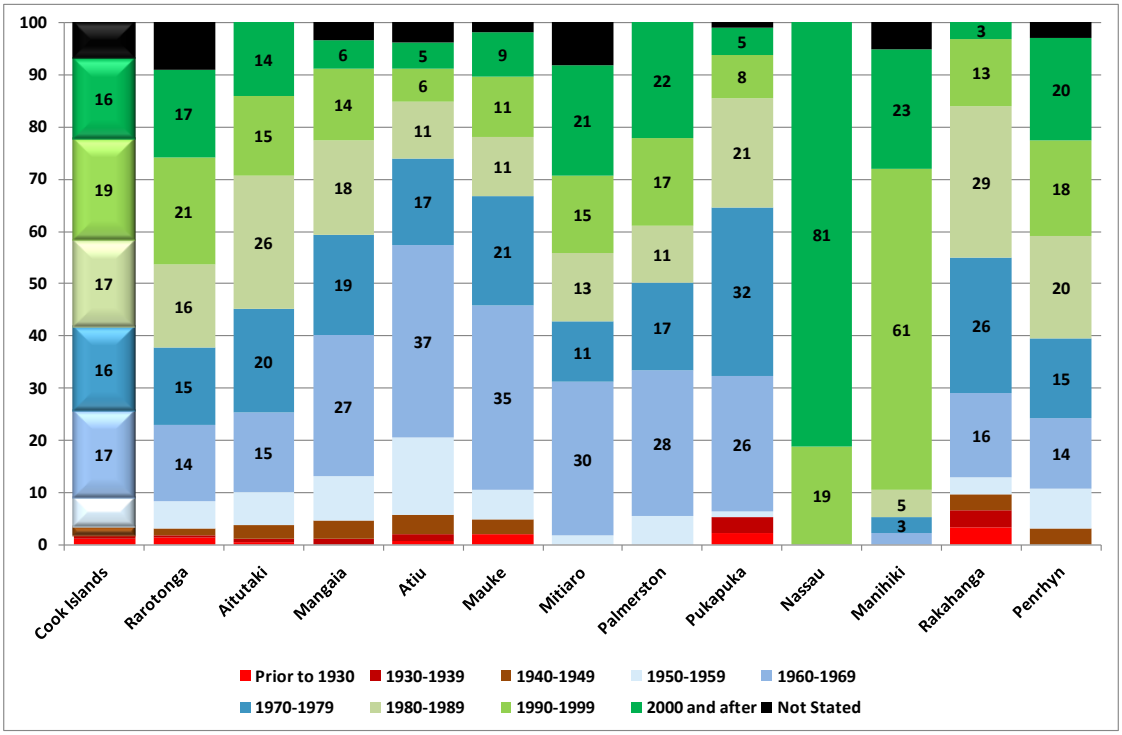
rent paid	<$100	$100-$149	$150-$199	$200-$249	>$250
% of dwellings	24	24	19	13	20

5.3.2 Private households by age of dwelling

The distribution of dwellings by **year of construction** is displayed in Figure 48. It shows that about 16% of all dwellings were constructed in the year 2000 or after, 19% between 1990-1999, 17% between 1980-1989, and all other dwellings were built more than 26 years ago.

On average the approximate year of construction was 1982 for all dwellings in the Cook Islands. However, in most outer islands the dwellings were on average much older than the average, especially in Atiu. The island with the highest proportion of newly built dwellings was Nassau.

Figure 48: Proportion of private households by island and age of dwelling (year constructed), Cook Islands: 2006



5.3.3 Private households by number of rooms

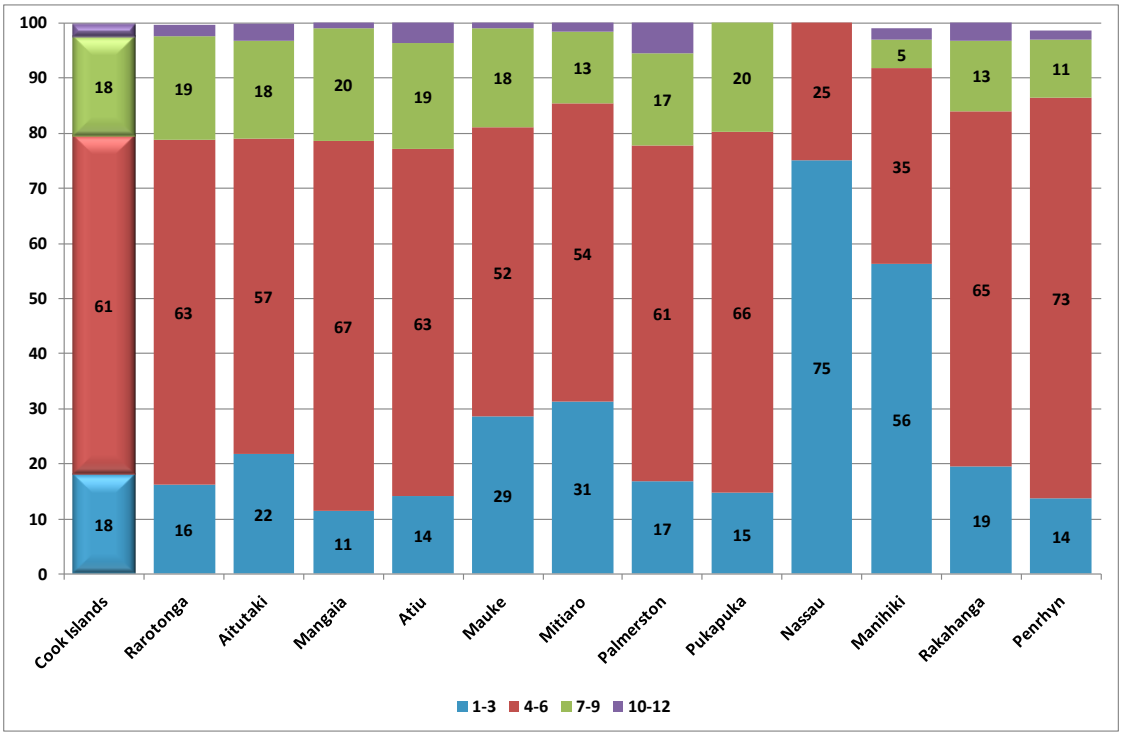
The distribution of dwellings by **number of rooms** is displayed in Figure 49. It shows that the majority (61%) of all dwellings had between 4-6 rooms, and another 18% had either only 1-3 rooms, or between 7-9 rooms. The average number of rooms in the Cook Islands was about 5.2 rooms per dwelling.

The largest dwellings were found in Atiu with approximately 5.4 rooms per dwelling, and the smallest dwellings in Nassau (2.8) and Manihiki (3.7) (Table 36).

Table 36: Average number of rooms per dwelling by island, Cook Islands: 2006

Cook Island	Rarotonga	Aitutaki	Mangaia	Atiu	Mauke	Mitiaro	Palmerston	Pukapuka	Nassau	Manihiki	Rakahanga	Penrhyn
5.2	5.2	5.1	5.3	5.4	4.7	4.6	5.3	5.2	2.8	3.7	5.0	5.2

Figure 49: Proportion of private households by island and number of rooms, Cook Islands: 2006



5.3.4 Private households by construction material used for dwelling

About 55% of the material used for the **outside walls** of private dwellings was concrete or slab, followed by fibrolite (17%) and wood or timber (15%) (Fig.50). While the proportion of dwellings using concrete or slab was higher than the national average in Atiu, Rakahanga and especially Pukapuka, it was much lower or not used at all in Nassau, Palmerston and Manihiki.

Roofing iron accounted for 97% of the material used for **roofs** (Fig.51), and there was little difference in the use of roofing material between the different islands with the exception of Palmerston where 13% used Kikau, and Nassau where 56% used Pandanus.

About 87% of all dwellings in Cook Islands had concrete (cement) **floors** (Fig.52), which was the preferred material used for the floors in all islands. Only in Nassau and Palmerston a sizeable proportion of dwellings used gravel, and 13% of dwellings in Mauke used lime.

Figure 50: Proportion of private households by island and the main type of material used for the outside walls of dwellings, Cook Islands: 2006

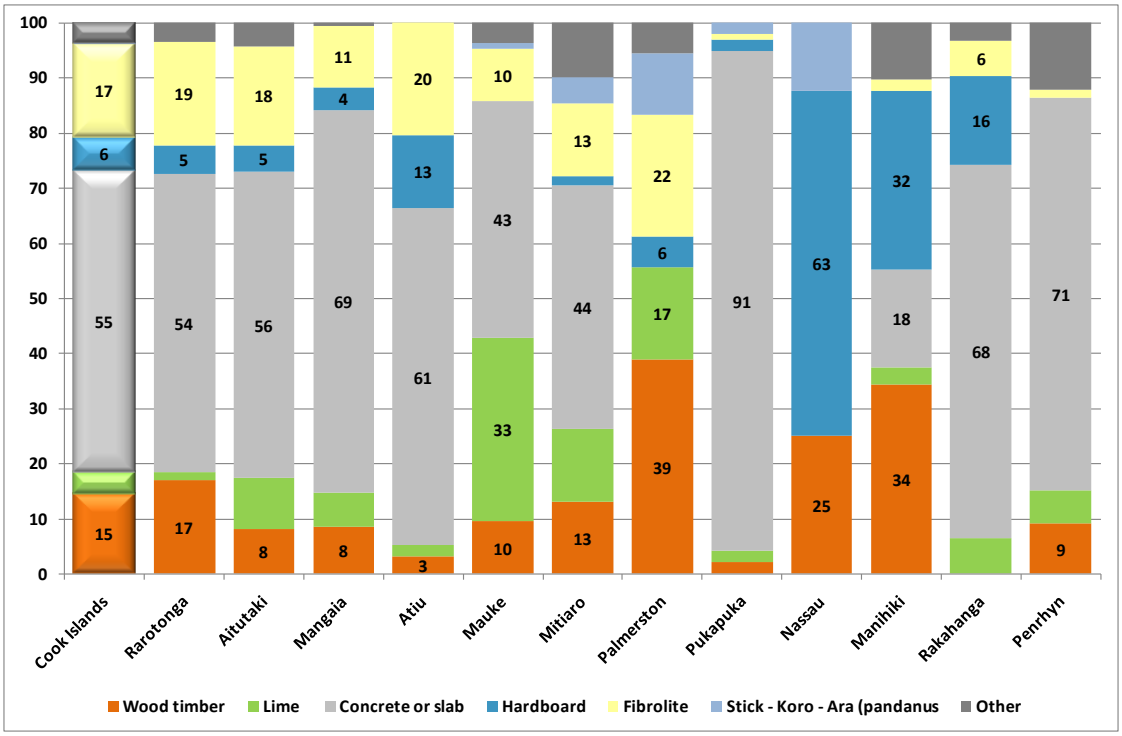


Figure 51: Proportion of private households by island and the main type of material used for the roofs of dwellings, Cook Islands: 2006

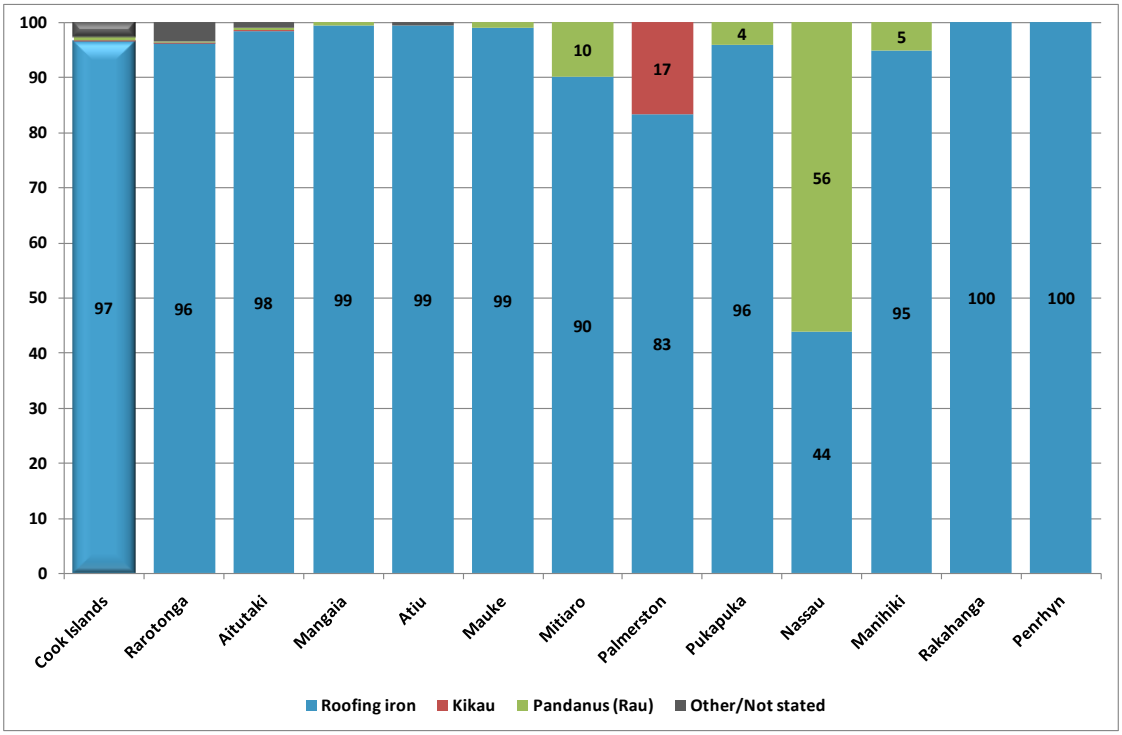
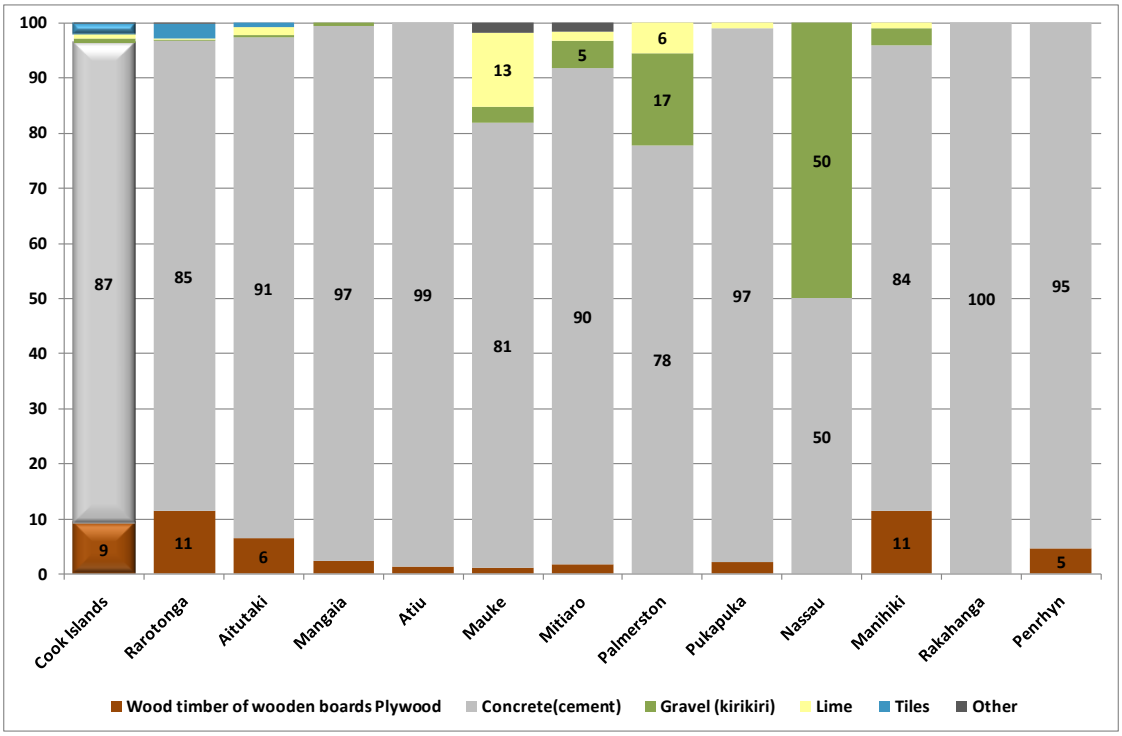


Figure 52: Proportion of private households by island and the main type of material used for the floors of dwelling, Cook Islands: 2006



5.3.5 Private households by water source

The distribution of dwellings that are **spouted** or partly spouted was very diverse among islands (Fig.53). On average only 24% of all dwellings in the Cook Islands were fully spouted, another 29% were partly spouted, and almost half (47%) of all households were not spouted. In general dwellings in the Southern and Northern Group islands were more likely to be at least partly spouted compared to dwellings in Rarotonga. The only islands with a low proportion of spouted dwellings were Mauke and Nassau.

The **main source of water** for the vast majority of households was the public water main (83% of all households), and own rain water tank (15% of all households) (Fig.54). While almost all households were connected to the public water main in Rarotonga, this was much less in Aitutaki, Mangaia, and Mitiaro. All other islands do not have a public water main, and their main source of water is either a public water catchment or they rely on their own rain water tank.

Of all households that were connected to the public water main, the majority (83%) **supply of water** was piped inside of their dwelling, this was especially the case in Rarotonga (89%) but less so in the other islands that have a public water main (Fig.55).

With the exception of Rarotonga, most island dwellings obtained their **drinking water** from a rainwater tank (Fig.56). The only sizeable number of households that obtained their drinking water from piped water was in Mauke, Rakahanga, and Rarotonga, where a large proportion of households used bottle water (34%) or filtered tap water (25%) as their main source of drinking water.

Figure 53: Proportion of private households by island and whether spouted, Cook Islands: 2006

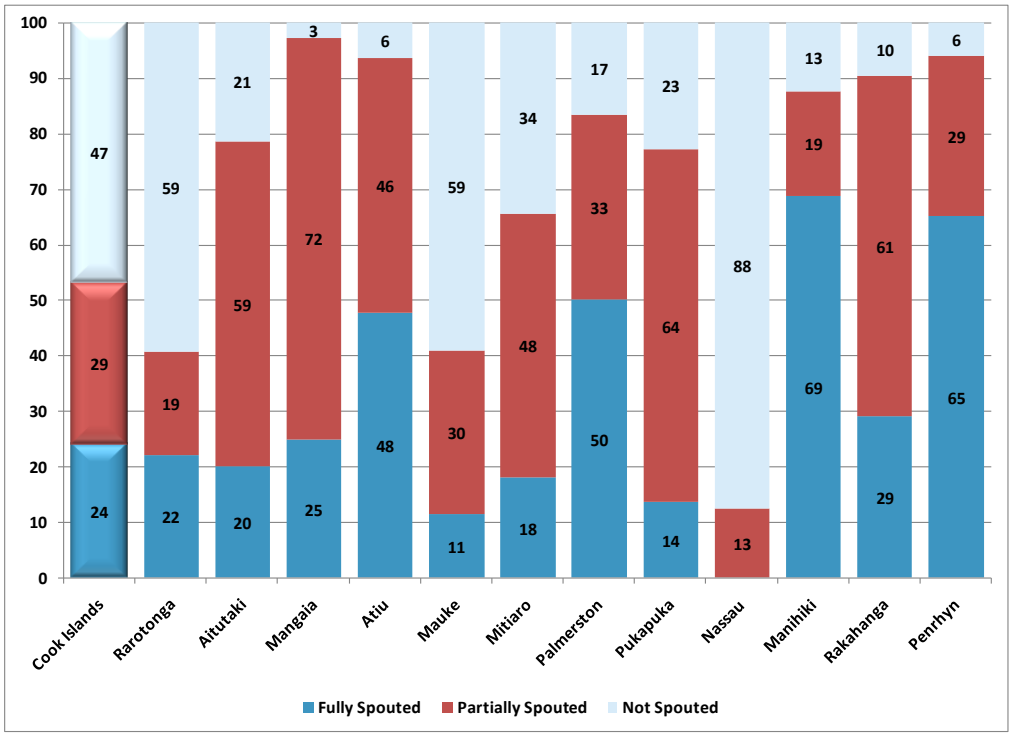


Figure 54: Proportion of private households by island and the main source of water, Cook Islands: 2006

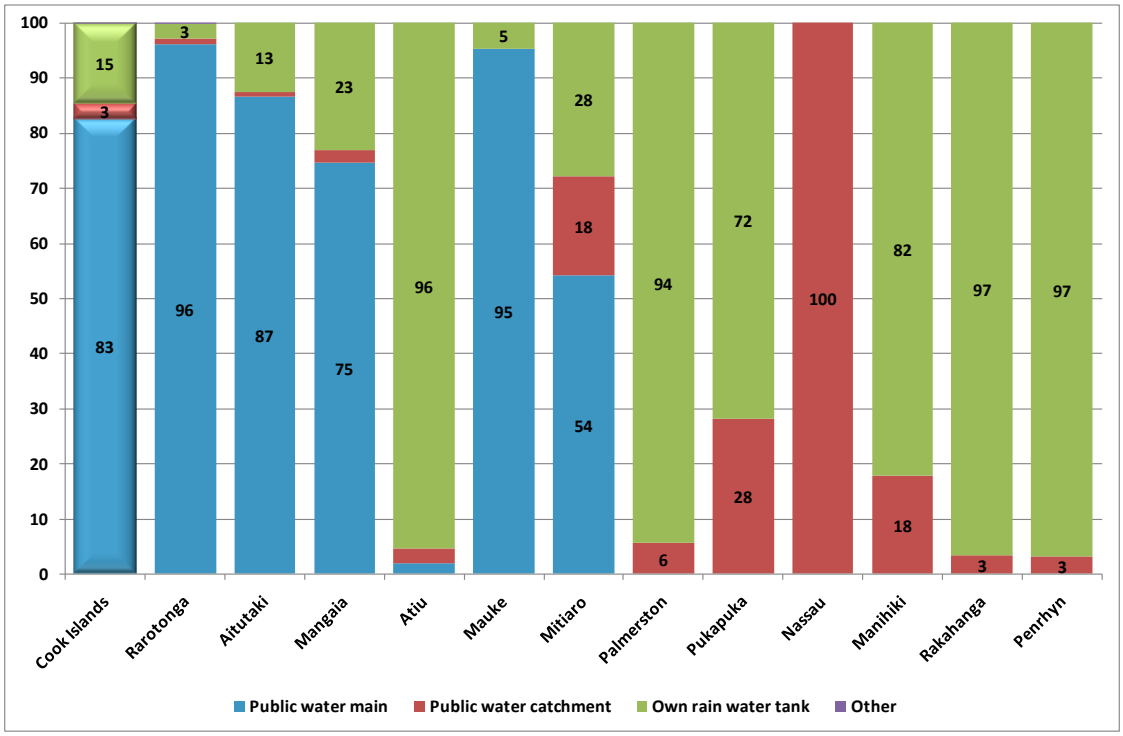


Figure 55: Proportion of private households that are connected to the public water main by island and whether piped inside/outside dwelling, Cook Islands: 2006

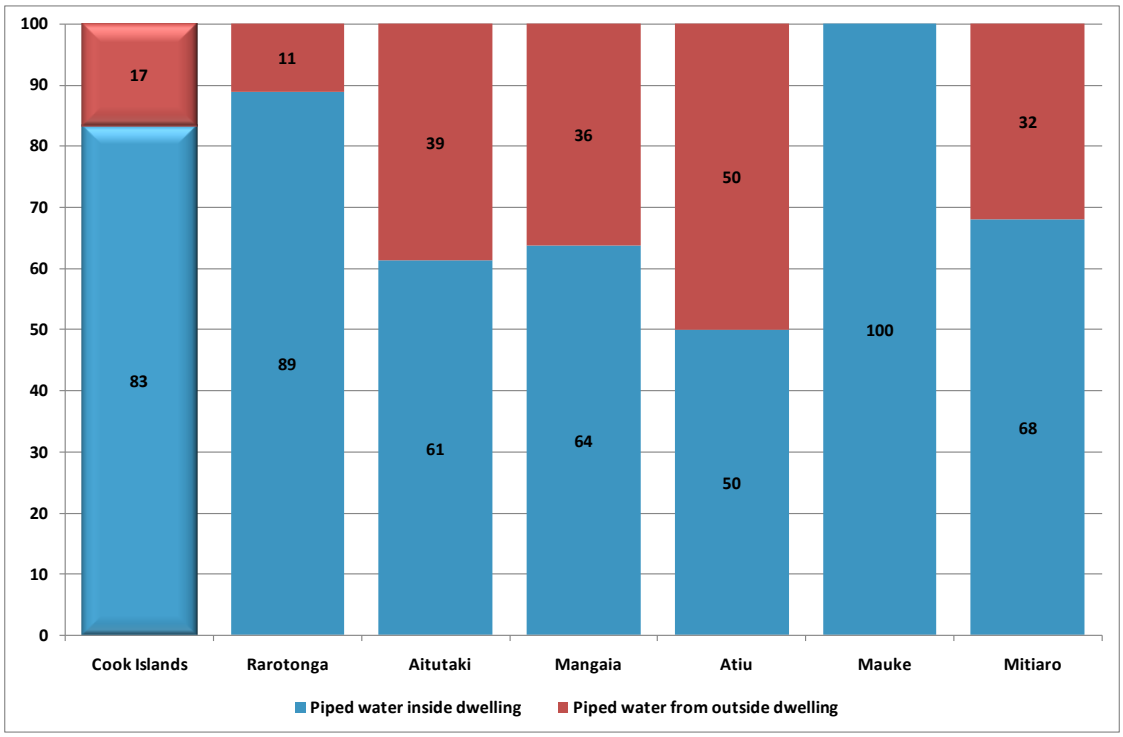
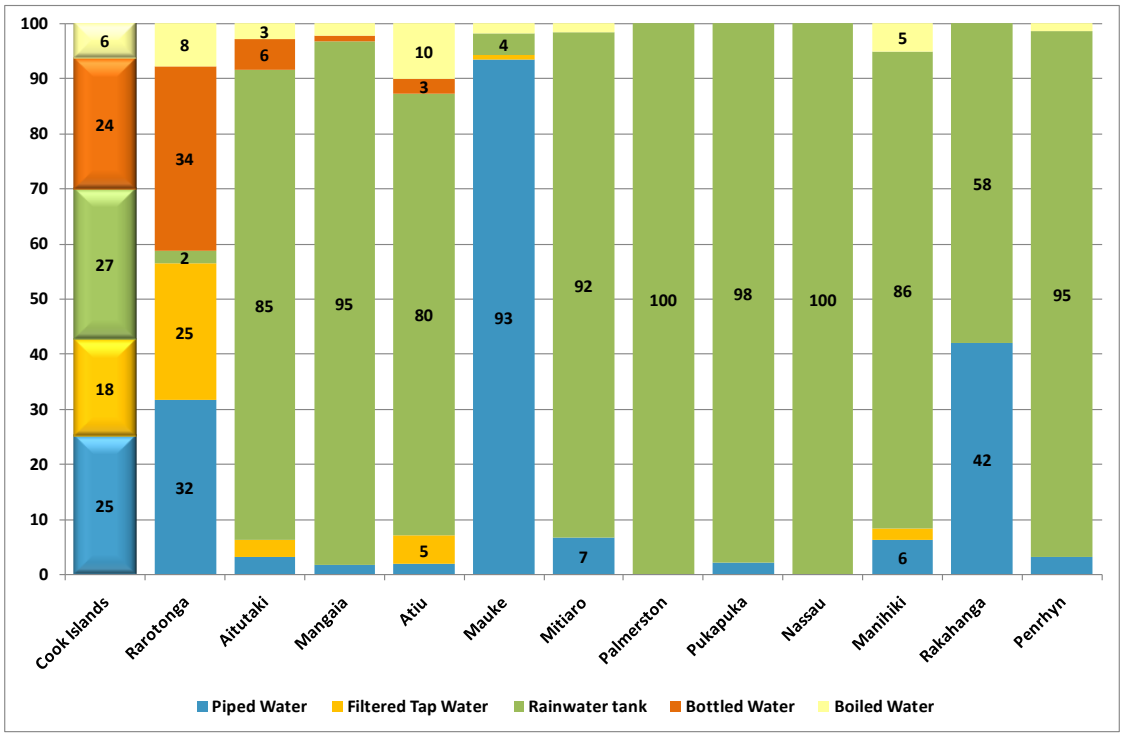


Figure 56: Proportion of private households by island and the main source of drinking water, Cook Islands: 2006



5.3.6 Private households by main energy source

The main source of **electricity** in the Cook Islands was the connection to the Grid (Te Aponga Uira), used by 94% of all households (Fig.57). The only islands where households relied mainly on a generator were Palmerston and Rakahanga. Almost all electricity in Pukapuka was generated by solar power.

The main source of energy for **cooking** was gas. Just over half of all households used gas as the main energy source for cooking (Fig.58). However, firewood was commonly used in Nassau, Pukapuka, Atiu and Mangaia. More than a quarter of all households in Aitutaki used electricity for cooking.

5.3.7 Private households by main hygienic and toilet facility

While more than 60% of households in Rarotonga owned a **hot water system**, only very few households in all other islands had one available (Fig.59). While about 40% of households in Rarotonga had a **water filter**, it was almost rarely found in all other islands. While most households in the Cook Islands owned a **kitchen sink**, less than half of the households in Atiu and Pukapuka had one available. While more than 90% of all households in the Cook Islands had a **bath or shower** available, it was less common in the outer islands than in Rarotonga. Less than half of all households in Pukapuka had a bath or shower available.

Almost all households in Rarotonga had a **flush toilet** available. This was much less the case in most of the outer islands (Fig.60). A large proportion of households in Atiu and Mauke used a **pit toilet**, while a **pour flush toilet** was commonly used in Pukapuka, Nassau and Rakahanga. Almost all households in Nassau used the **lagoon toilet**.

Figure 57: Proportion of private households by island and main source of electricity, Cook Islands: 2006

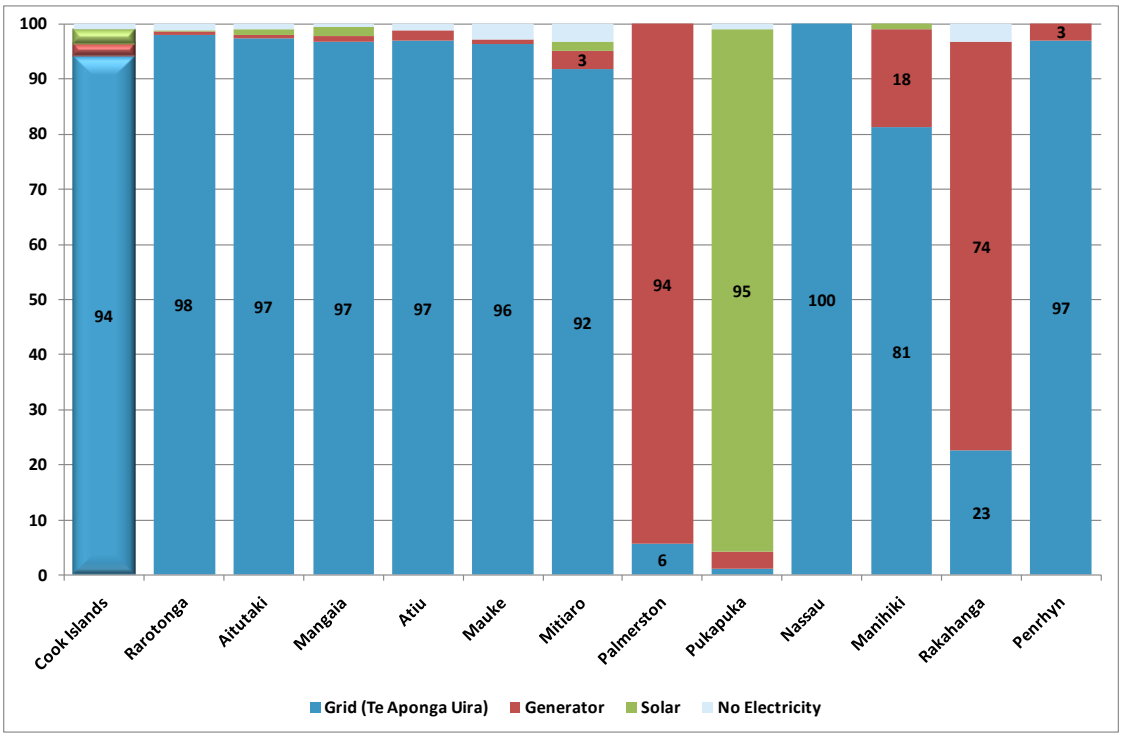


Figure 58: Proportion of private households by island and main energy source for cooking, Cook Islands: 2006

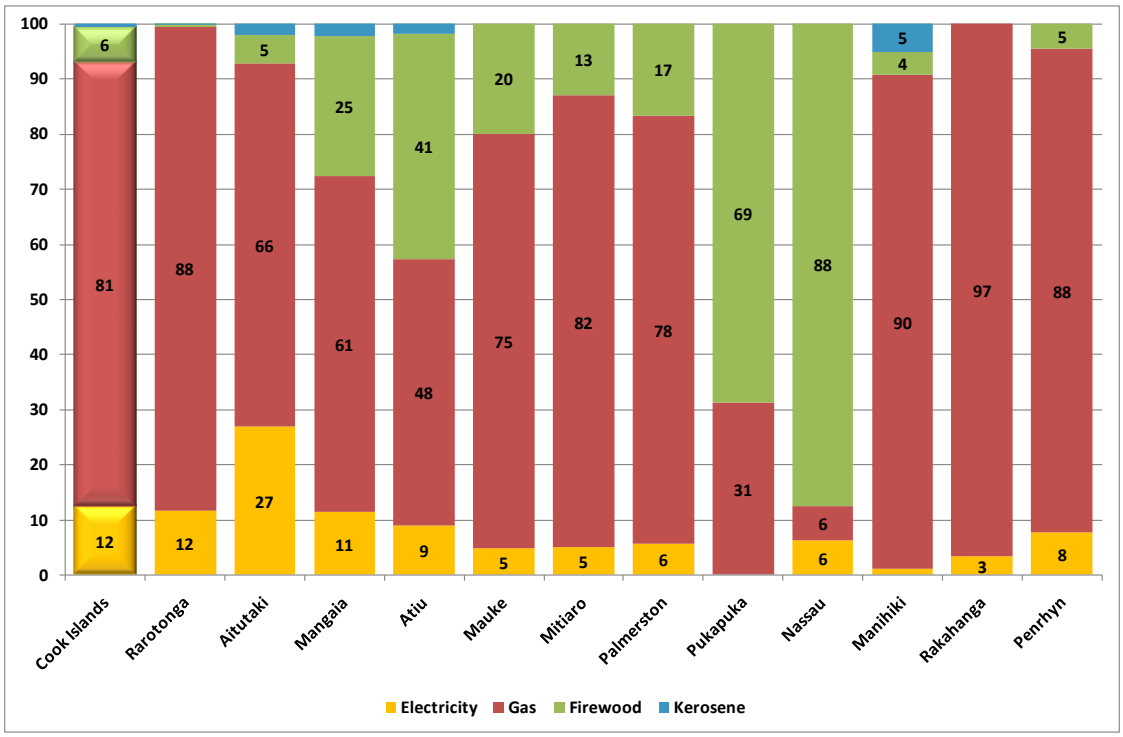


Figure 59: Proportion of private households by island and availability of hygienic facilities, Cook Islands: 2006

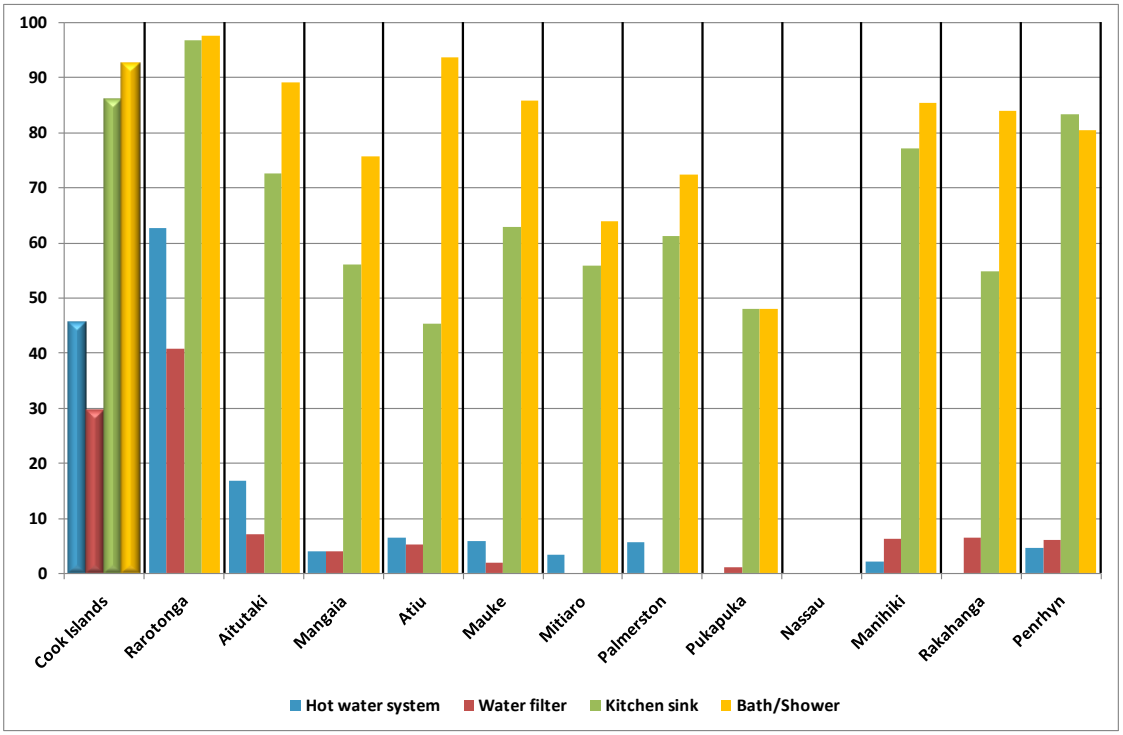
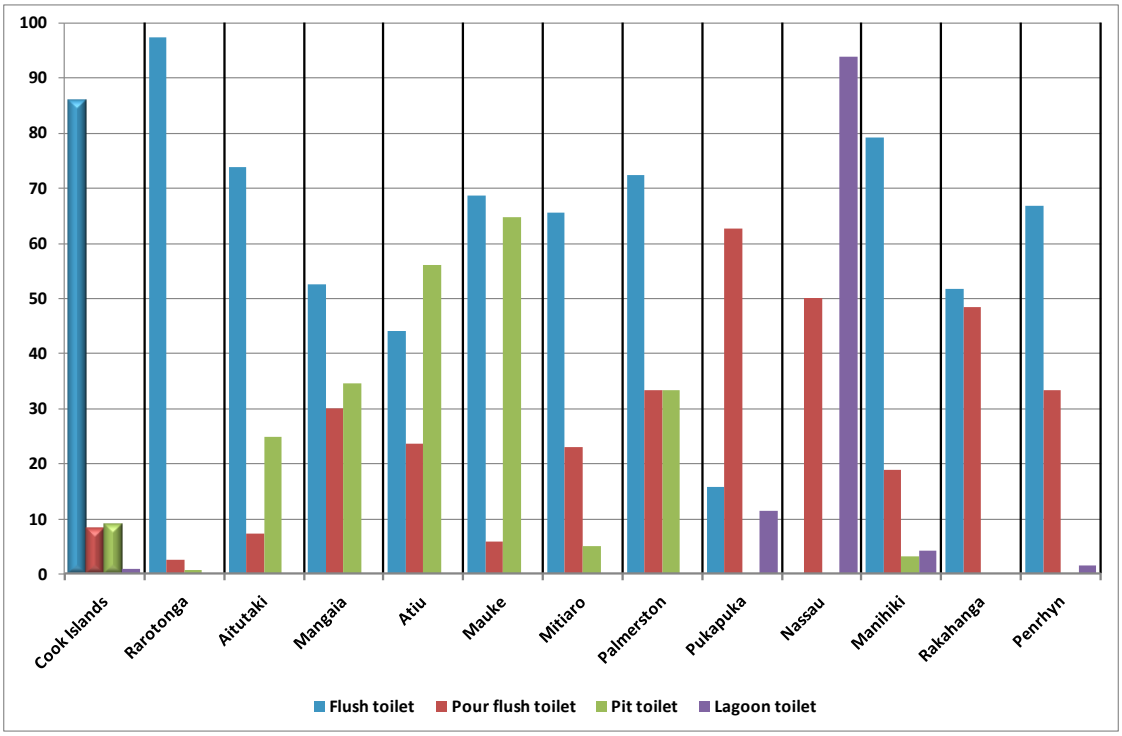


Figure 60: Proportion of private households by island and main type of toilet facility, Cook Islands: 2006



5.3.8 Private households by means of communication

A **phone/fax** was available in homes of 76% of all households in the Cook Islands (Fig.61). However only just over half of households in Mitiaro and Pukapuka had a phone/fax available at home, and it did not exist in Palmerston and Nassau. About 15% of households used a phone/fax at work, and about 5% used one at family and friends was

Exactly half of all households in Rarotonga owned a **cell phone**; this was about 30% in Aitutaki and 25% in Mitiaro. Otherwise cell phones were rarely or not at all available in all other islands (Fig.62).

Only 24% of all households in Rarotonga were connected to the **internet** at home. However, this was a much higher proportion than in all other islands where less than 10% of households had access to the internet at home, or did not have any access as in Palmerston and Nassau (Fig.63).

About 10% of all Cook Islands' household did **not have a means of communication** at all. In Pukapuka 38% of all households did not have a means of communication, and in Palmerston and Nassau all households were without communication facilities (Fig.64).

Figure 61: Proportion of private households by island and availability of a phone or fax, Cook Islands: 2006

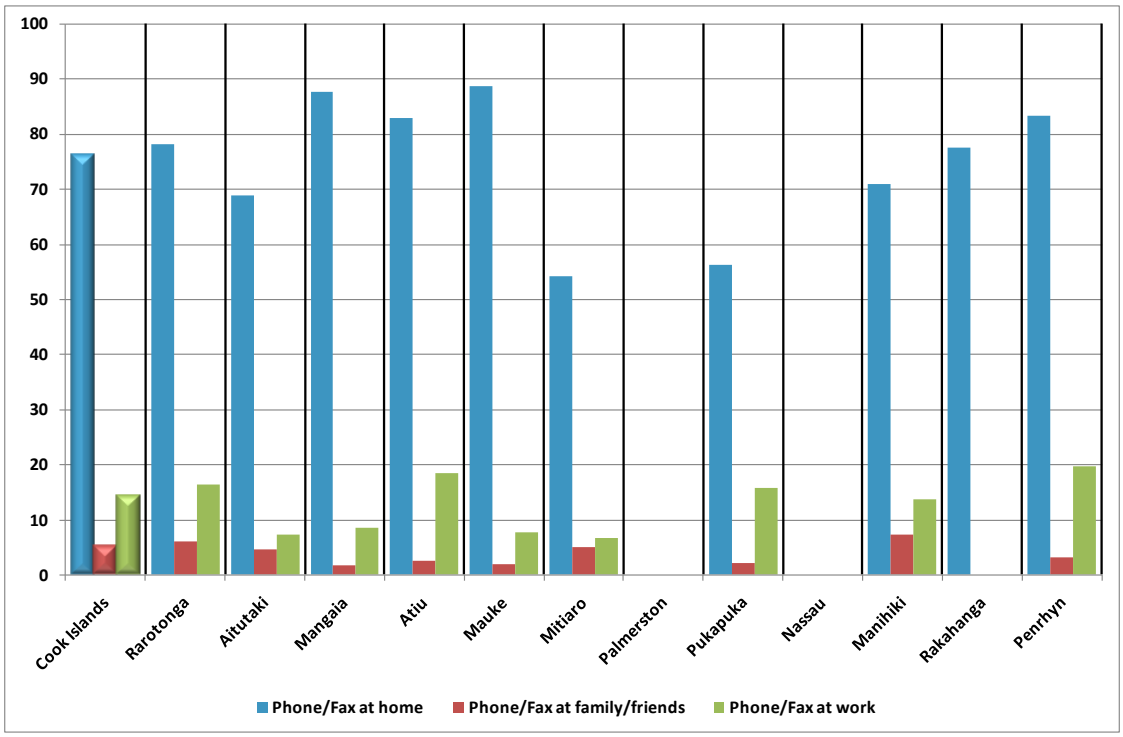


Figure 62: Proportion of private households by island and availability of a cell phone, Cook Islands: 2006

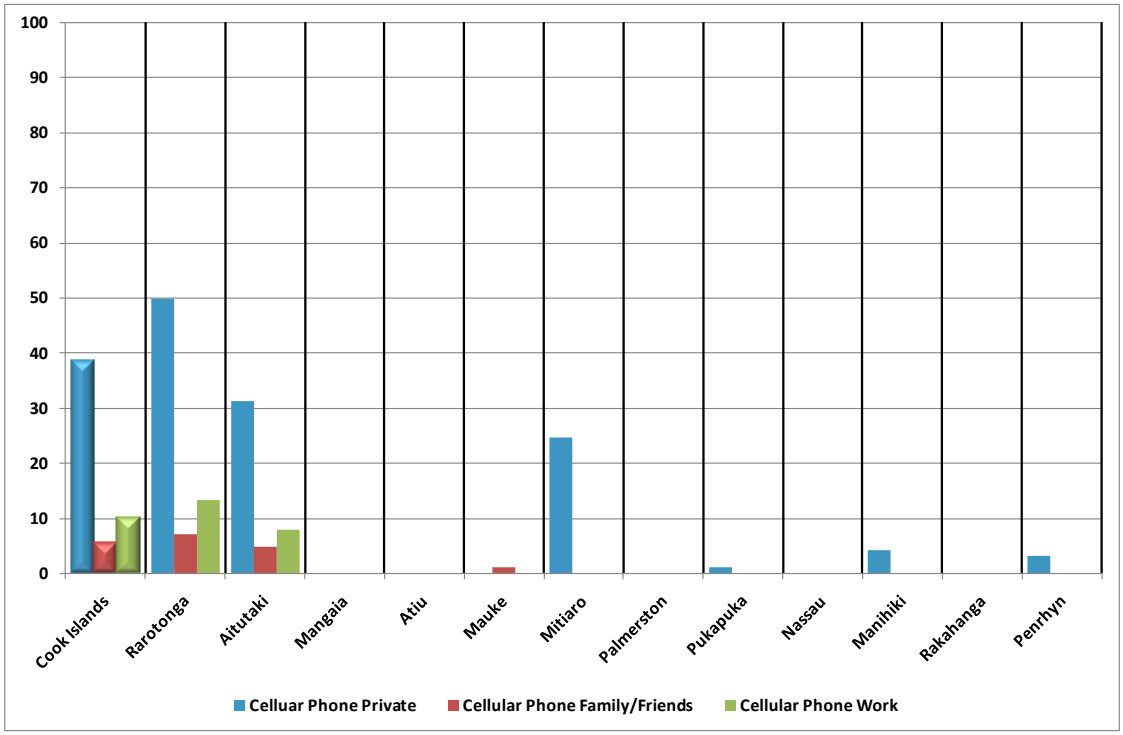


Figure 63: Proportion of private households by island and accessibility to the Internet, Cook Islands: 2006

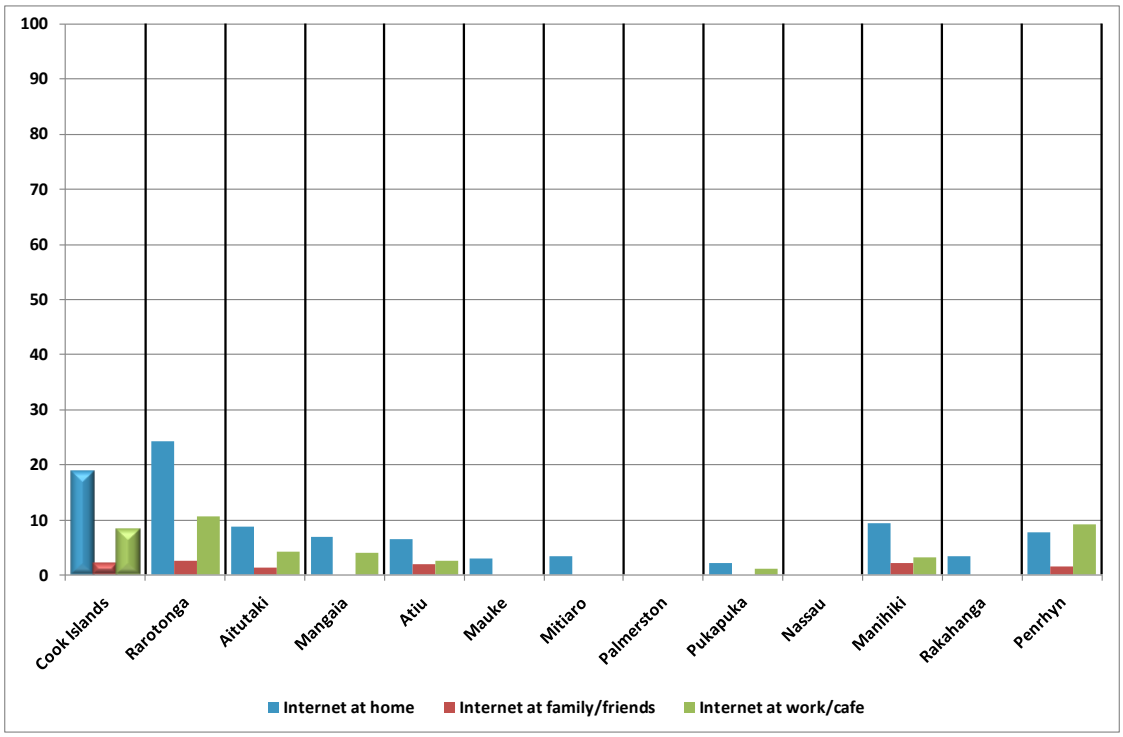
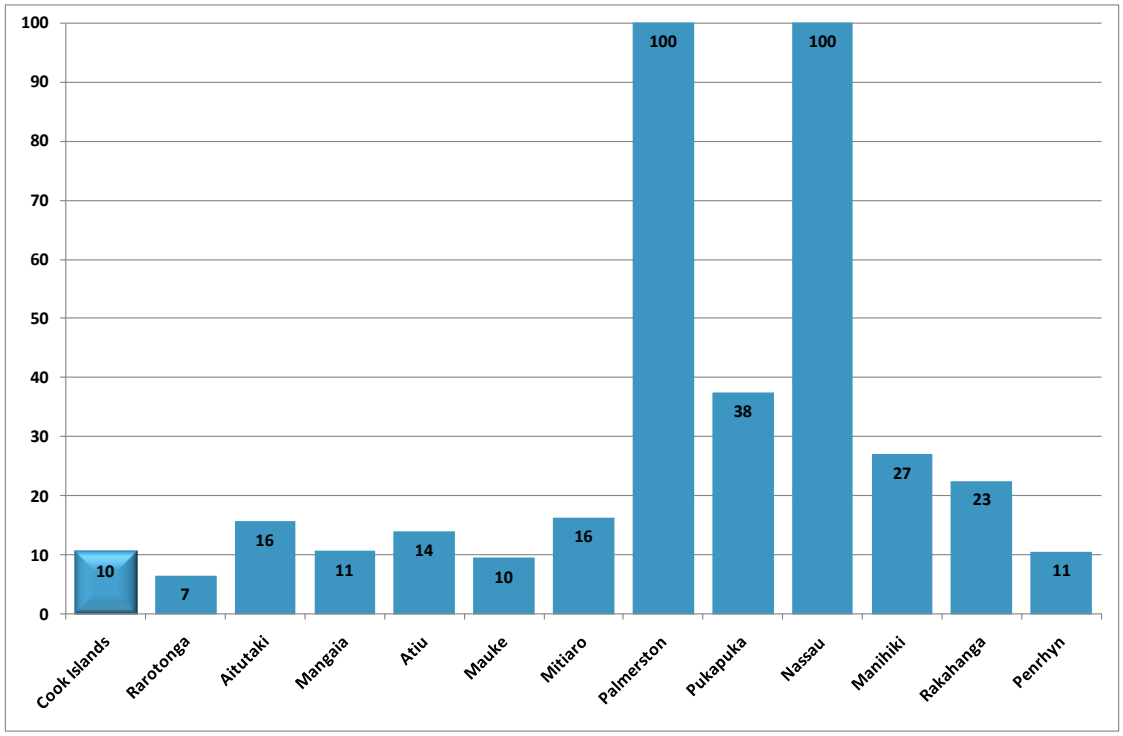


Figure 64: Proportion of private households by island with no means of communication, Cook Islands: 2006



5.3.9 Private households by main means of waste disposal

During the 2006 census, information was collected with respect to how households **manage their waste**.

There were 5 different means of waste disposal:

- Burning,
- Burying,
- Recycling,
- Disposing in backyard, and
- Commercial waste collection.

The results are shown in Figures 65-69. Please note that households can have several means of waste disposal.

It was found that the vast majority of households dispose of their waste in their backyards, about three-quarter of households burn their waste, and 71% recycle. However, recycling was less common in Rarotonga compared to all other islands.

However, the means of waste disposal are very different among islands. While all waste in Palmerston and Nassau was collected commercially, this was the case only for 9% of households in Rarotonga. Most waste of households in Aitutaki and Pukapuka was also commercially collected.

Figure 65: Proportion of private households by island and main mode of waste disposal - burning, Cook Islands: 2006

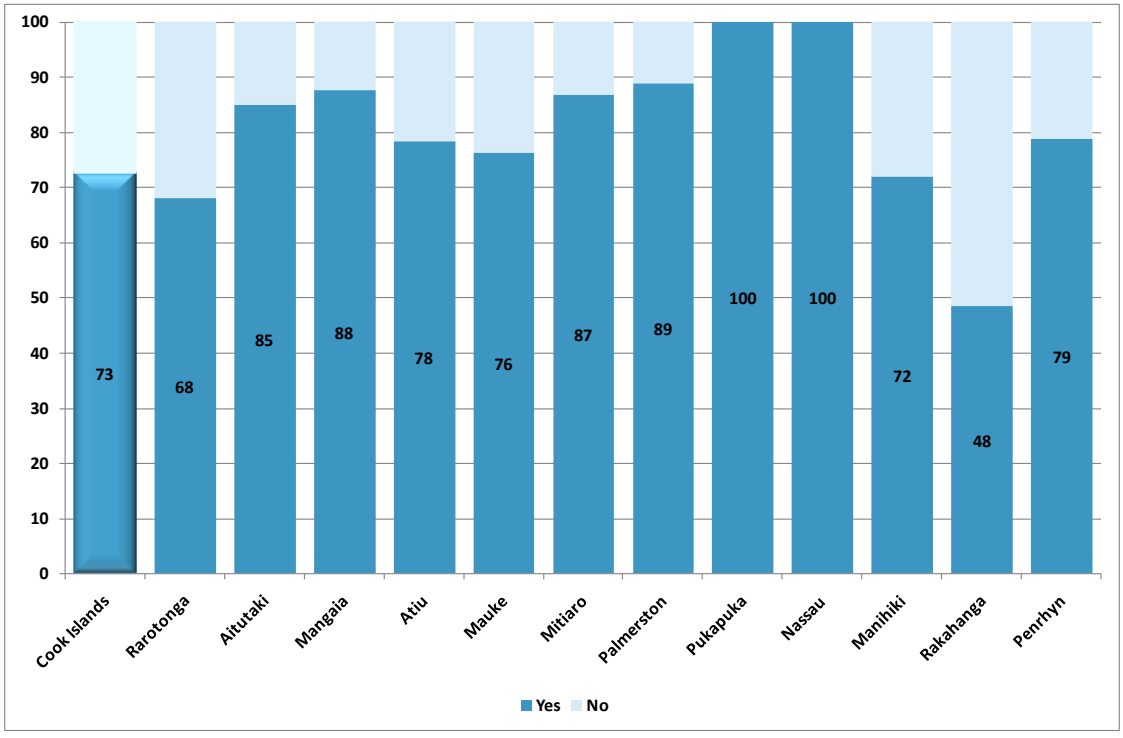


Figure 66: Proportion of private households by island and main mode of waste disposal - burying, Cook Islands: 2006

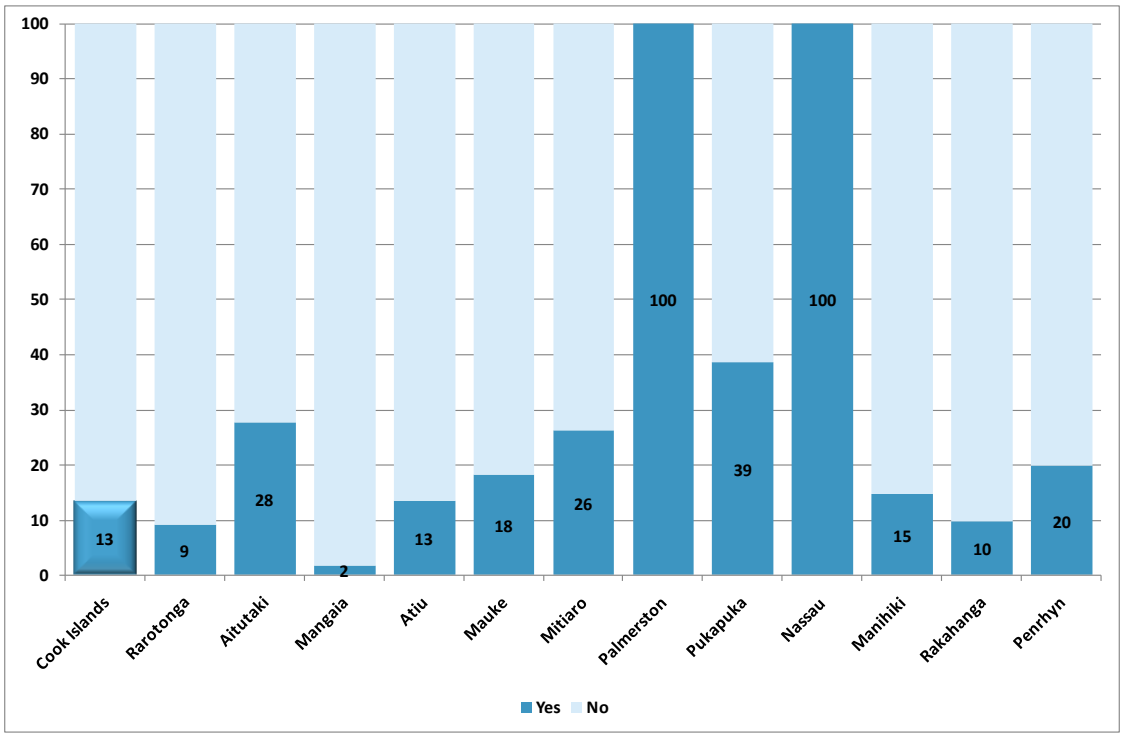


Figure 67: Proportion of private households by island and main mode of waste disposal - recycling, Cook Islands: 2006

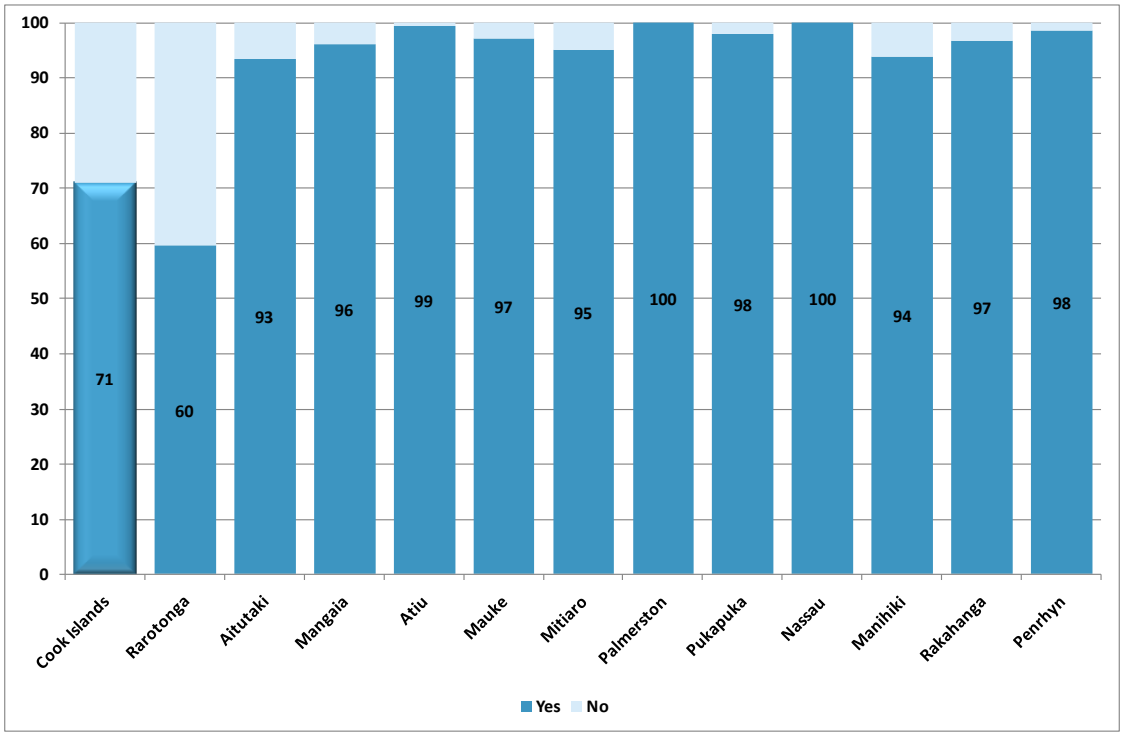


Figure 68: Proportion of private households by island and main mode of waste disposal - backyard, Cook Islands: 2006

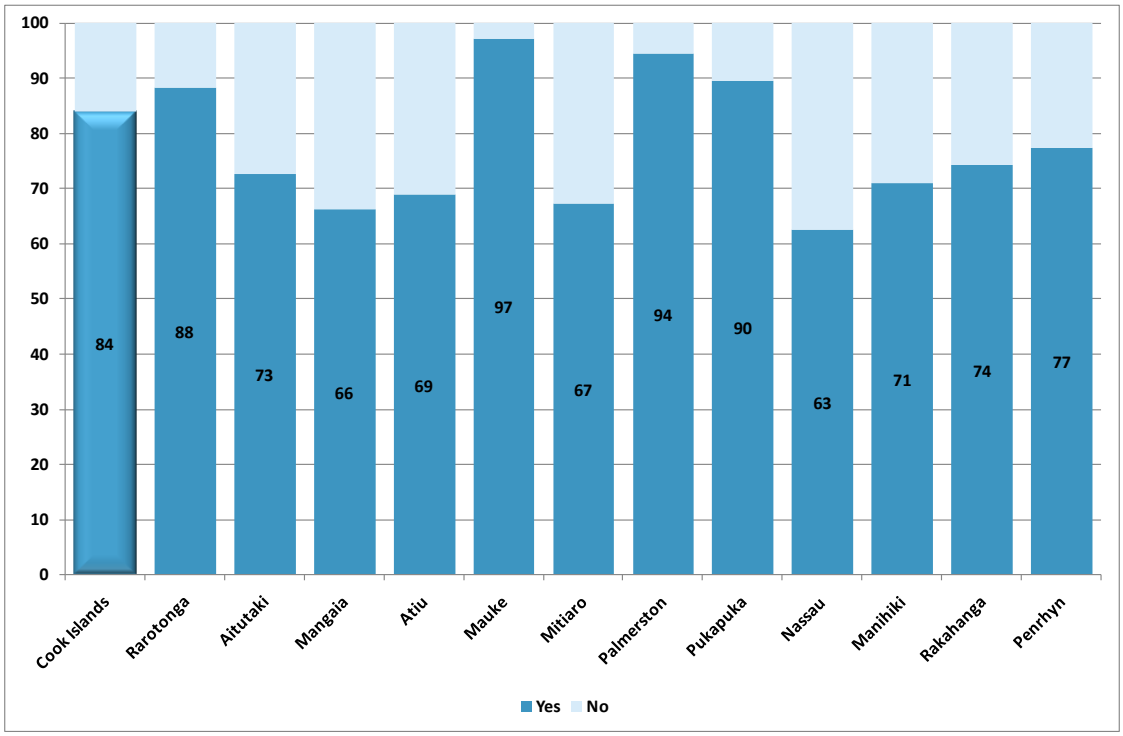
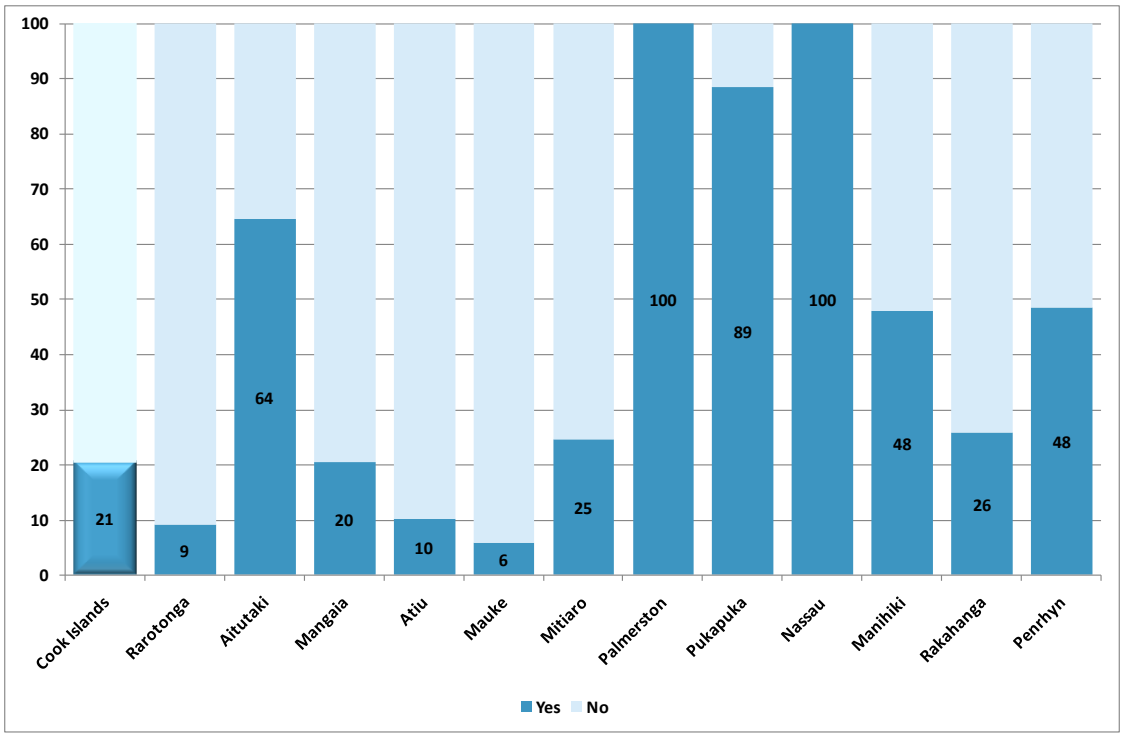


Figure 69: Proportion of private households by island and main mode of waste disposal – commercial waste disposal, Cook Islands: 2006



5.3.10 Private households and engagement in agricultural and fisheries activities

The 2006 census included several question on whether the households were engaged in agricultural and fisheries activities, and if yes, whether it was mainly for subsistence or commercial purposes.

For the Cook Islands as a whole, almost half of all households were involved in **agricultural activities**, although mainly for subsistence purposes (Fig.70). While relatively few households in Rarotonga were engaged in agricultural activities, the vast majority of households in most other islands were involved with agricultural activities, especially in the Northern Group islands. However, these activities were generally all for subsistence purposes.

The overall pattern of households engaged in **fisheries activities** is very similar to that of agricultural activities (Fig.71). While relatively few households in Rarotonga did fishing, most households in the Southern and especially the Northern Group islands were engaged in fisheries activities. In general these activities were of a subsistence nature, with the exception of Aitutaki, Palmerston and Penrhyn where 6% of households were involved with commercial fishing activities.

There was a clear split of households that were involved in fisheries activities when it comes to the **location of the fishing activities** (Fig.72). While most households in Rarotonga and the Southern Group islands did these activities only inside of the reef, most fishing activities in the Northern Group islands occurs both inside and outside of the reef. However, 9% of households that were in fisheries activities in Rarotonga did this only outside the reef.

Two per cent of all households in the Cook Islands were engaged in **pearl farming** (Fig.73). However, since the pearl farming industry is mainly located in Manihiki, it is not surprising to see that 64% of all households in Manihiki were engaged in pearl farming. The only other islands with noticeable engagement in pearl farming were Penrhyn (9%) and Rakahanga (6%).

Figure 70: Proportion of private households by island and agricultural activities, Cook Islands: 2006

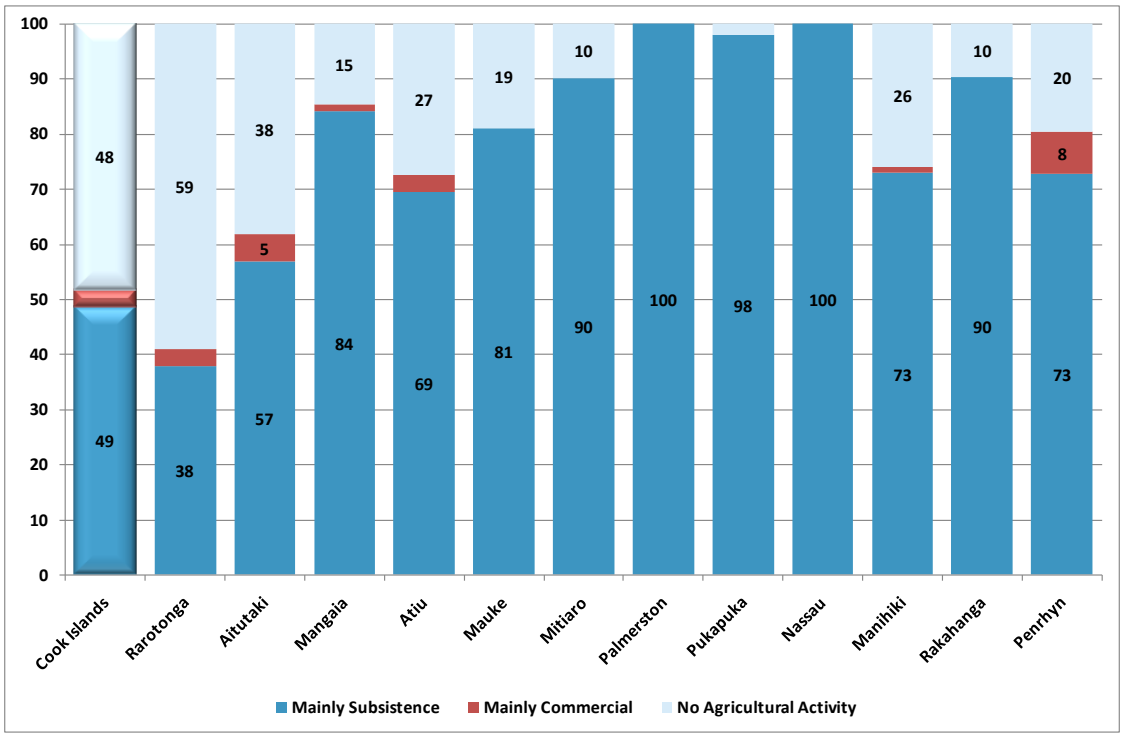


Figure 71: Proportion of private households by island and fisheries activities, Cook Islands: 2006

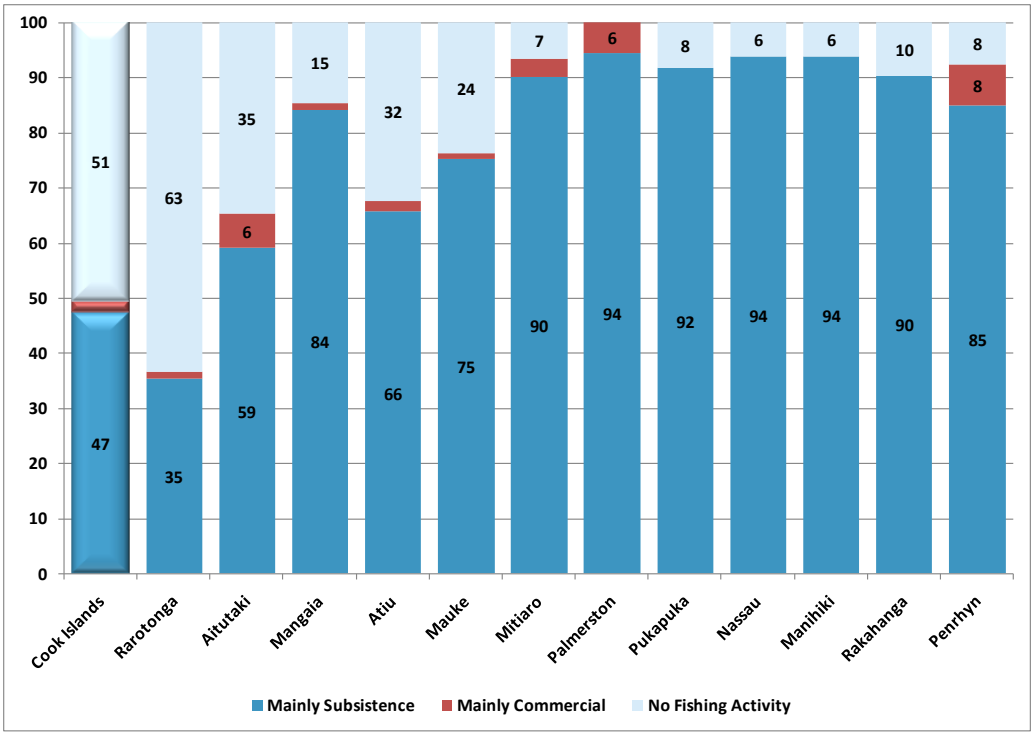


Figure 72: Proportion of private households that are involved in fisheries activities by island and location of fishing, Cook Islands: 2006

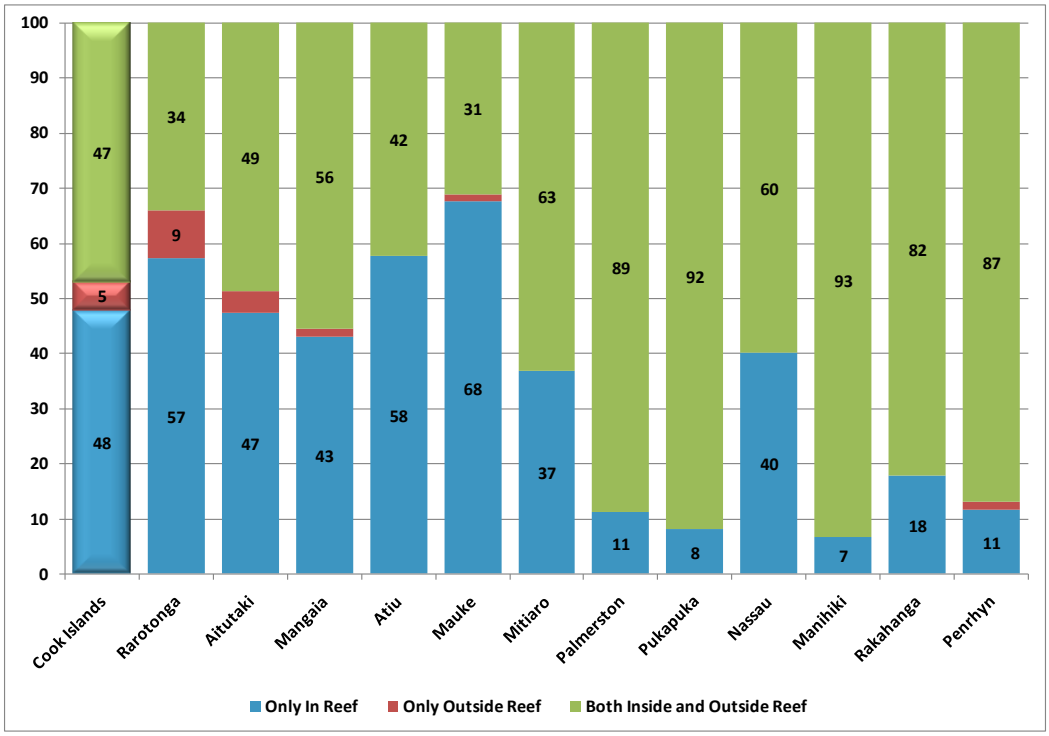
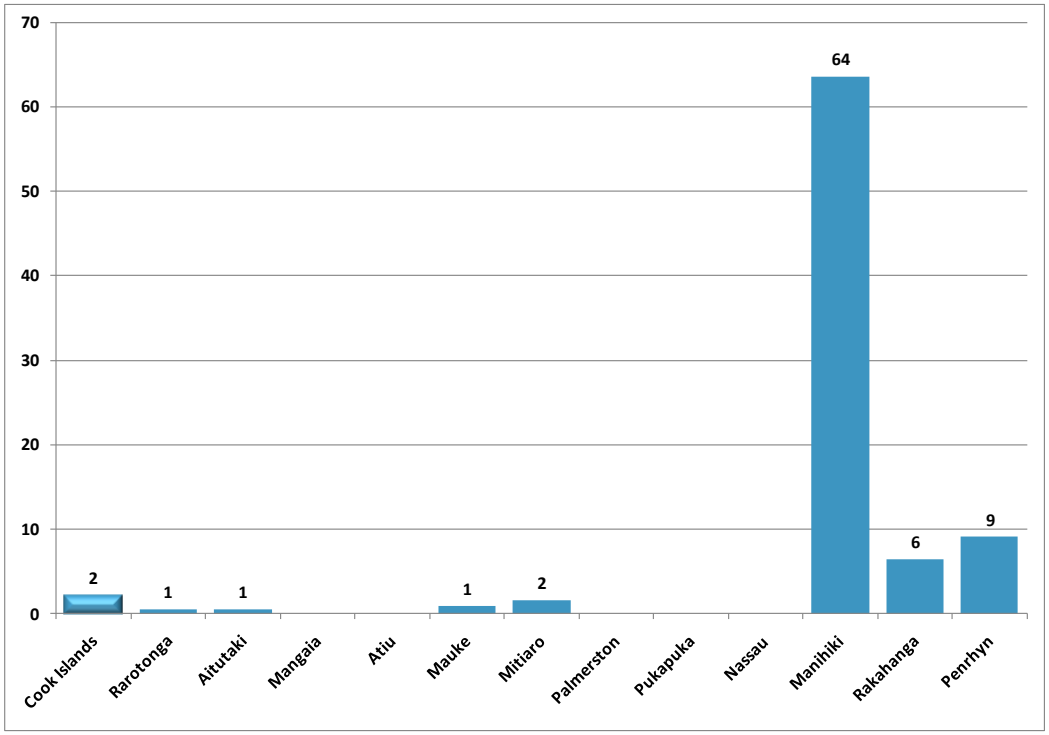


Figure 73: Proportion of private households by island and whether engaged in pearl farming, Cook Islands: 2006



5.3.11 Private households owning or raising livestock or pets

The following section provides an overview on the number of **livestock and pets** counted (Table 37), and the proportion of households that raises or owns livestock and pets (Figs.74-81).

In general livestock such as cattle, ducks and horse were mainly raised in Rarotonga and only few were found in the Southern Group islands; none in the Northern Group islands. There were also no goats in the Northern Group islands, except in Rakahanga.

There were only three islands with dogs: Rarotonga, Mangaia, and Atiu. All other islands were 'dog-free'.

Table 37: Total number of livestock and pets, Cook Islands: 2006

	Livestock/Pets							
Island/Region	Pigs	Goats	Cattle	Ducks	Horses	Chicken	Cats	Dogs
Cook Islands	**14,145**	**4,066**	**185**	**436**	**40**	**30,611**	**3,204**	**2,602**
Rarotonga	**6,155**	**1,323**	**152**	**385**	**24**	**8,293**	**2,047**	**2,291**
SOUTHERN GROUP	**5,586**	**2,733**	**33**	**51**	**16**	**18,380**	**788**	**311**
Aitutaki	1,692	762	4	20	5	8,733	434	0
Mangaia	1,565	954	0	31	8	2,786	162	168
Atiu	1,153	645	0	0	1	3,564	103	143
Mauke	858	364	29	0	2	2,757	46	0
Mitiaro	318	8	0	0	0	540	43	0
NORTHERN GROUP	**2,404**	**10**	**0**	**0**	**0**	**3,938**	**369**	**0**
Palmerston	43	0	0	0	0	555	0	0
Pukapuka/Nassau	741	0	0	0	0	964	124	0
Nassau	113	0	0	0	0	503	63	0
Manihiki	1,027	0	0	0	0	1,497	131	0
Rakahanga	254	10	0	0	0	325	11	0
Penrhyn	226	0	0	0	0	94	40	0

Figure 74: Proportion of private households by island raising pigs, Cook Islands: 2006

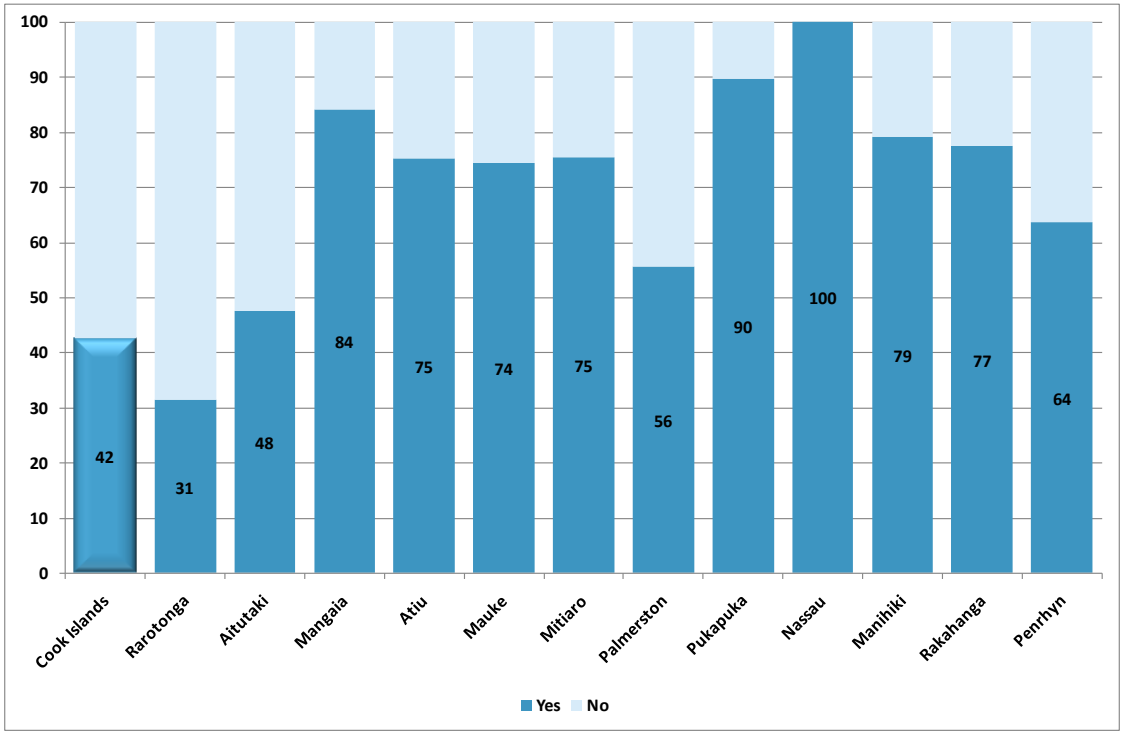


Figure 75: Proportion of private households by island raising goats, Cook Islands: 2006

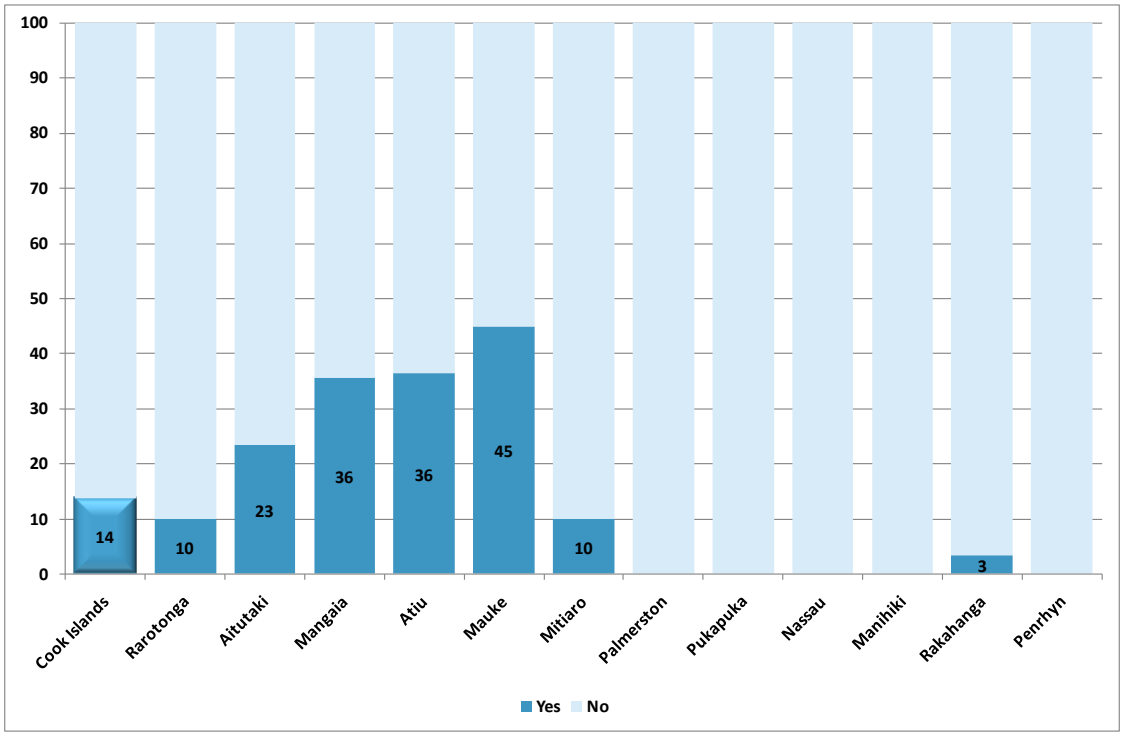


Figure 76: Proportion of private households by island raising cattle, Cook Islands: 2006

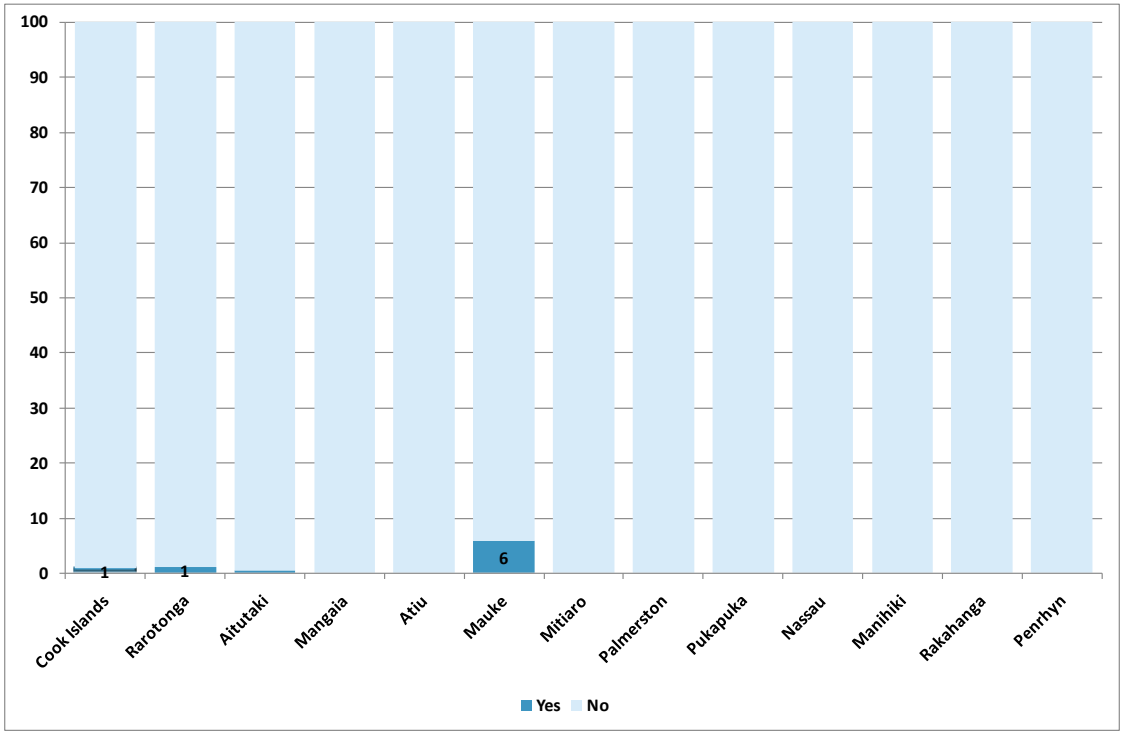


Figure 77: Proportion of private households by island raising ducks, Cook Islands: 2006

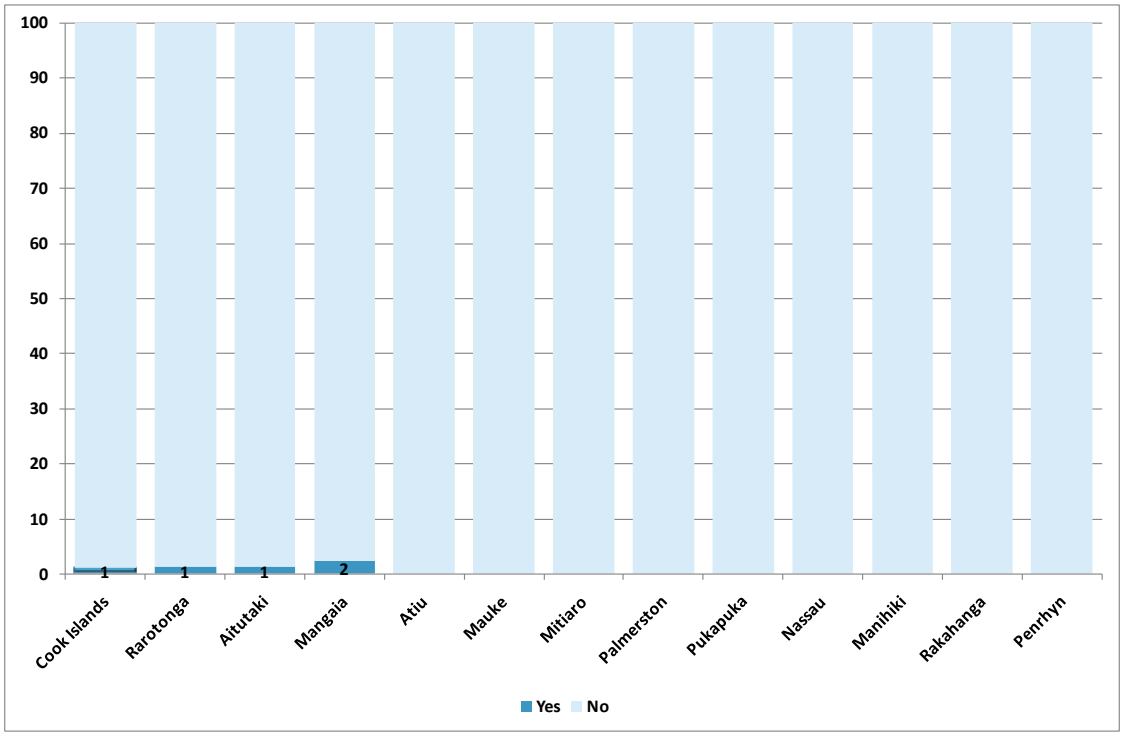


Figure 78: Proportion of private households by island raising horses, Cook Islands: 2006

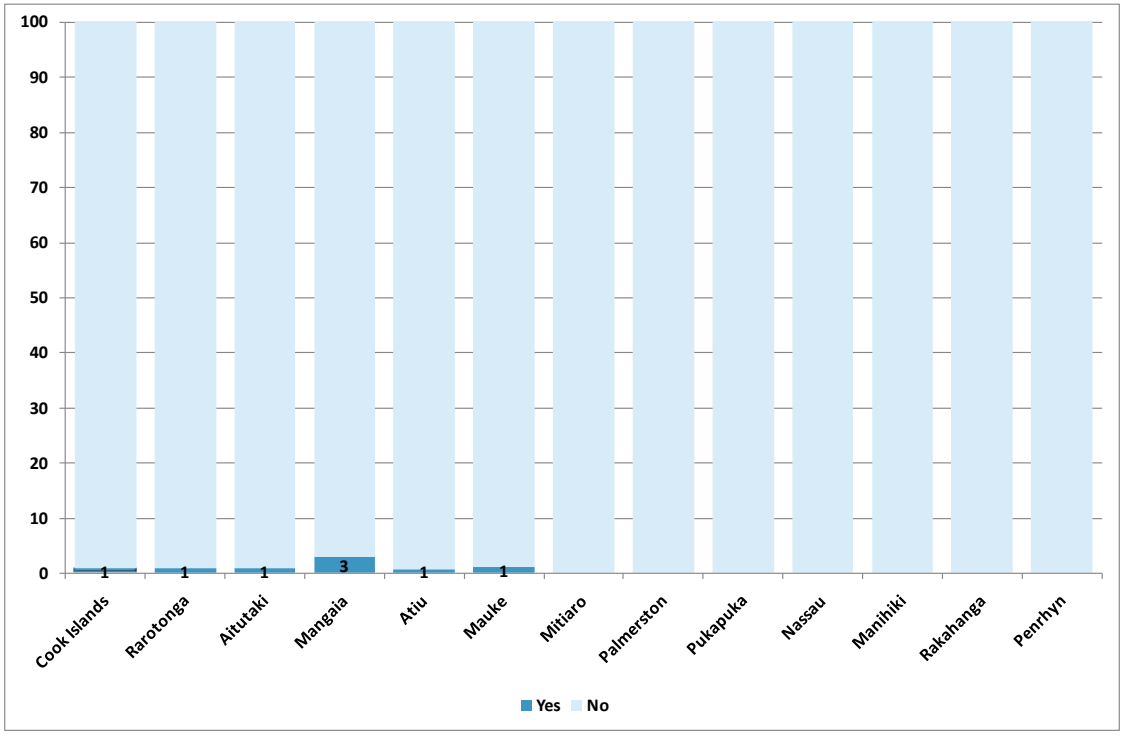


Figure 79: Proportion of private households by island raising chicken, Cook Islands: 2006

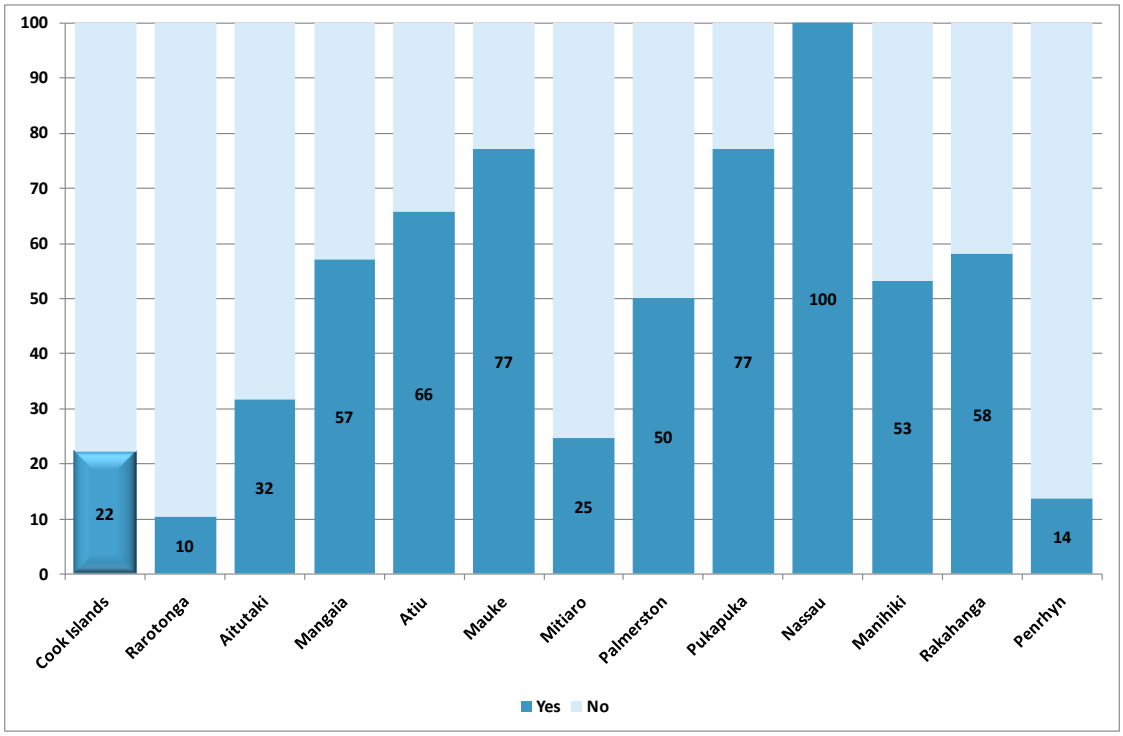


Figure 80: Proportion of private households by island owning cats, Cook Islands: 2006

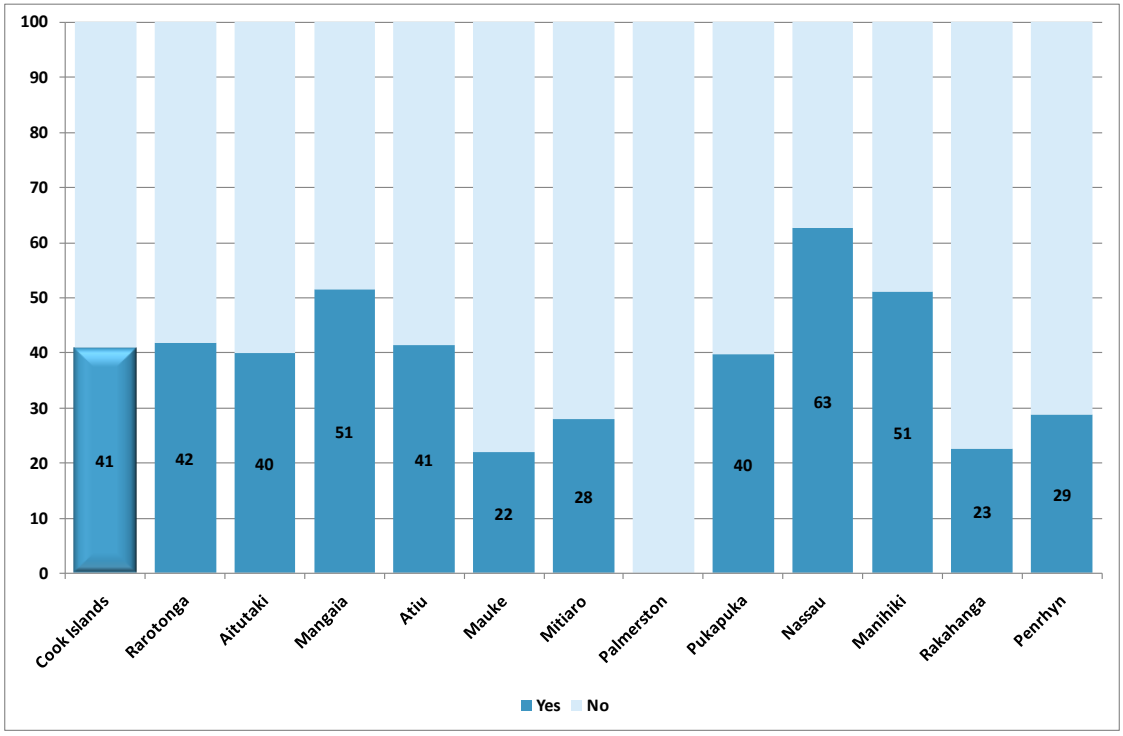
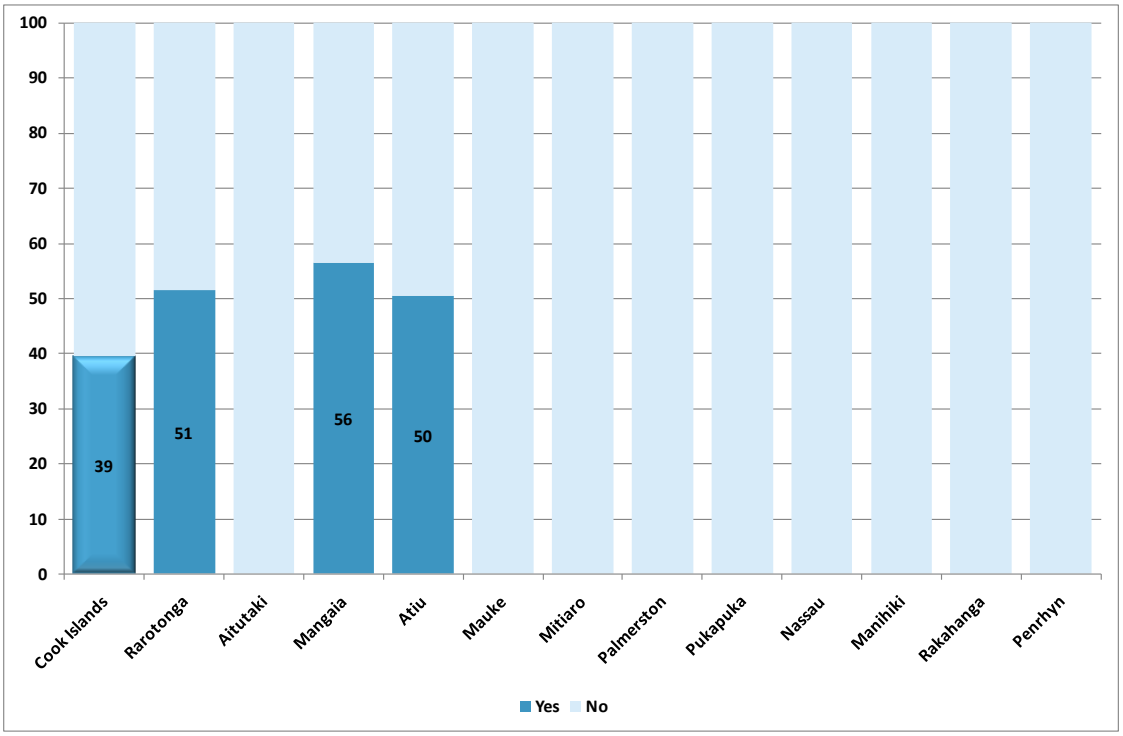


Figure 81: Proportion of private households by island owning dogs, Cook Islands: 2006



5.3.12 Private households and availability of various household items

This section briefly summarises the availability of a variety of household items, amenities, tools, equipments, and appliances.

- The different sections include a summary table presenting the number of items by island.

- Subsequently graphs are added that show the proportion of households by island with at least one item.

Again please note that the graphs show the proportion of households (in %) that own at least one item that is in working order. It excludes any items that were broken, borrowed or rented. The graphs therefore are simply divided into two categories: 'yes' if the household owns the item or 'no' if it does not own the item or if it is not in good working order.

5.3.12.1 Private households and availability of farm machinery

Table 38: Number of items of farm machinery by island, Cook Islands: 2006

Island	Item									
	Tractor	Rotary Hoe	Mist Blower	Grass cutter	Motor Mower	Disc	Plough	Tyne	Slasher	Knapsack
Rarotonga	229	165	134	2,920	2,285	98	119	29	123	866
Aitutaki	43	20	9	316	550	13	10	2	12	223
Mangaia	3	3	10	127	84	-	1	-	2	154
Atiu	4	7	2	141	146	3	11	1	1	70
Mauke	3	9	2	80	74	3	2	1	2	14
Mitiaro	1	-	-	24	13	-	-	-	-	1
Palmerston	2	-	-	2	1	-	-	-	-	1
Pukapuka	-	-	-	-	-	-	-	-	1	-
Nassau	-	-	-	-	-	-	-	-	-	-
Manihiki	4	1	2	42	3	1	1	1	1	2
Rakahanga	2	2	2	15	3	2	2	2	2	3
Penrhyn	-	-	-	26	2	1	-	-	1	1
Cook Islands	**291**	**207**	**161**	**3,693**	**3,161**	**121**	**146**	**36**	**145**	**1,335**

Figure 82: Proportion of private households by island and availability of a tractor, Cook Islands: 2006

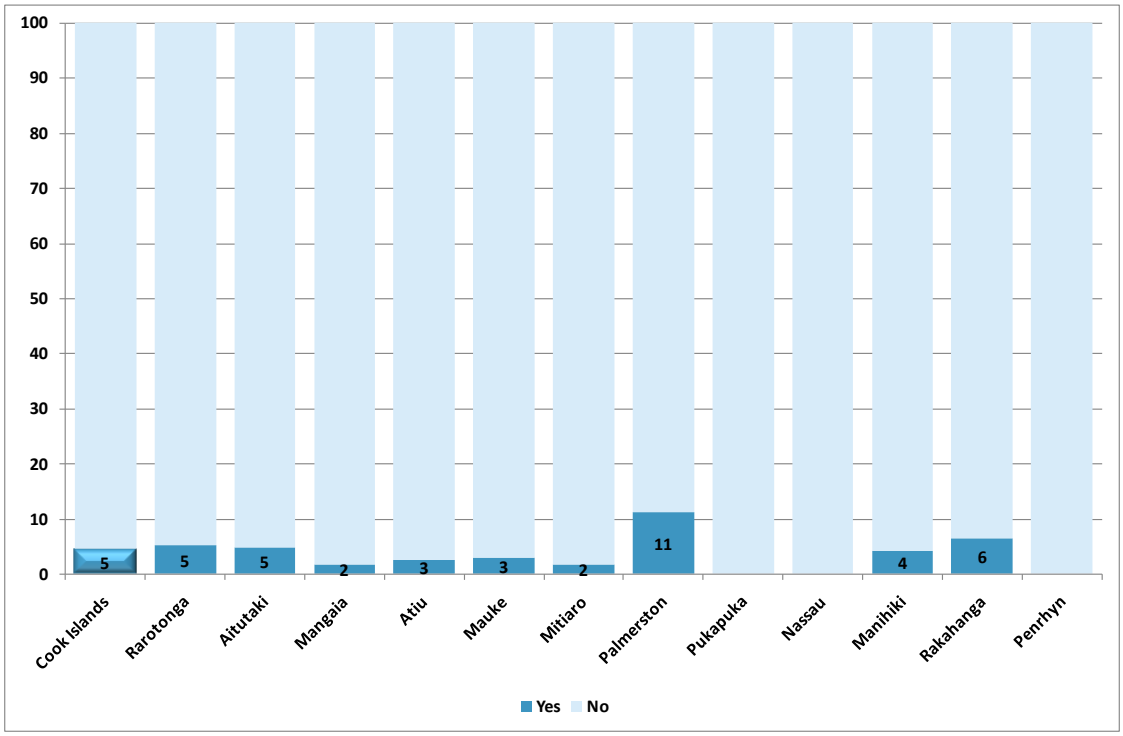


Figure 83: Proportion of private households by island and availability of a rotary hoe, Cook Islands: 2006

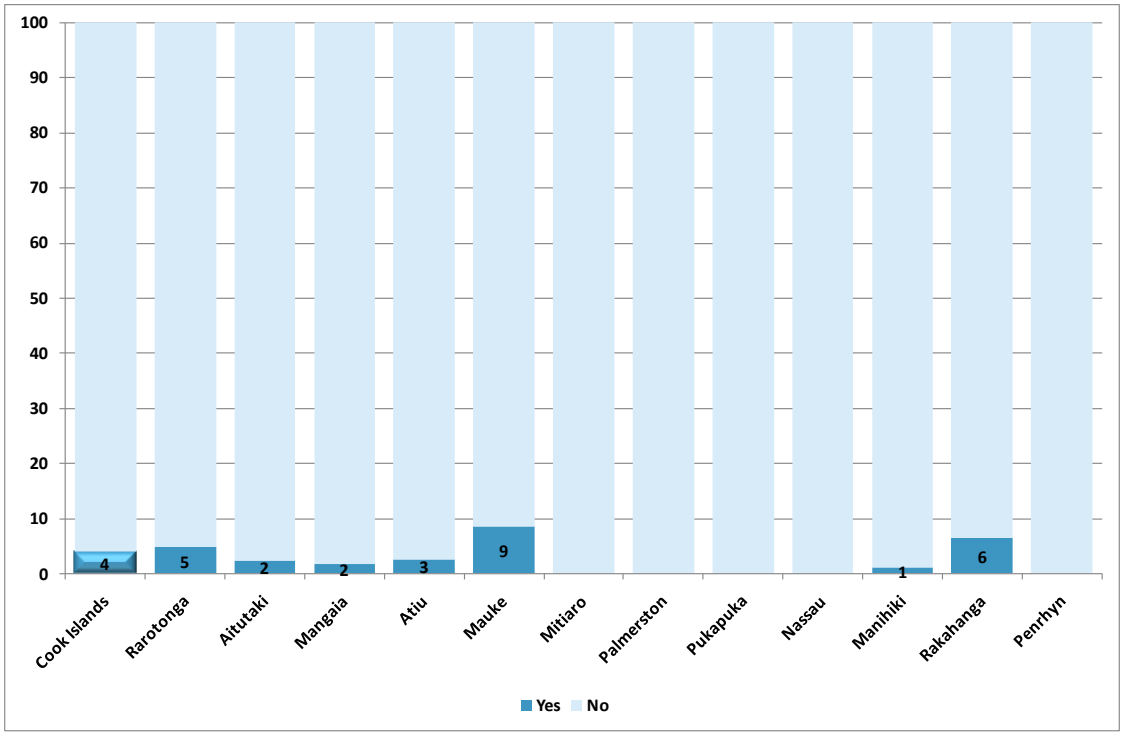


Figure 84: Proportion of private households by island and availability of a mist blower, Cook Islands: 2006

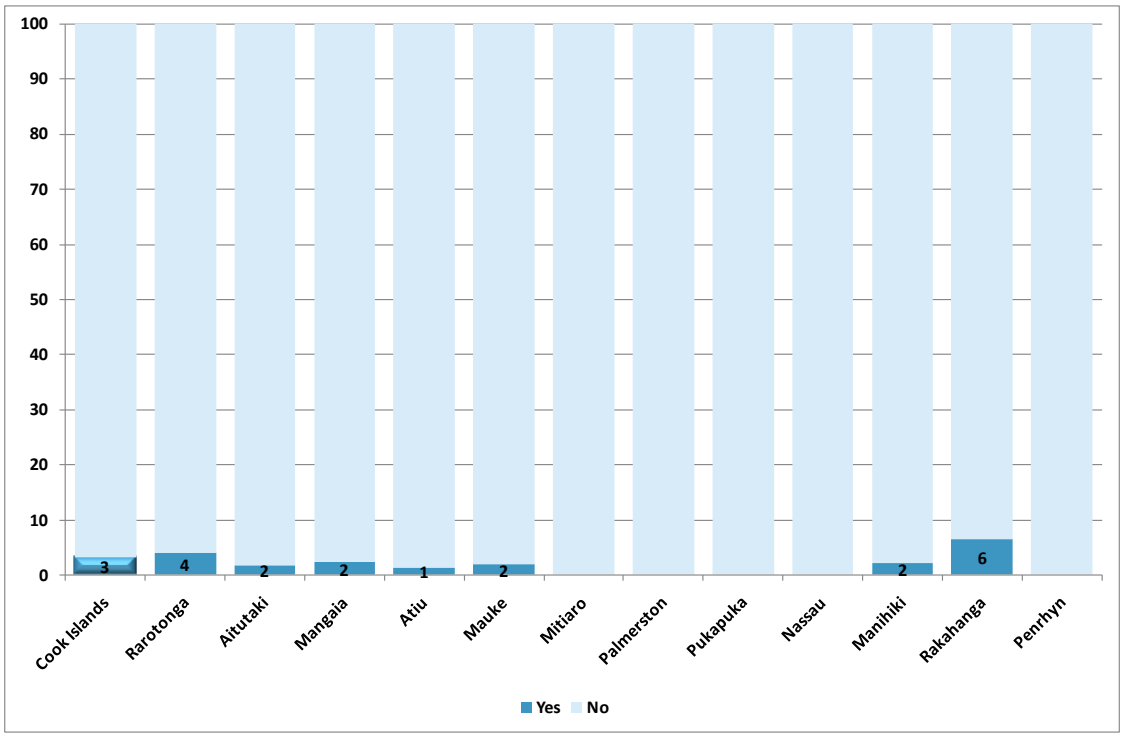


Figure 85: Proportion of private households by island and availability of a grass cutter, Cook Islands: 2006

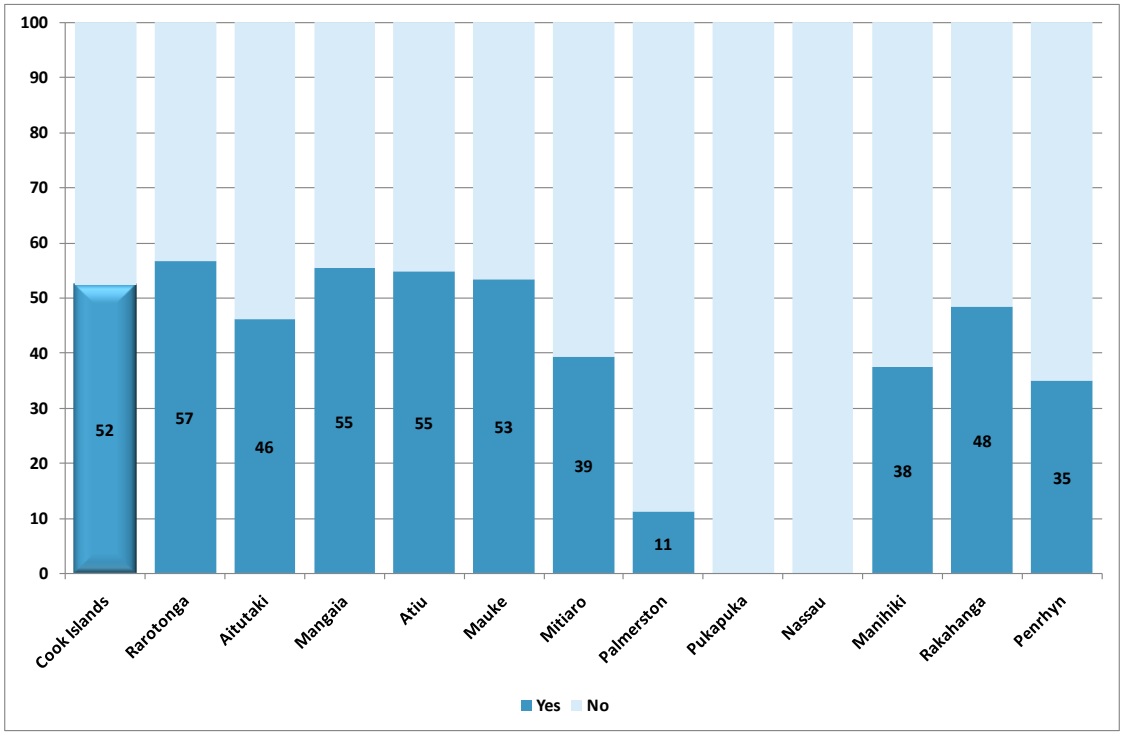


Figure 86: Proportion of private households by island and availability of a motor mower, Cook Islands: 2006

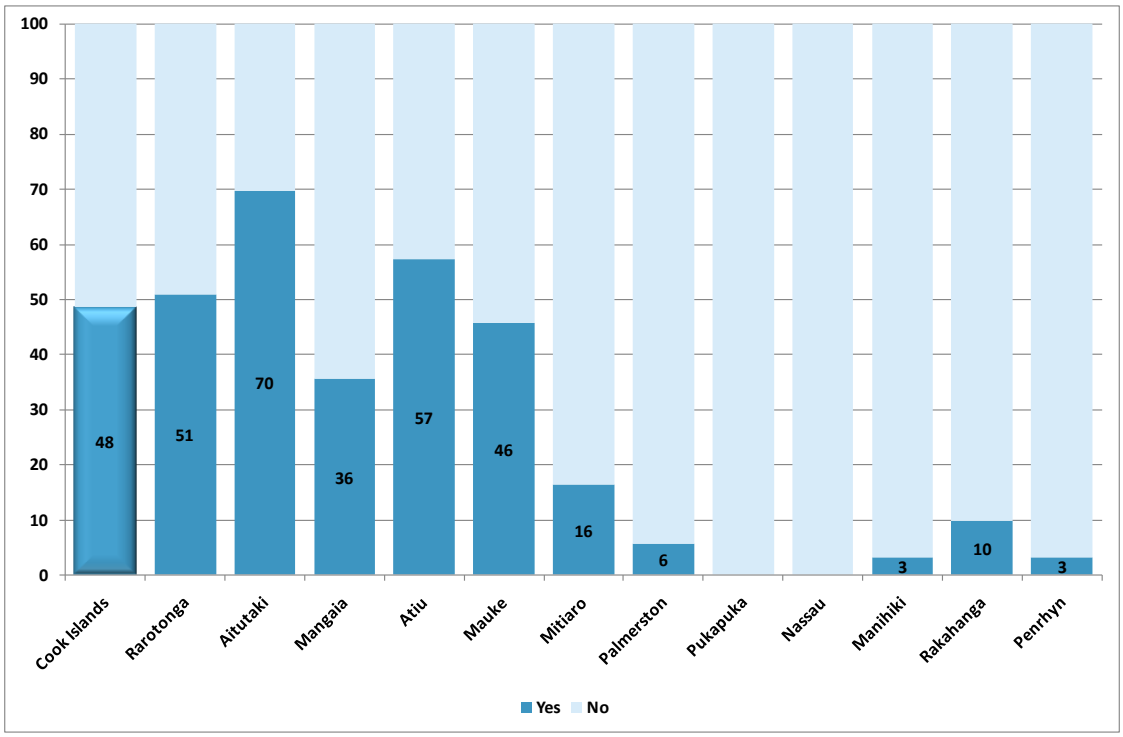


Figure 87: Proportion of private households by island and availability of a disc, Cook Islands: 2006

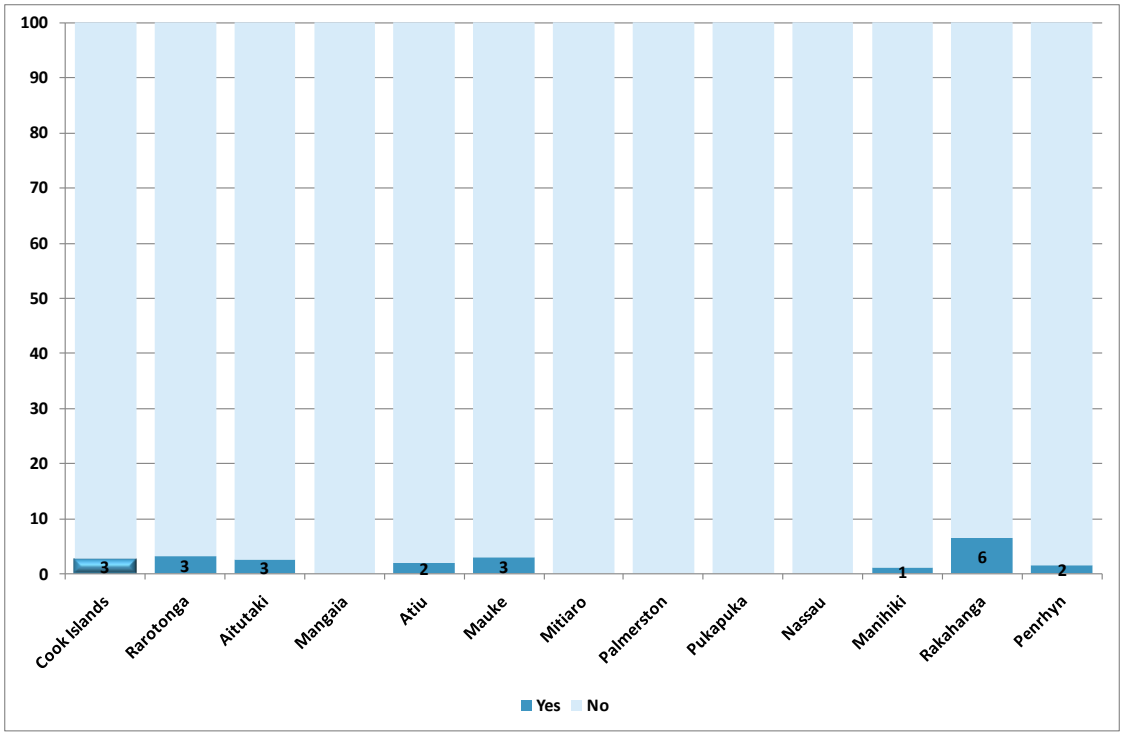


Figure 88: Proportion of private households by island and availability of a plough, Cook Islands: 2006

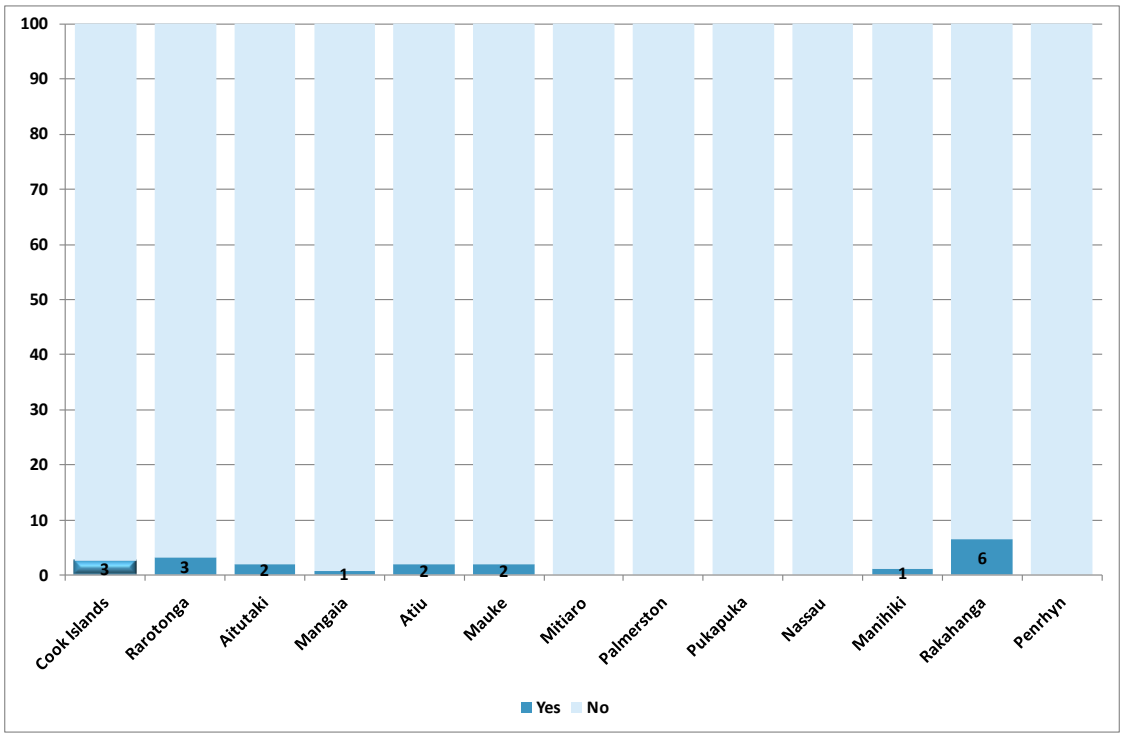


Figure 89: Proportion of private households by island and availability of a tyne, Cook Islands: 2006

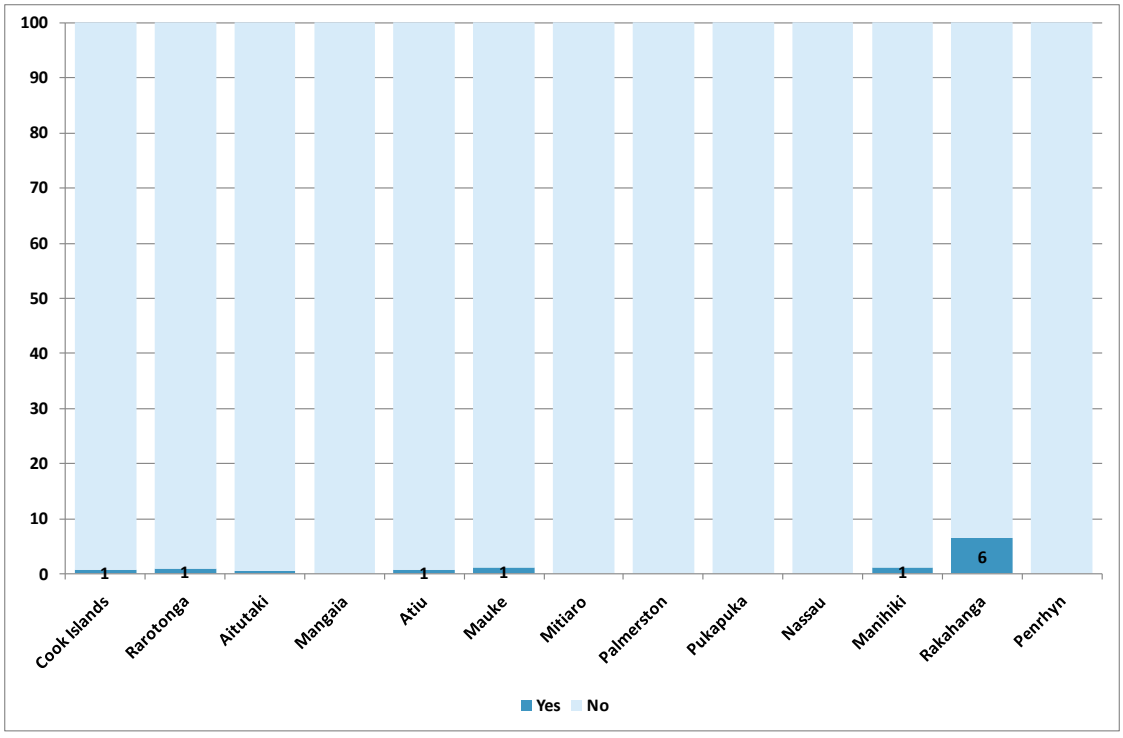


Figure 90: Proportion of private households by island and availability of a slasher, Cook Islands: 2006

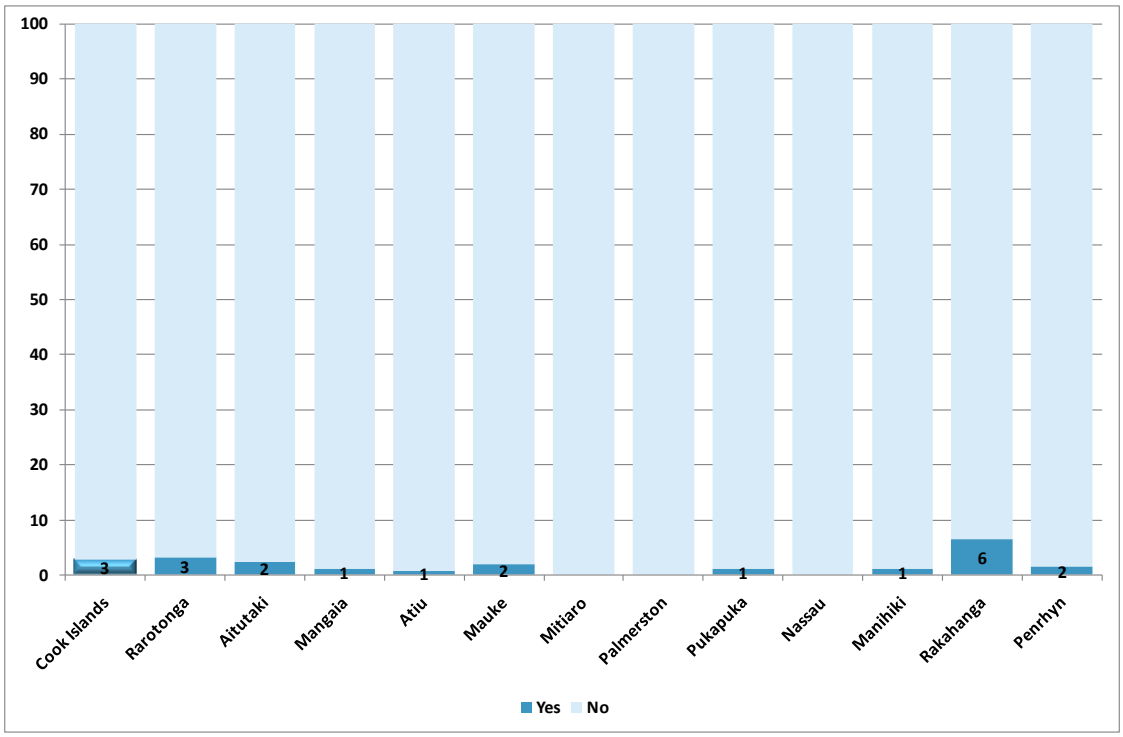
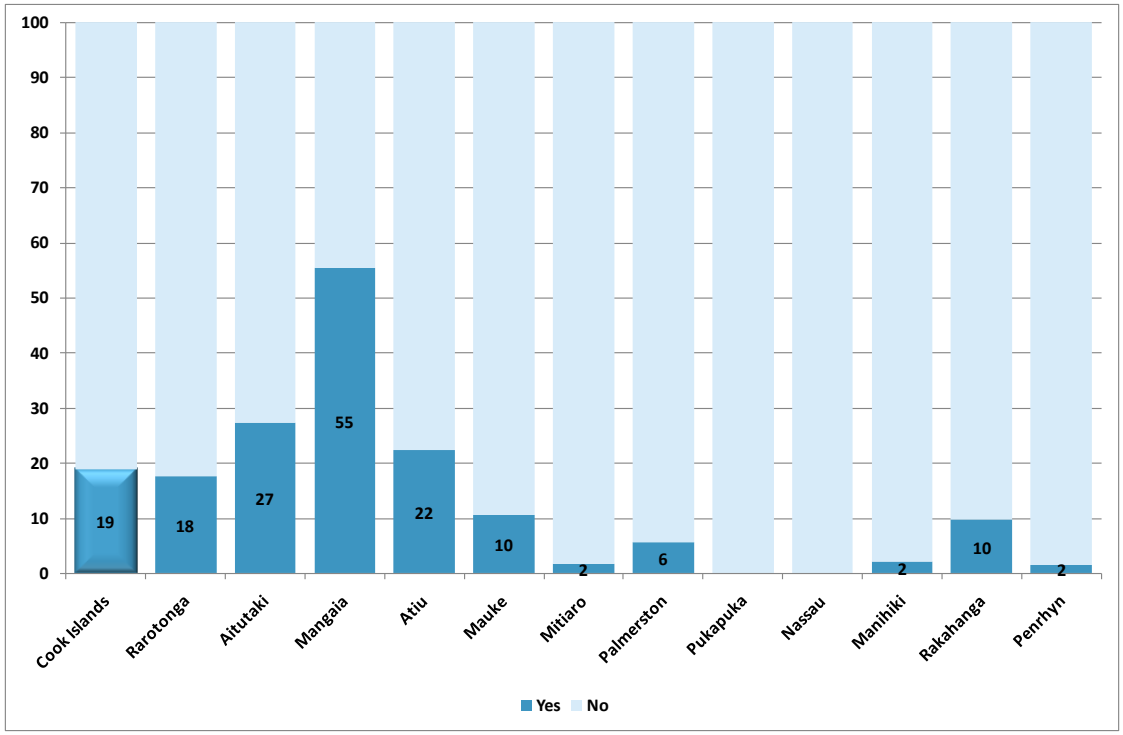


Figure 91: Proportion of private households by island and availability of a knapsack, Cook Islands: 2006



5.3.12.2 Private households and availability of fishing equipment

Table 39: Number of items of fishing equipment by island, Cook Islands: 2006

Island	Item							
				Fishing Rod				
	Speargun	Canoe	Boat	(imported)	(local)	Fishing Net	Scuba (full set)	Outboard Motor
Rarotonga	1,026	75	157	4,872	4,513	961	153	233
Aitutaki	517	104	210	2,478	1,271	1,210	133	244
Mangaia	167	27	14	801	2,911	308	9	44
Atiu	27	13	21	520	1,627	277	-	37
Mauke	109	23	12	429	977	60	-	18
Mitiaro	21	37	3	56	466	20	1	29
Palmerston	25	2	47	22	440	119	-	32
Pukapuka	181	45	70	1,123	2,772	485	3	91
Nassau	35	14	1	1	482	119	-	2
Manihiki	273	11	298	169	566	303	116	328
Rakahanga	31	5	26	18	125	59	3	37
Penrhyn	124	2	128	222	3,604	57	29	193
Cook Islands	**2,536**	**358**	**987**	**10,711**	**19,754**	**3,978**	**447**	**1,288**

Figure 92: Proportion of private households by island and availability of a speargun, Cook Islands: 2006

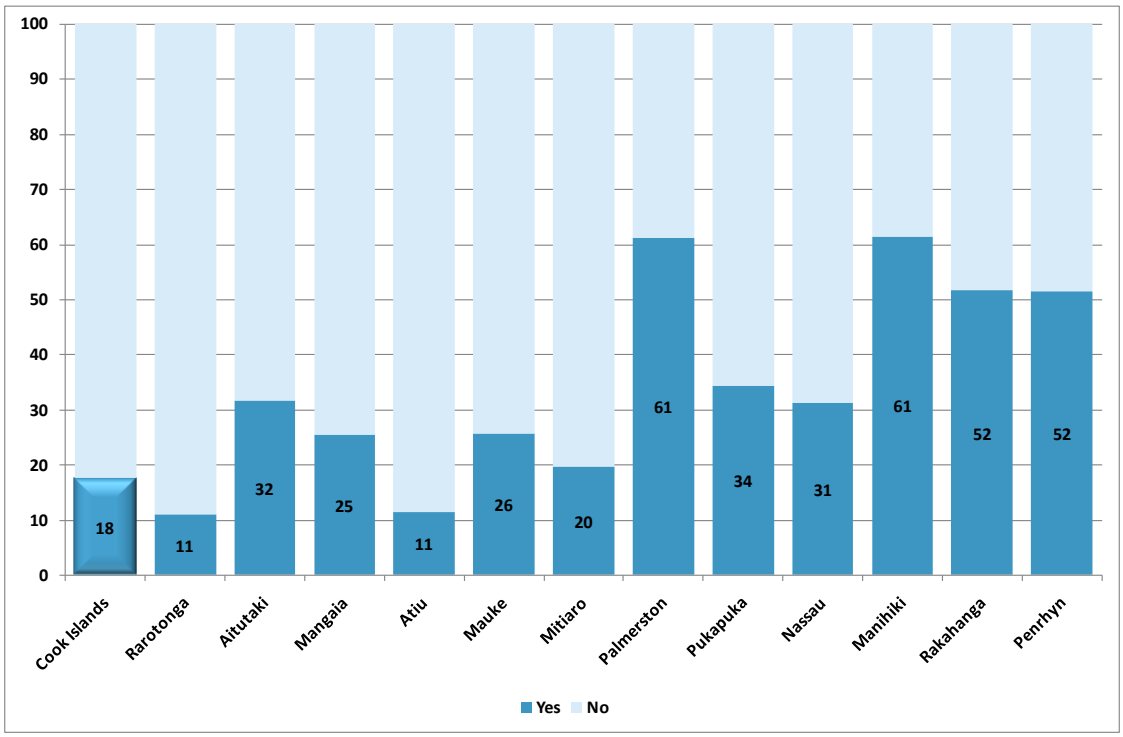


Figure 93: Proportion of private households by island and availability of a canoe, Cook Islands: 2006

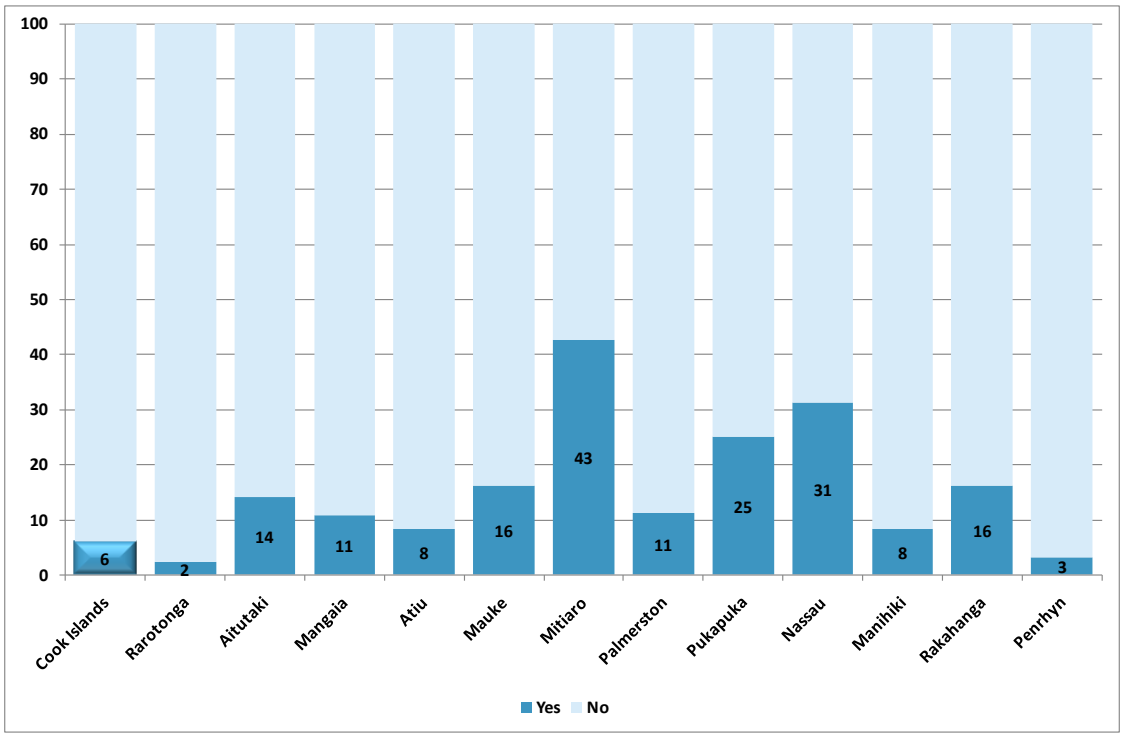


Figure 94: Proportion of private households by island and availability of a boat, Cook Islands: 2006

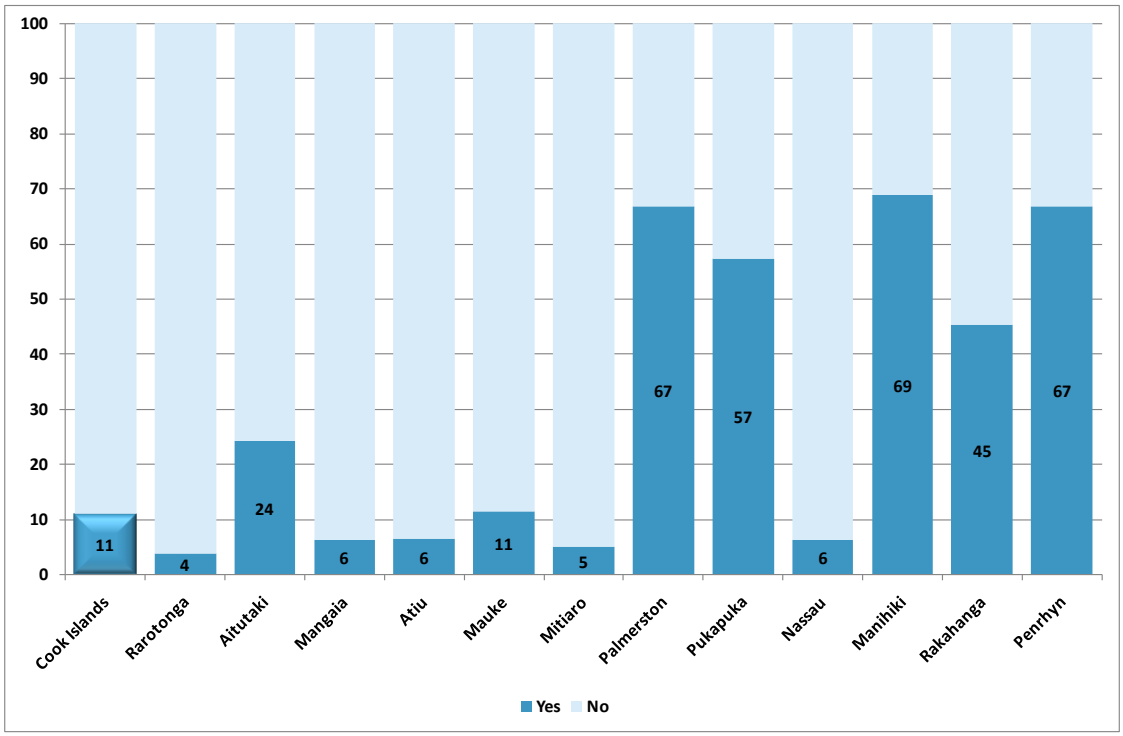


Figure 95: Proportion of private households by island and availability of a fishing rod (imported), Cook Islands: 2006

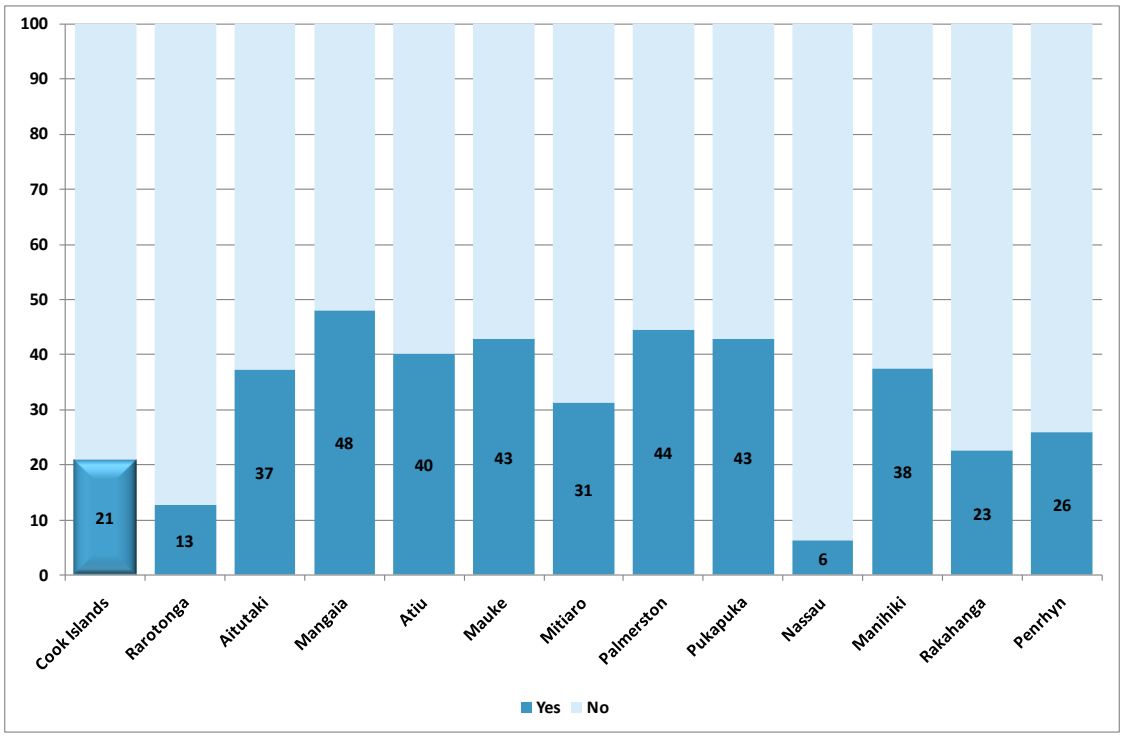


Figure 96: Proportion of private households by island and availability of a fishing rod (local), Cook Islands: 2006

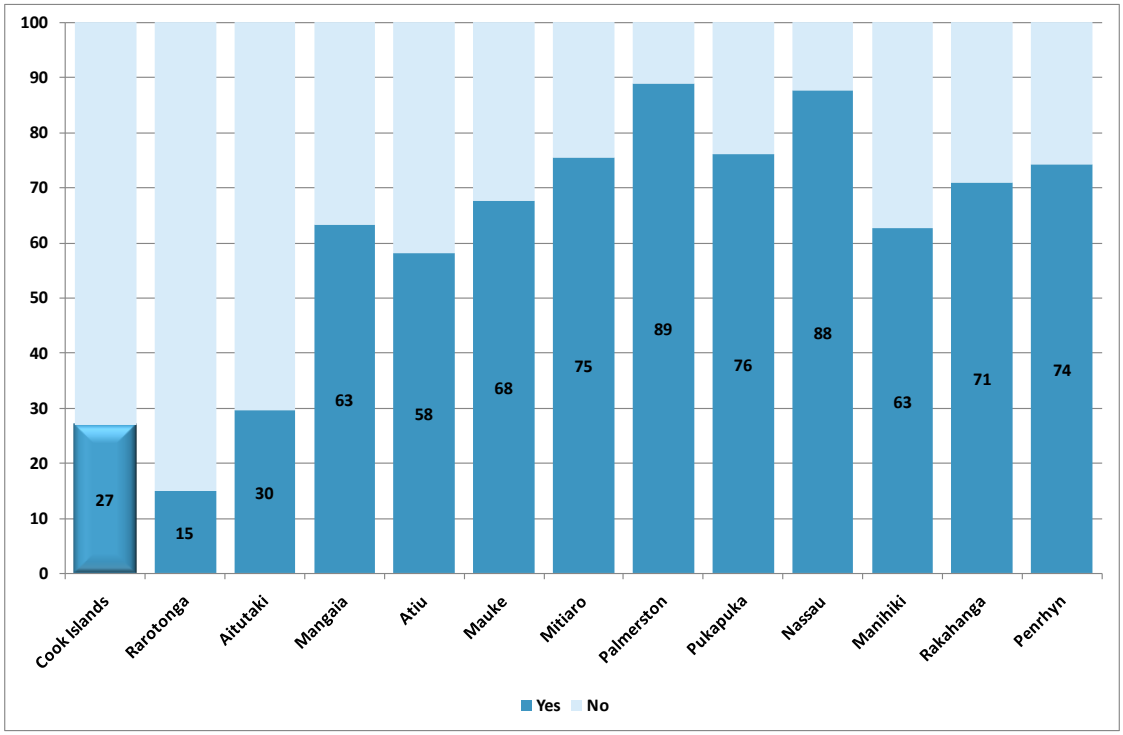


Figure 97: Proportion of private households by island and availability of a fishing net, Cook Islands: 2006

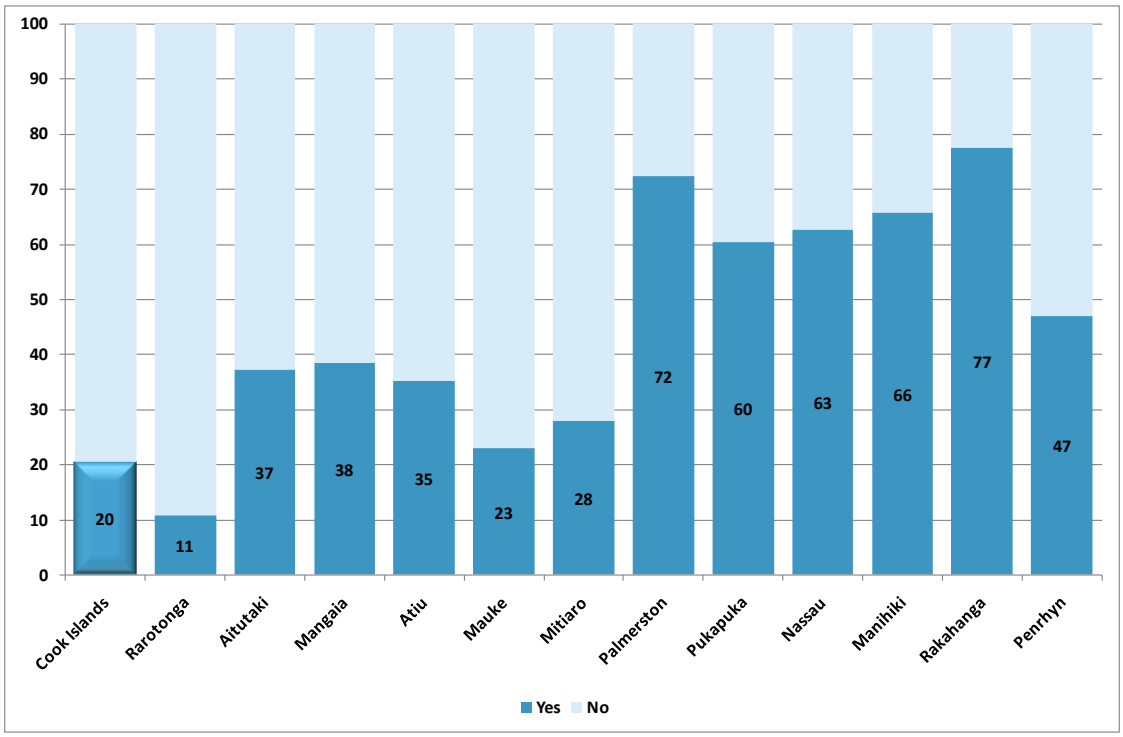


Figure 98: Proportion of private households by island and availability of a scuba full set, Cook Islands: 2006

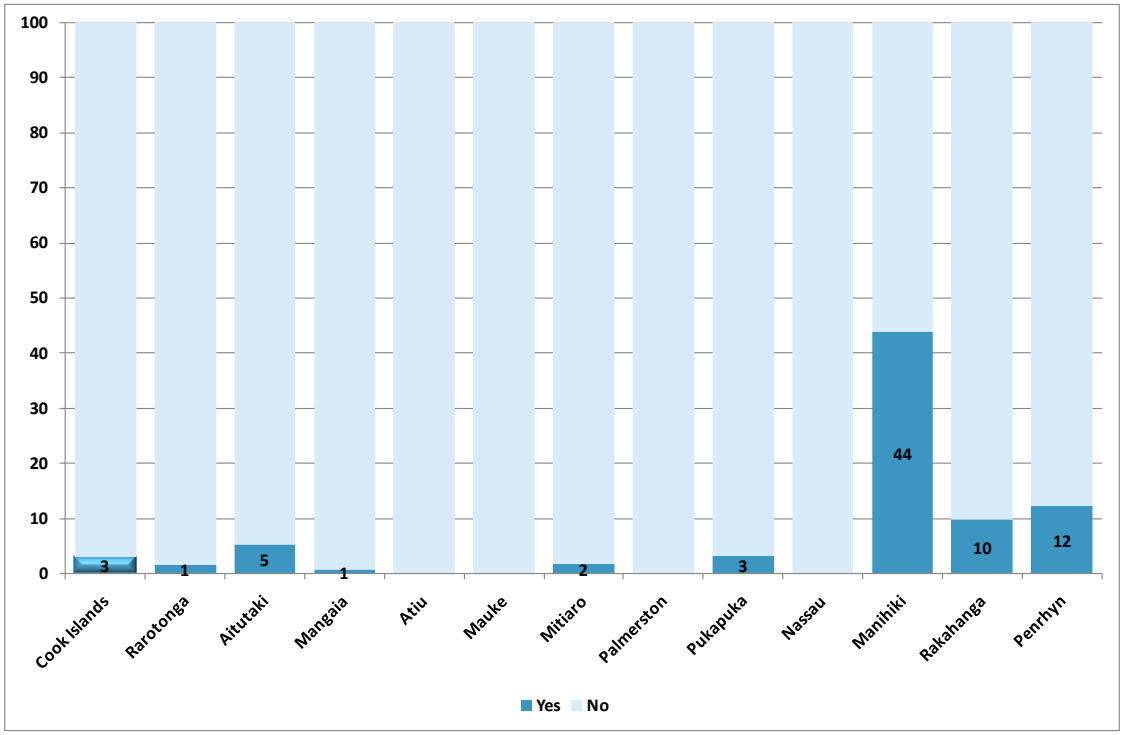
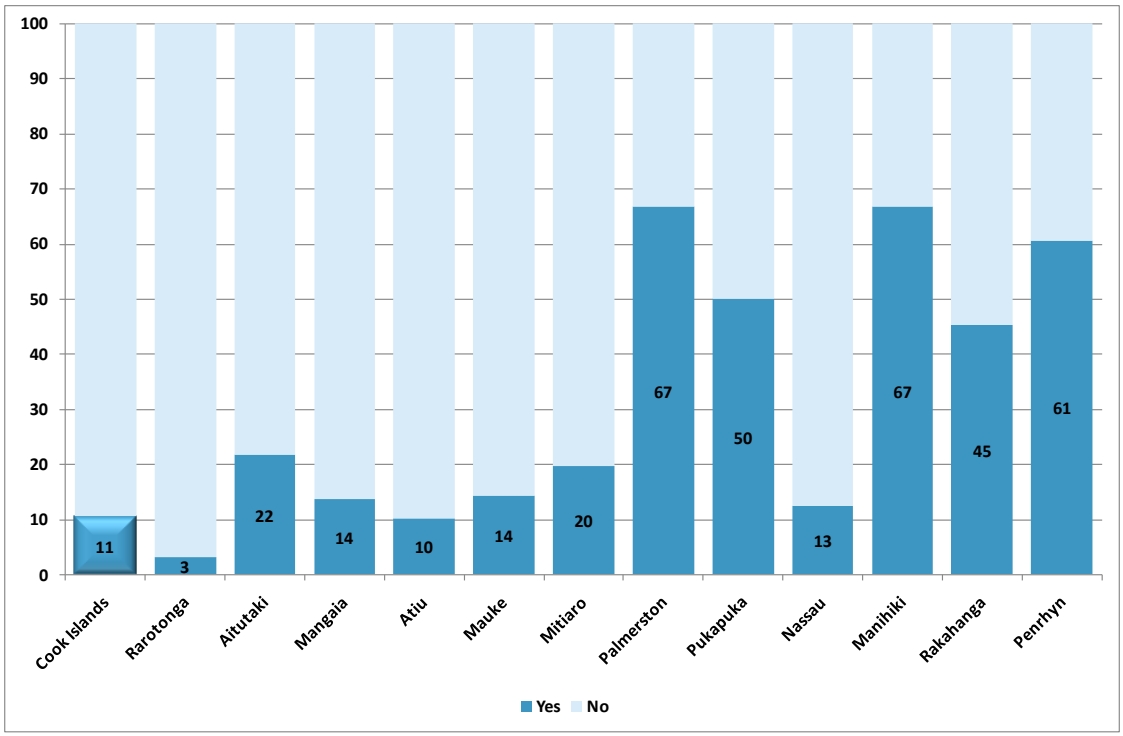


Figure 99: Proportion of private households by island and availability of an outboard motor, Cook Islands: 2006



5.3.12.3 Private households and availability of power tools

Table 40: Number of items of power tools by island, Cook Islands: 2006

Island	Item				
	Drill	Skill saw	Compressor	Sander	Battery charger
Rarotonga	2,879	1,803	521	1,333	1,269
Aitutaki	527	355	137	238	236
Mangaia	167	131	23	75	56
Atiu	134	97	15	73	47
Mauke	109	51	6	28	37
Mitiaro	35	30	1	10	21
Palmerston	23	18	2	13	13
Pukapuka	36	39	4	17	15
Nassau	26	17	-	6	-
Manihiki	315	114	16	38	83
Rakahanga	28	12	4	16	10
Penrhyn	214	99	8	36	53
Cook Islands	**4,493**	**2,766**	**737**	**1,883**	**1,840**

Figure 100: Proportion of private households by island and availability of a drill, Cook Islands: 2006

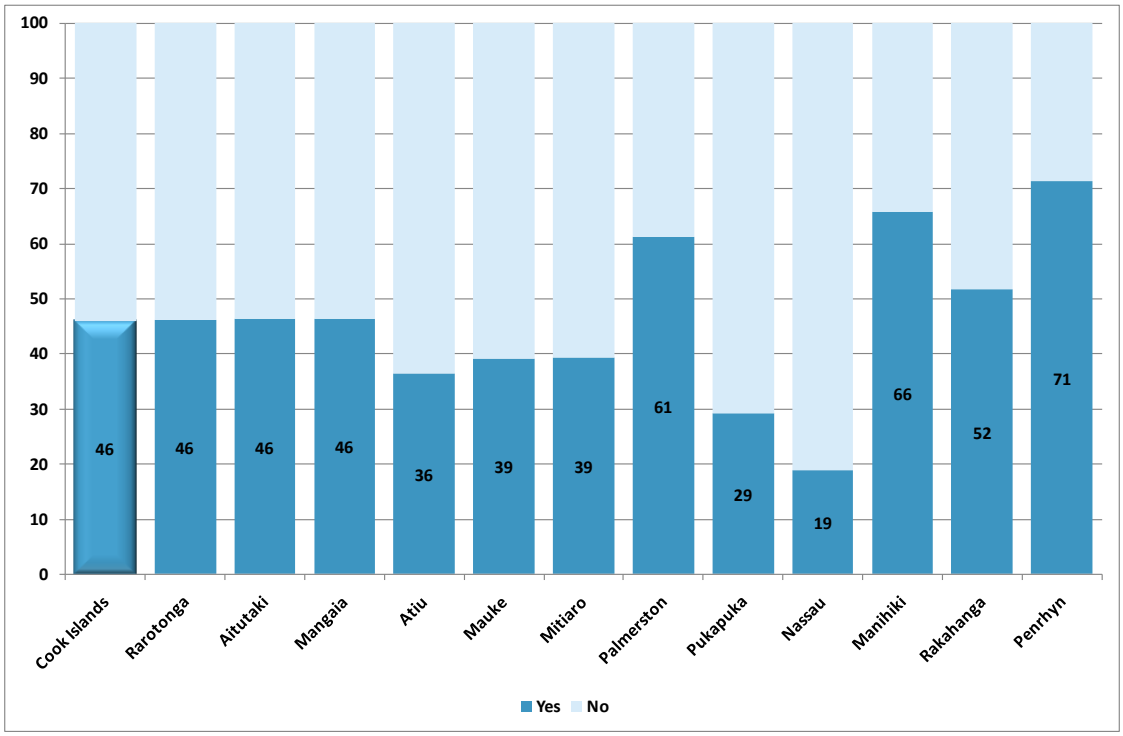


Figure101: Proportion of private households by island and availability of a skill saw, Cook Islands: 2006

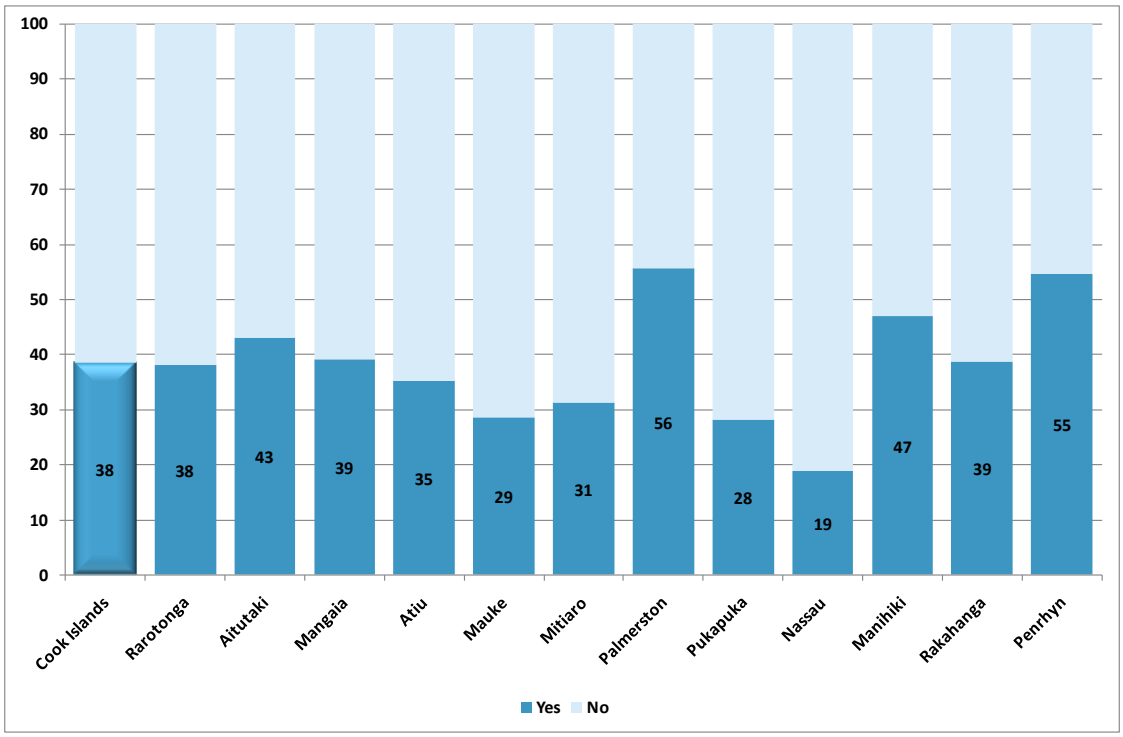


Figure 102: Proportion of private households by island and availability of a compressor, Cook Islands: 2006

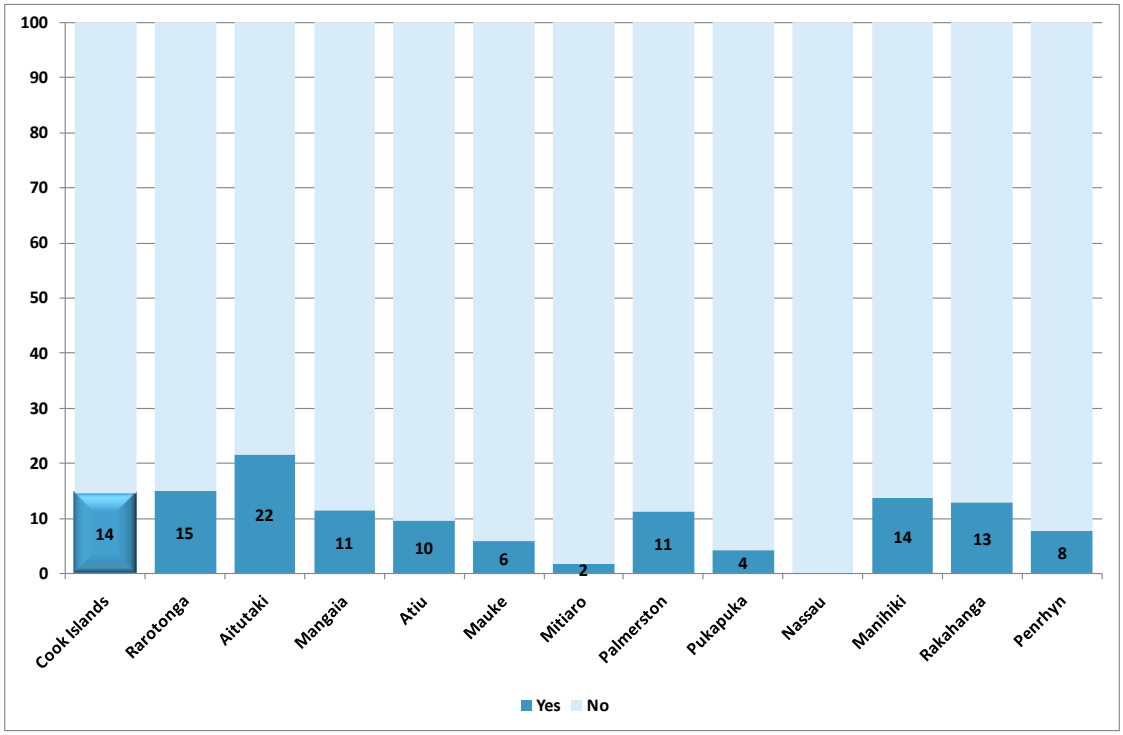


Figure 103: Proportion of private households by island and availability of a sander, Cook Islands: 2006

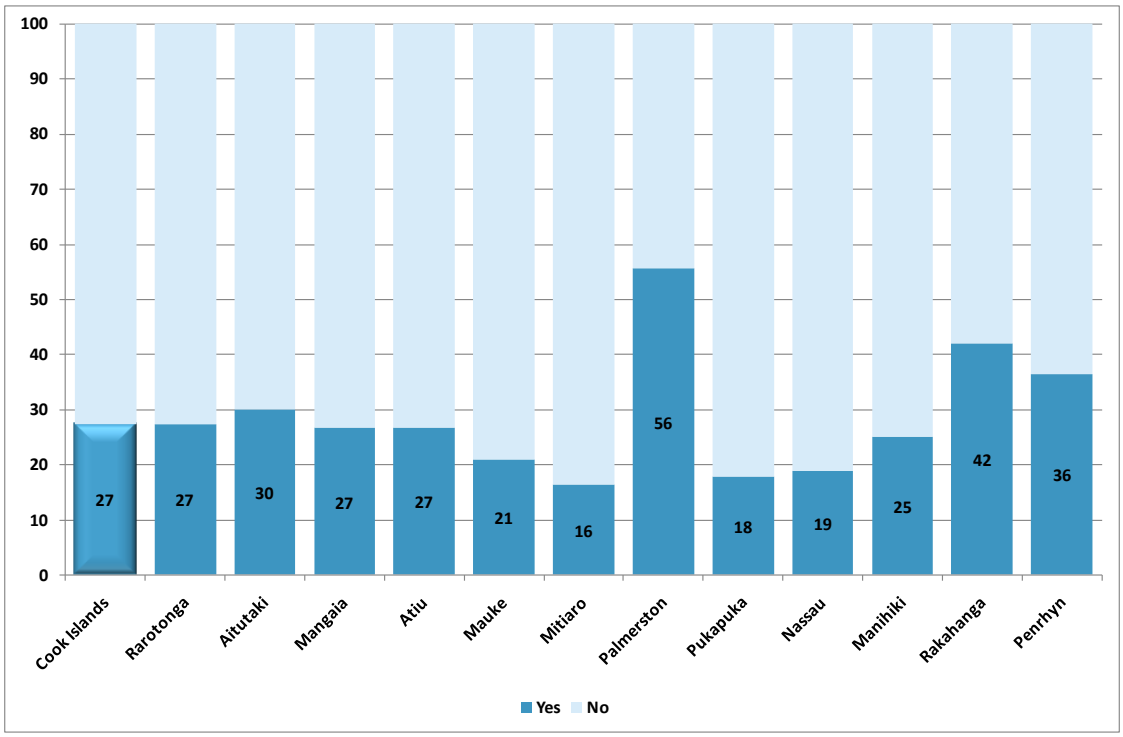
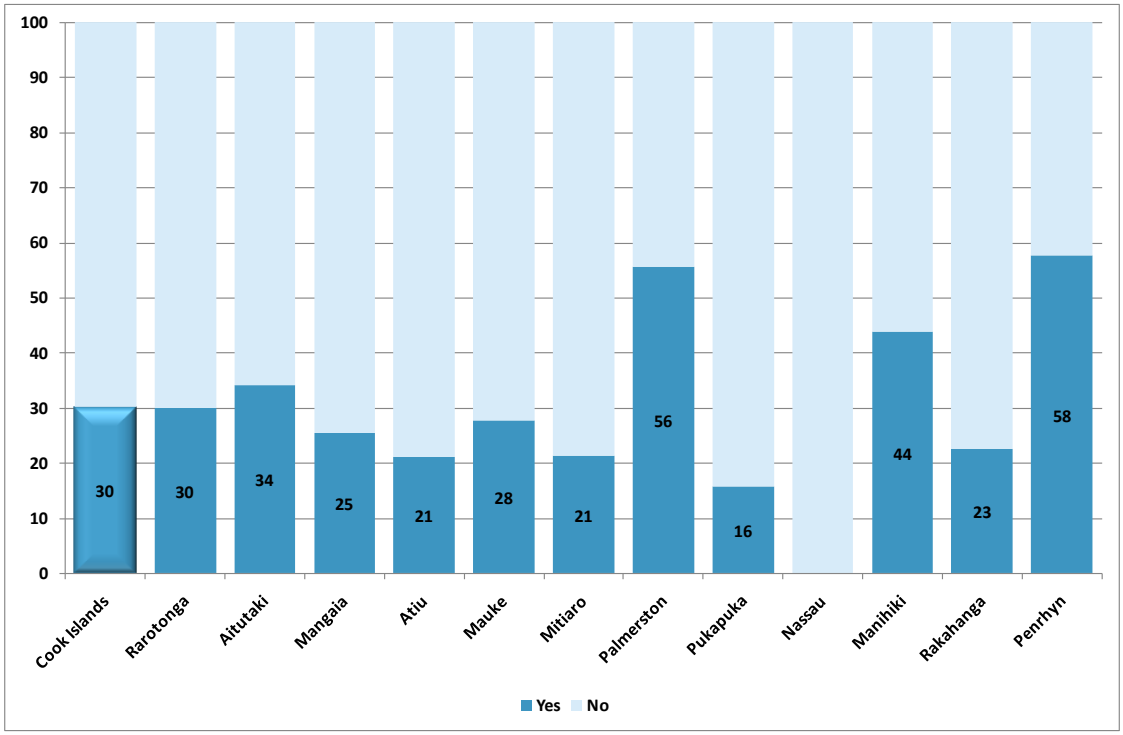


Figure 104: Proportion of private households by island and availability of a battery charger, Cook Islands: 2006



5.3.12.4 Private households and availability of cooking appliances

Table 41: Number of items of cooking appliances by island, Cook Islands: 2006

Island	Item												
	Electric stove	Gas stove	Kerosene burner	Microwave	Coffee percolator	Rice cooker	Pressure cooker	Jug/kettle	Frying pan	Food processor	Toaster	Eggbeater	BBQ
Rarotonga	532	3,086	54	1,818	429	1,010	580	3,363	5,898	1,205	3,081	1,330	1,548
Aitutaki	174	526	33	269	42	156	137	699	870	178	564	225	220
Mangaia	19	173	9	75	7	25	17	293	325	45	191	57	48
Atiu	10	179	24	43	34	56	4	275	320	43	201	47	41
Mauke	13	119	1	27	6	27	4	126	229	36	110	48	27
Mitiaro	5	59	-	17	2	23	1	72	61	3	52	16	8
Palmerston	-	23	-	7	1	6	5	18	22	2	21	13	10
Pukapuka	1	109	5	4	-	2	1	70	163	1	6	11	5
Nassau	-	6	-	1	-	-	-	1	10	-	-	-	-
Manihiki	12	164	16	37	6	48	2	127	224	21	68	37	25
Rakahanga	1	26	1	8	-	17	-	51	26	1	20	18	5
Penrhyn	13	88	5	13	6	51	7	135	156	14	42	19	28
Cook Islands	**780**	**4,558**	**148**	**2,319**	**533**	**1,421**	**758**	**5,230**	**8,304**	**1,549**	**4,356**	**1,821**	**1,965**

Figure 105: Proportion of private households by island and availability of a electric stove, Cook Islands: 2006

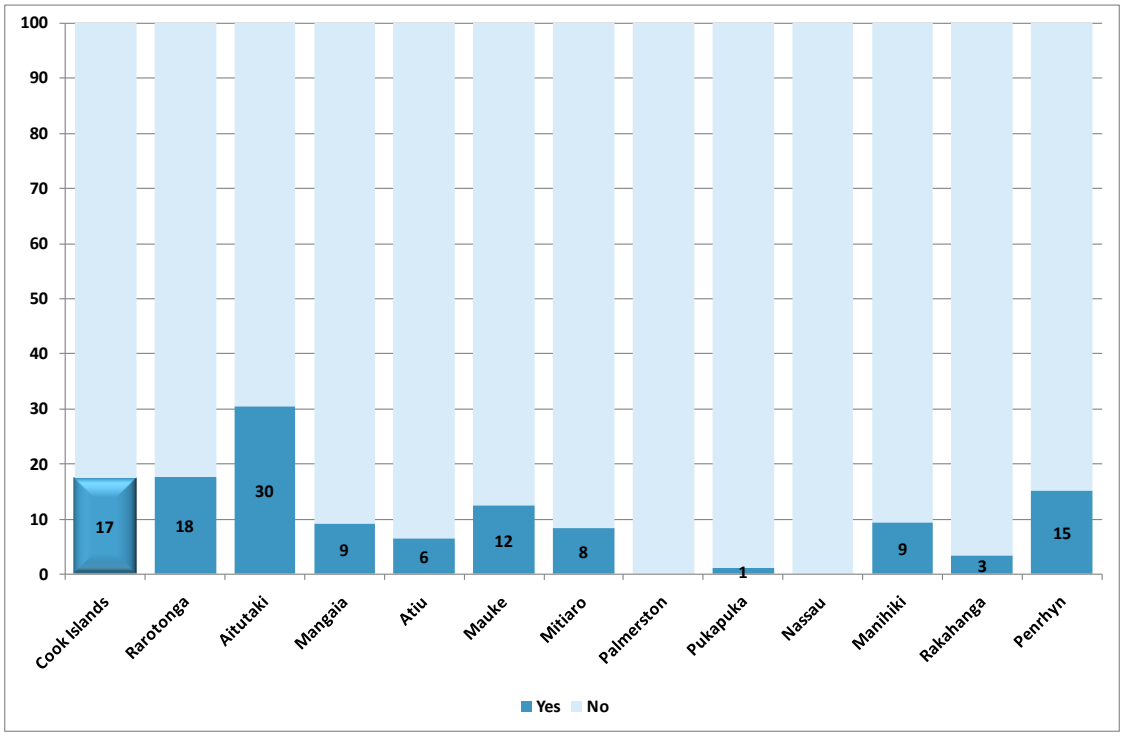


Figure 106: Proportion of private households by island and availability of a gas stove, Cook Islands: 2006

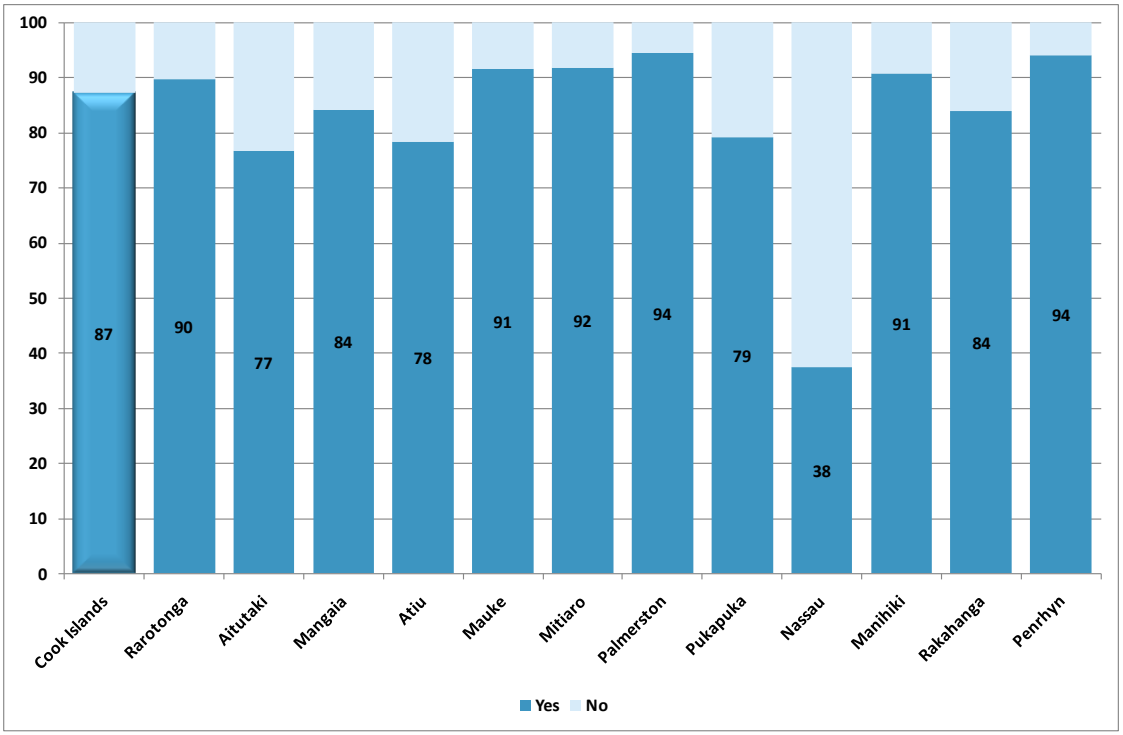


Figure 107: Proportion of private households by island and availability of a kerosene burner, Cook Islands: 2006

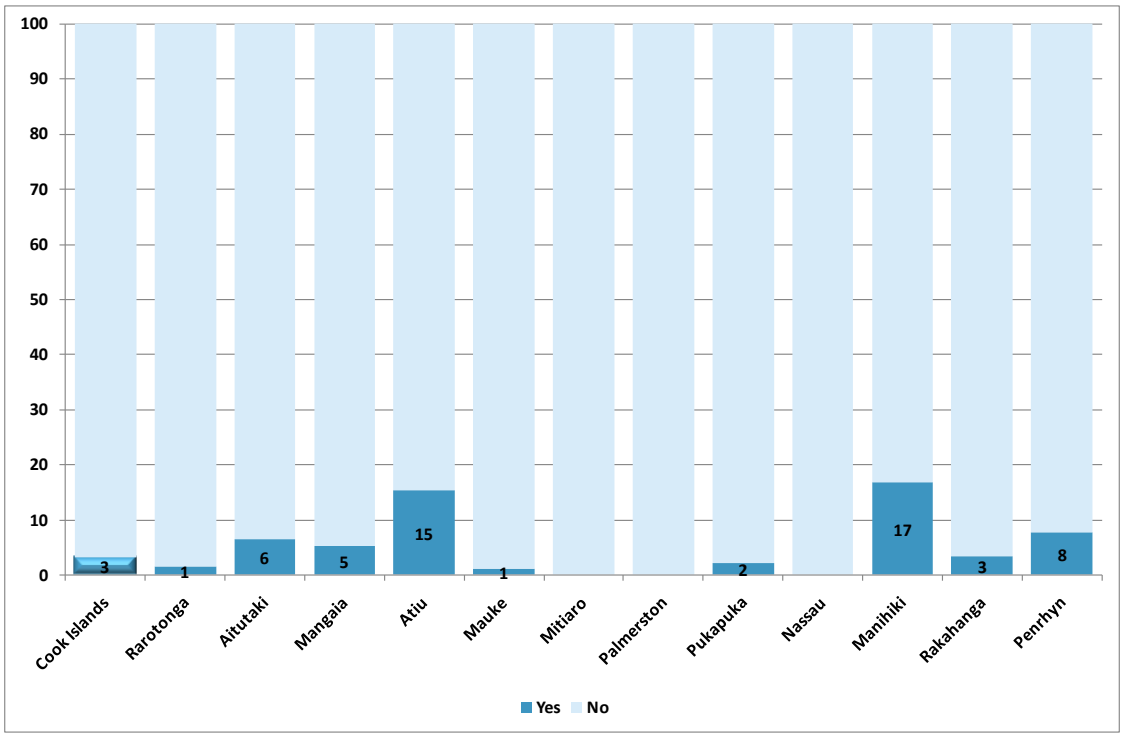


Figure 108: Proportion of private households by island and availability of a microwave oven, Cook Islands: 2006

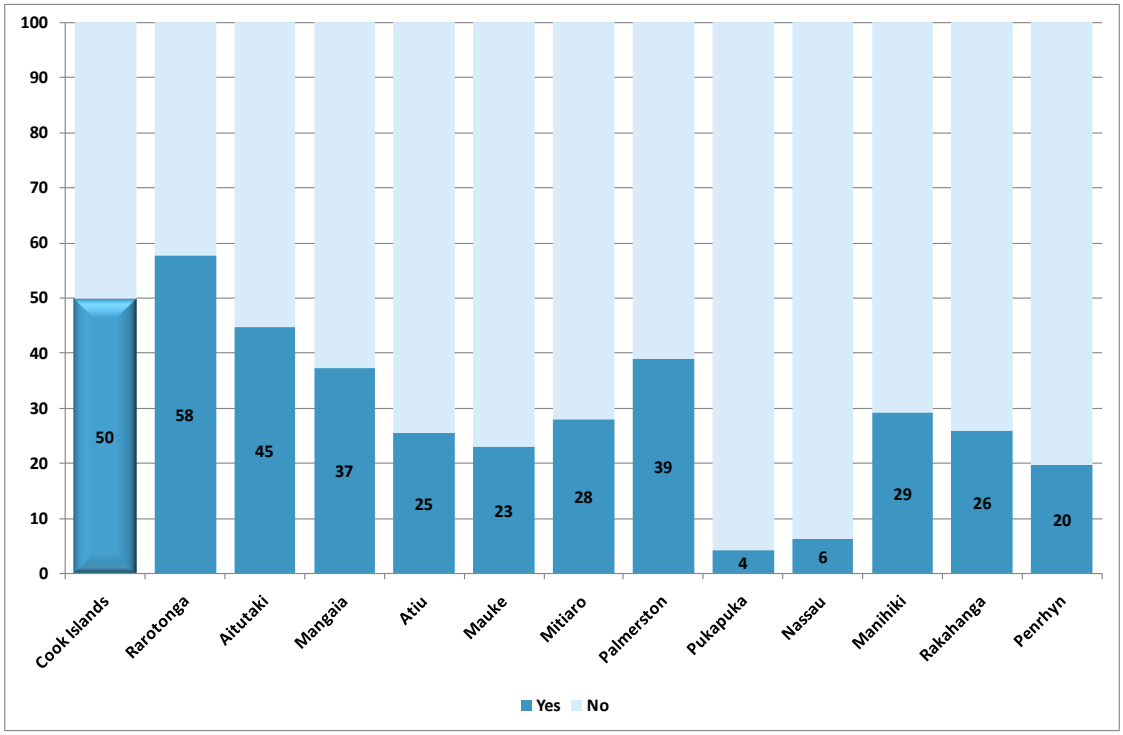


Figure 109: Proportion of private households by island and availability of a coffee percolator, Cook Islands: 2006

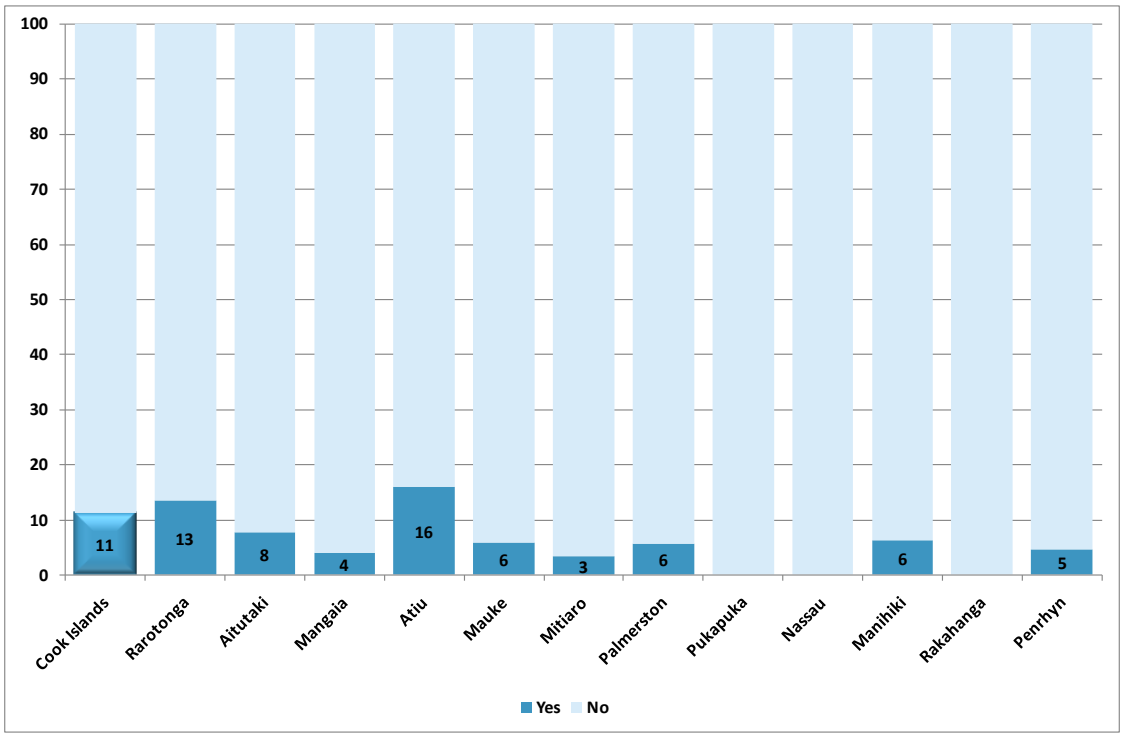


Figure 110: Proportion of private households by island and availability of a rice cooker, Cook Islands: 2006

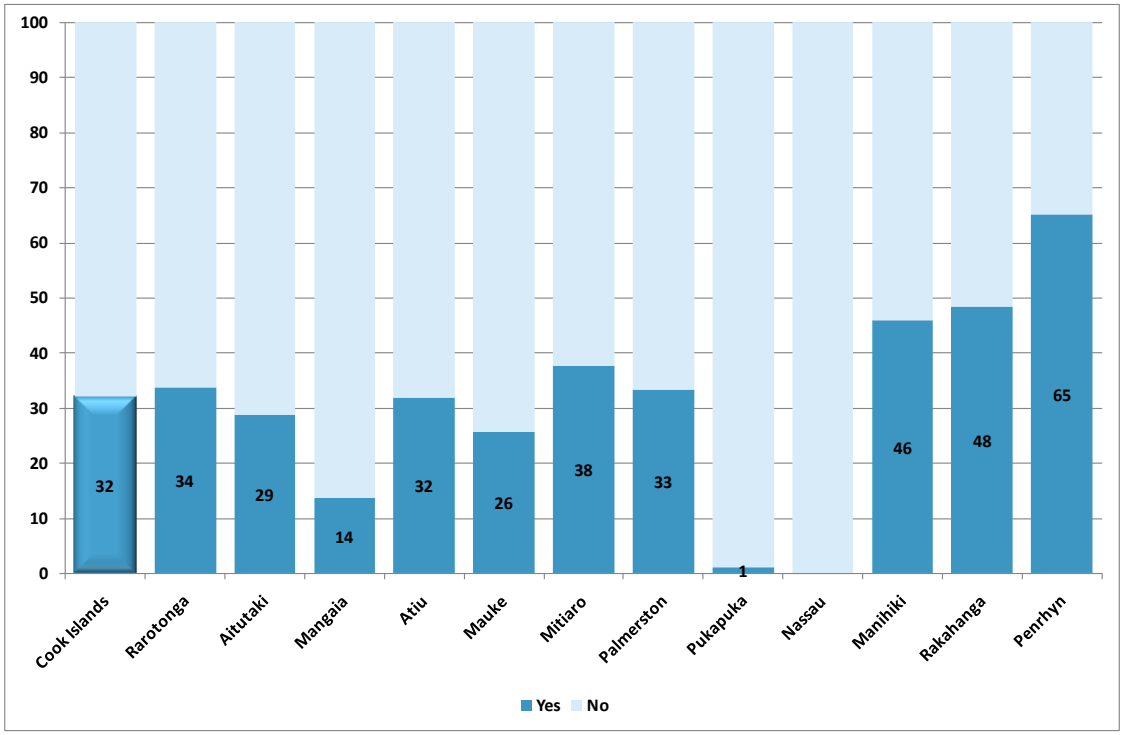


Figure 111: Proportion of private households by island and availability of a pressure cooker, Cook Islands: 2006

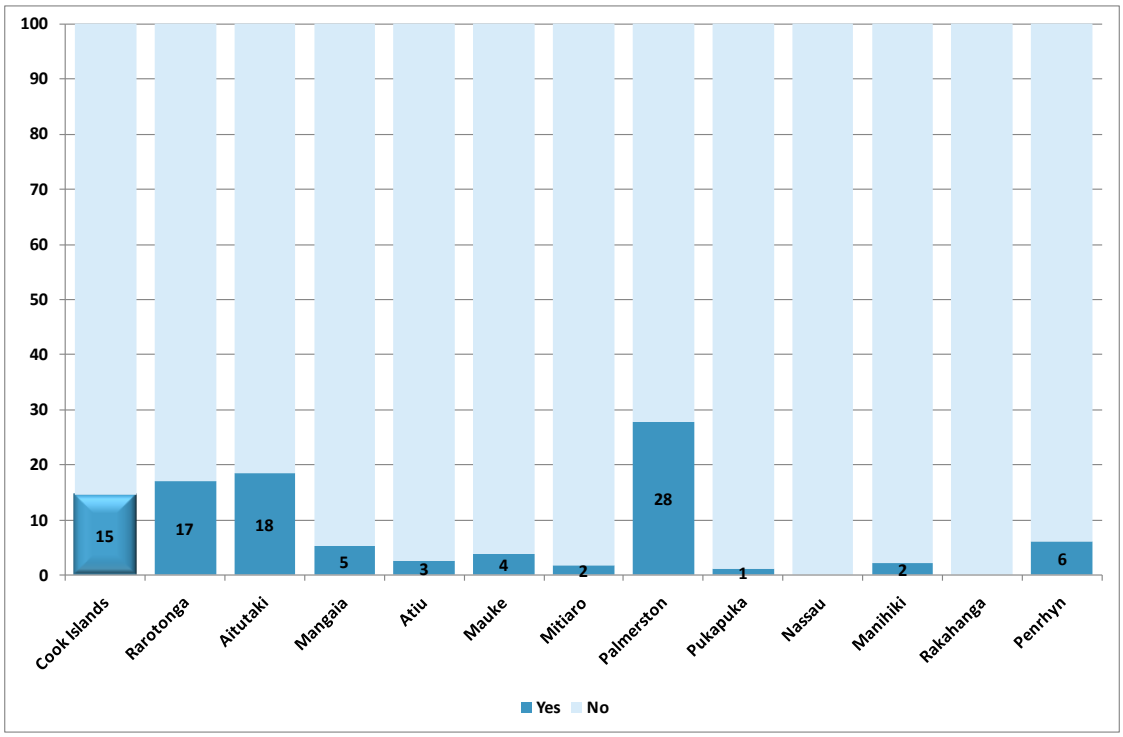


Figure 112: Proportion of private households by island and availability of a jug/kettle, Cook Islands: 2006

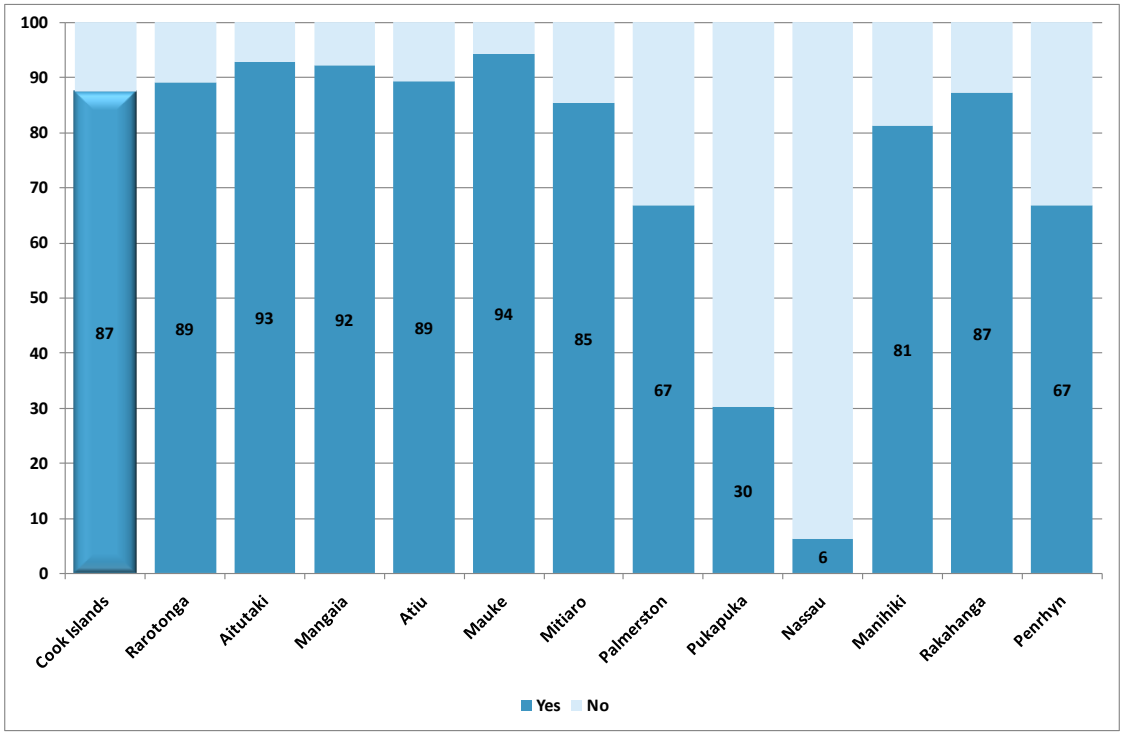


Figure 113: Proportion of private households by island and availability of a frying pan, Cook Islands: 2006

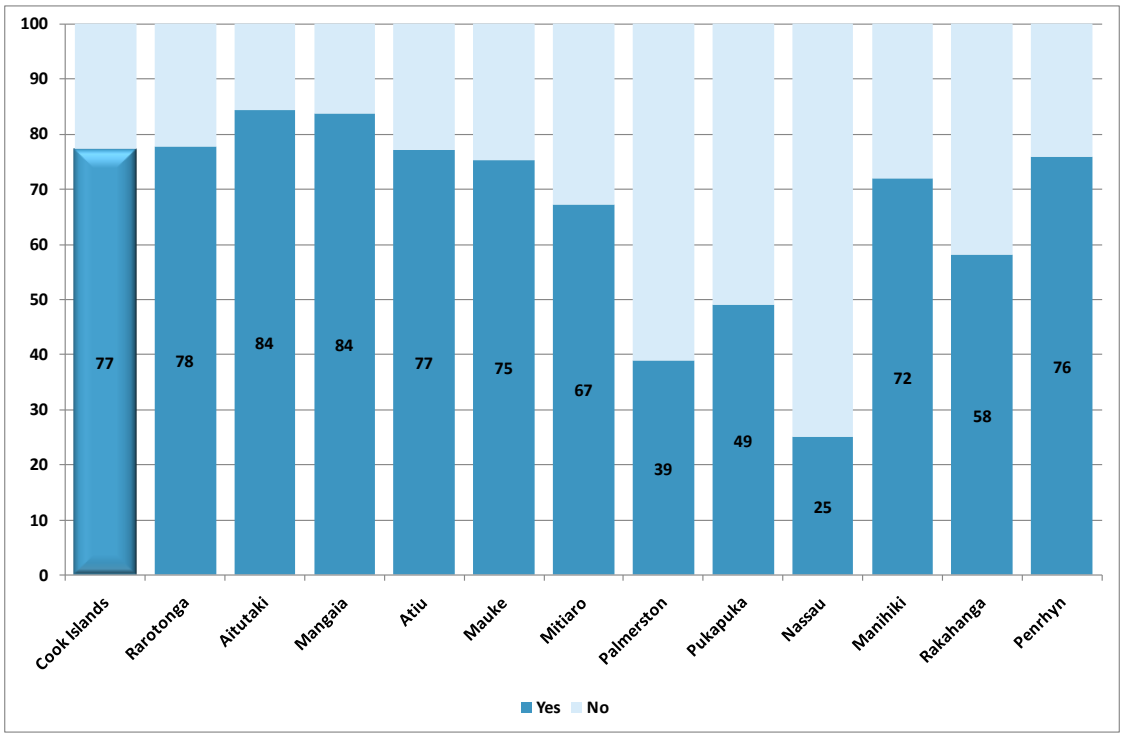


Figure 114: Proportion of private households by island and availability of a food processor, Cook Islands: 2006

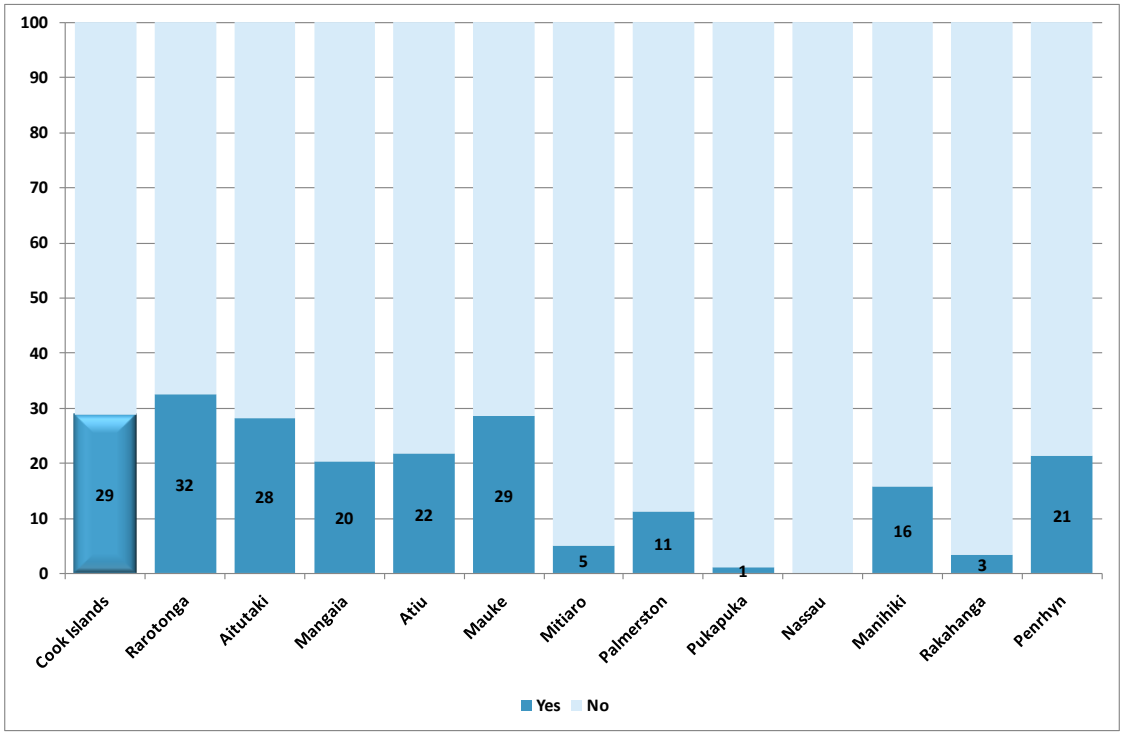


Figure 115: Proportion of private households by island and availability of a toaster, Cook Islands: 2006

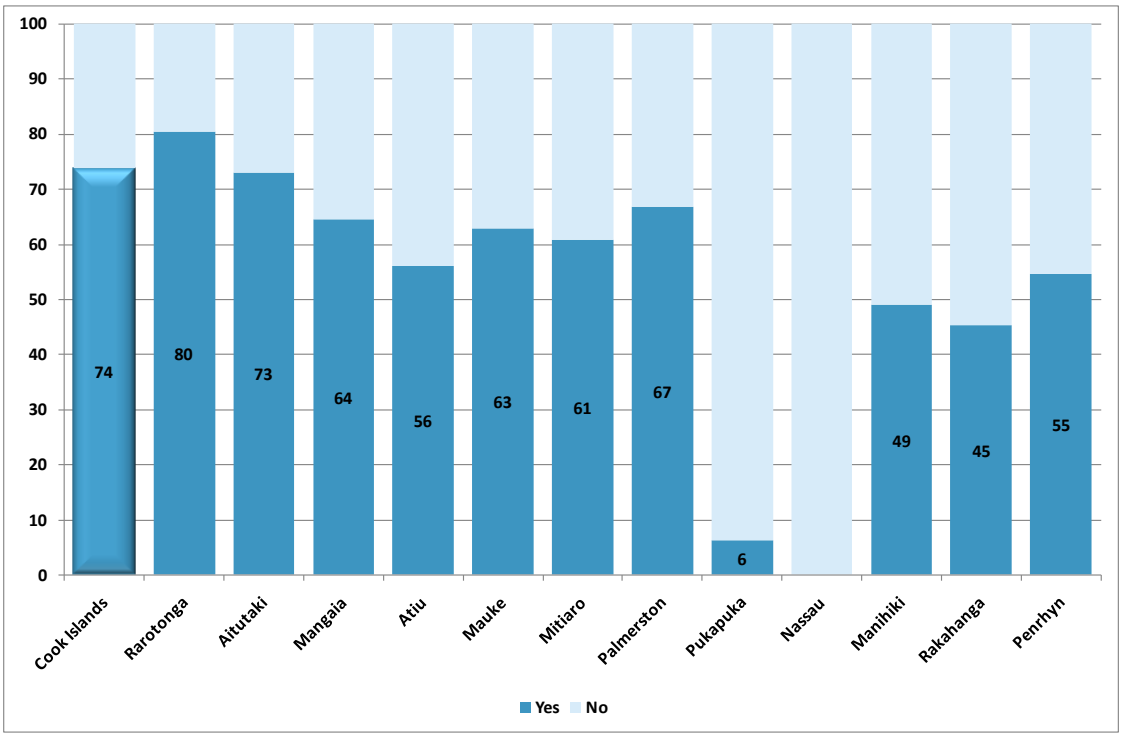


Figure 116: Proportion of private households by island and availability of a eggbeater, Cook Islands: 2006

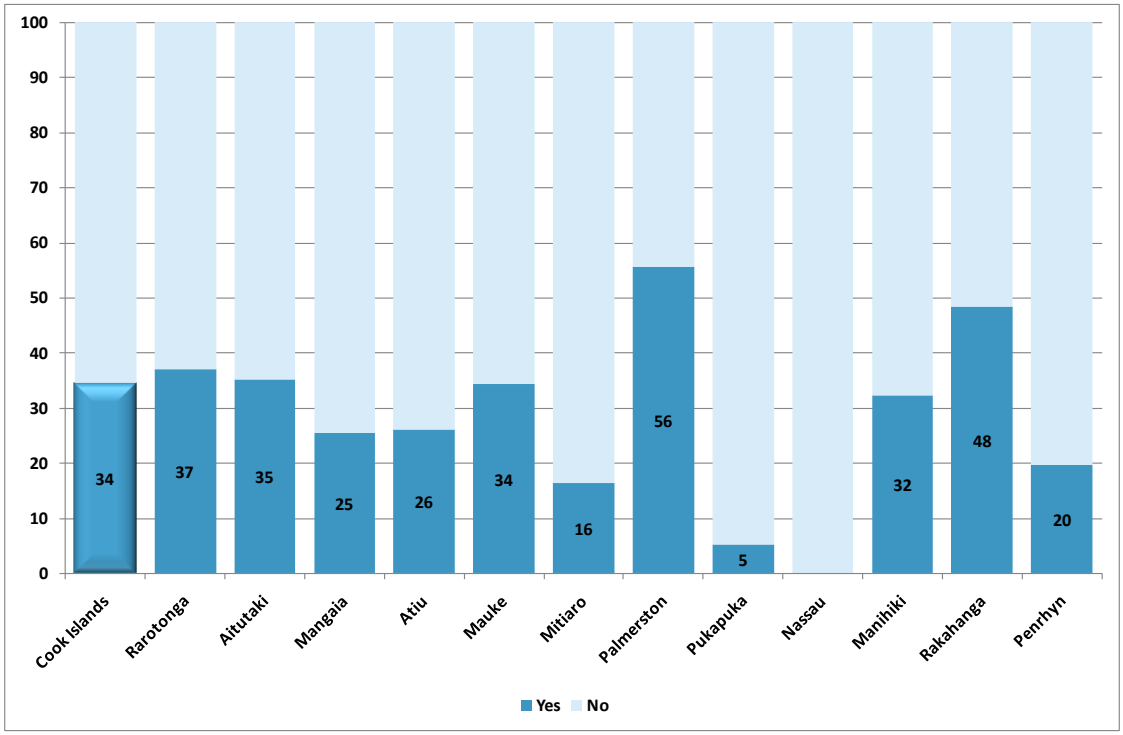
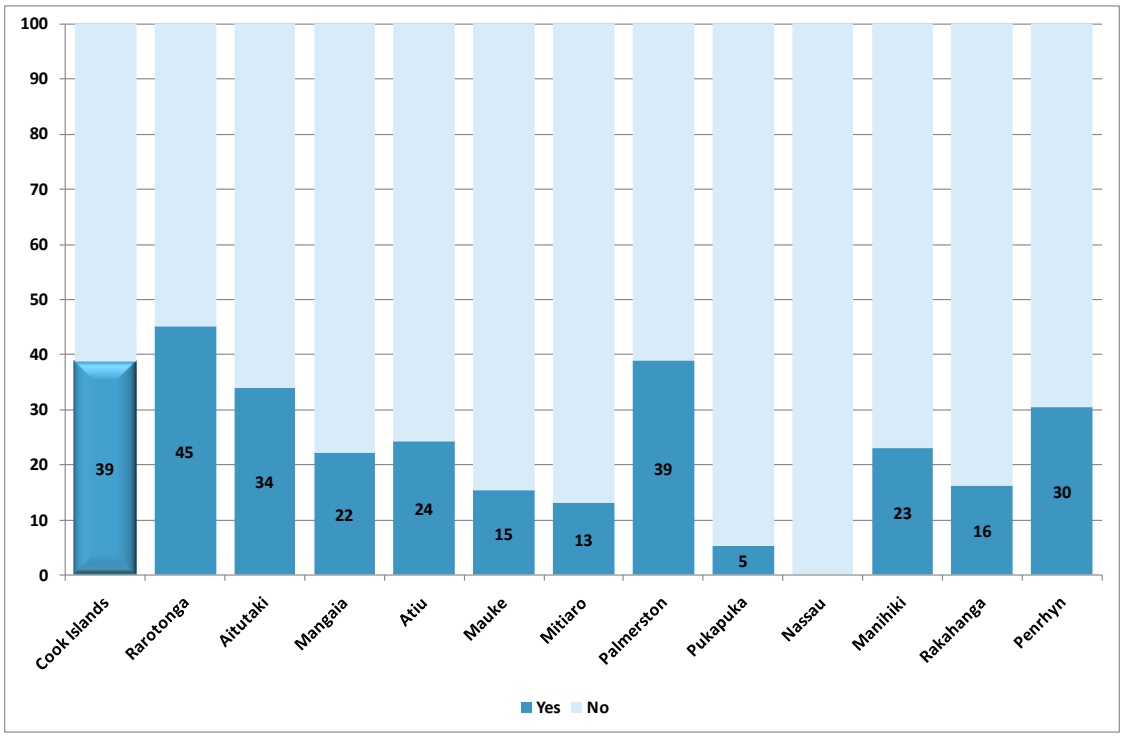


Figure 117: Proportion of private households by island and availability of a barbecue, Cook Islands: 2006



5.3.12.5 Private households and availability of household electrical appliances

Table 42: Number of items of electrical appliances by island, Cook Islands: 2006

Island	Item														
	Freezer	Refrigerator	Fridge/Freezer	Zip	Dishwasher	Iron	Shaver	Hair cutter	Hair dryer	Washing machine	Clothes dryer	Sewing machine	Vaccum cleaner	Fan	Air conditioner
Rarotonga	1,548	2,534	1,400	2,270	49	177	3,416	530	1,555	1,046	2,641	315	443	1,550	9,146
Aitutaki	558	253	321	10	6	687	87	286	150	432	17	317	176	1,310	74
Mangaia	245	39	73	2	-	265	17	171	22	110	-	86	41	240	1
Atiu	160	30	47	2	-	224	13	161	23	65	2	84	29	252	-
Mauke	168	37	38	2	1	171	10	73	20	71	2	58	11	144	-
Mitiaro	50	23	16	-	9	67	4	33	3	32	1	24	6	77	-
Palmerston	144	7	10	-	-	13	36	7	1	12	-	9	-	7	59
Pukapuka	65	3	1	-	-	29	17	44	5	16	-	37	-	23	4
Nassau	12	-	-	-	-	4	-	11	-	4	-	6	-	5	-
Manihiki	269	38	23	1	1	123	13	101	9	68	1	61	9	152	-
Rakahanga	23	5	5	-	4	27	11	15	-	18	1	22	-	82	1
Penrhyn	120	13	14	1	1	102	132	53	5	56	3	67	6	101	5
Cook Islands	**3,362**	**2,982**	**1,948**	**2,288**	**71**	**1,889**	**3,756**	**1,485**	**1,793**	**1,930**	**2,668**	**1,086**	**721**	**3,943**	**9,290**

Figure 118: Proportion of private households by island and availability of a freezer, Cook Islands: 2006

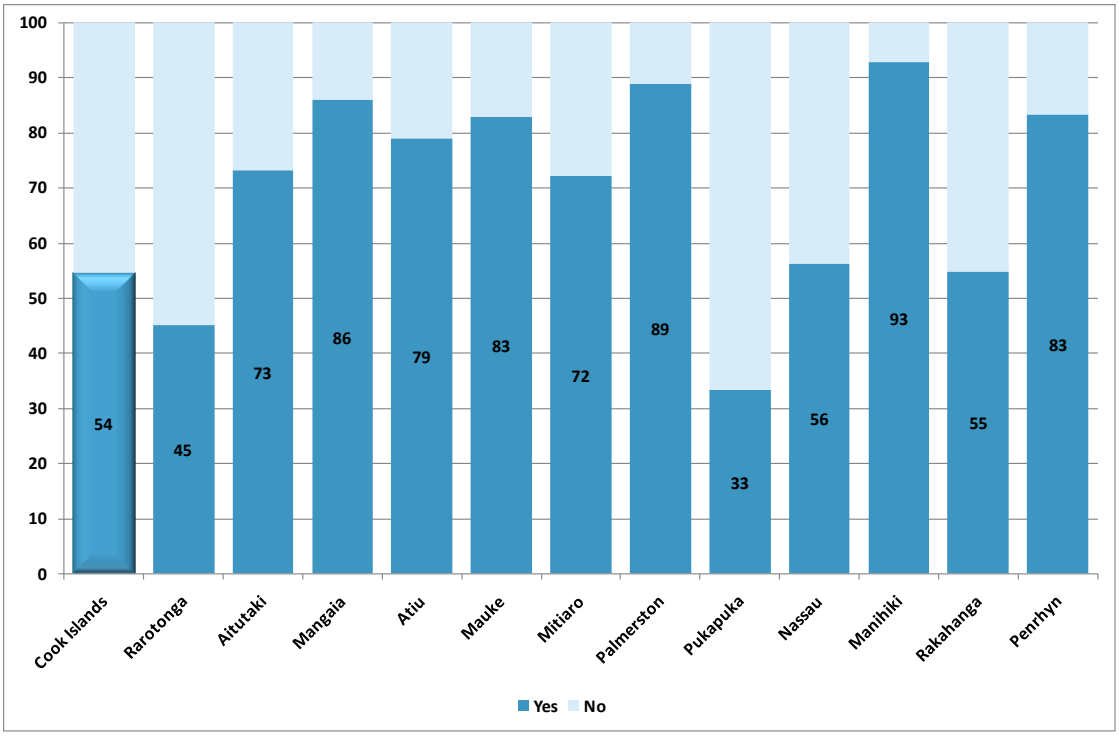


Figure 119: Proportion of private households by island and availability of a refrigerator, Cook Islands: 2006

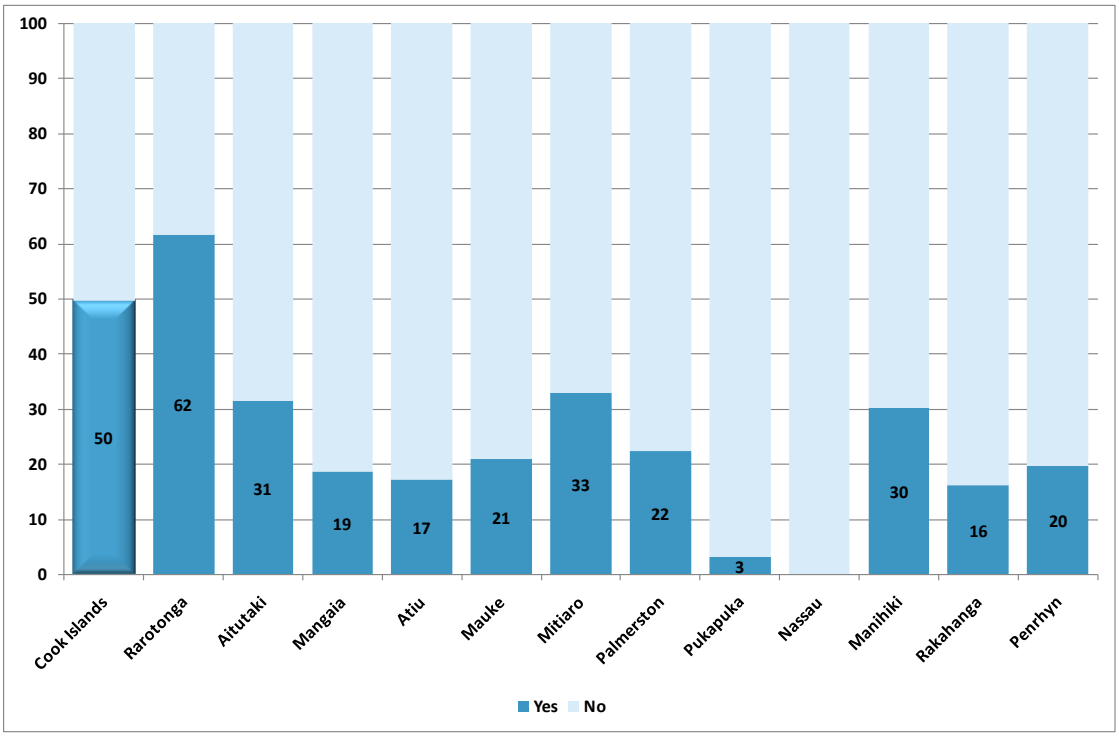


Figure 120: Proportion of private households by island and availability of a fridge/freezer, Cook Islands: 2006

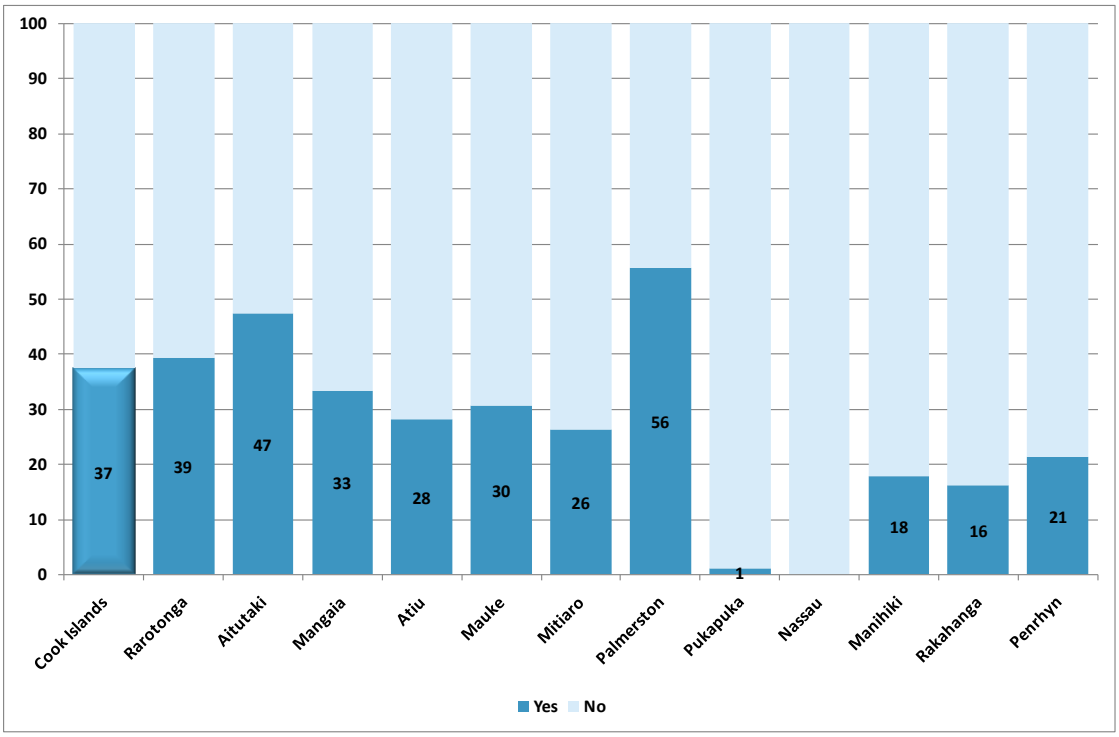


Figure 121: Proportion of private households by island and availability of a zip, Cook Islands: 2006

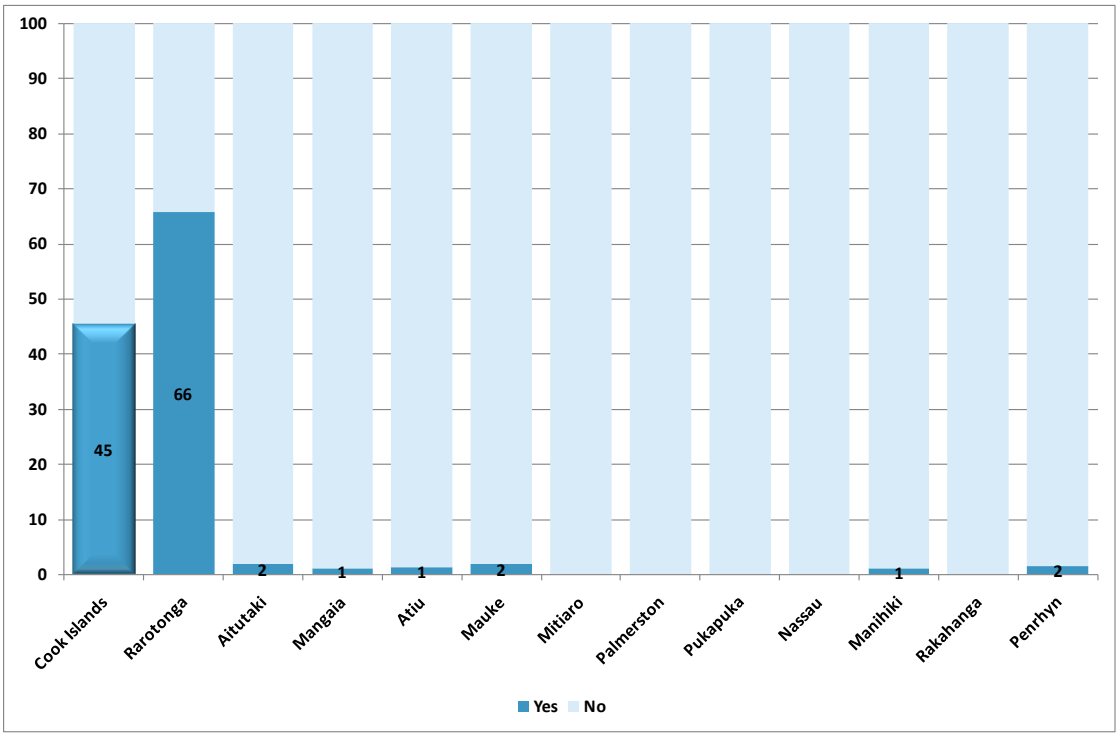


Figure 122: Proportion of private households by island and availability of a dishwasher, Cook Islands: 2006

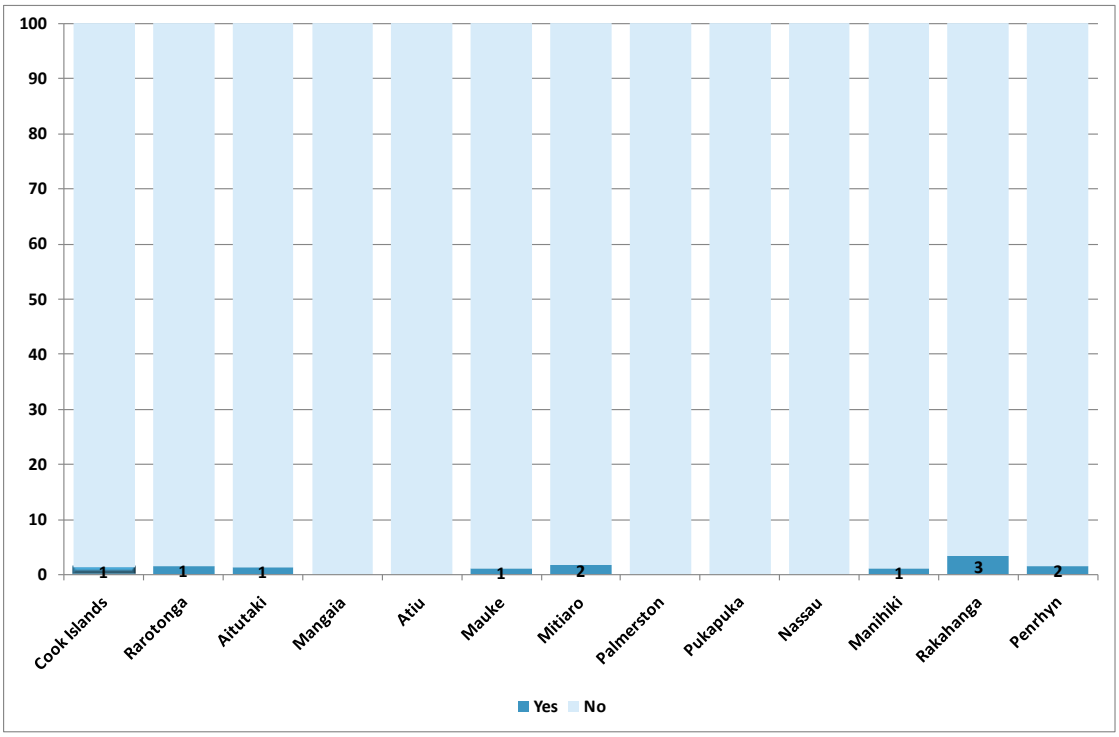


Figure 123: Proportion of private households by island and availability of a iron, Cook Islands: 2006

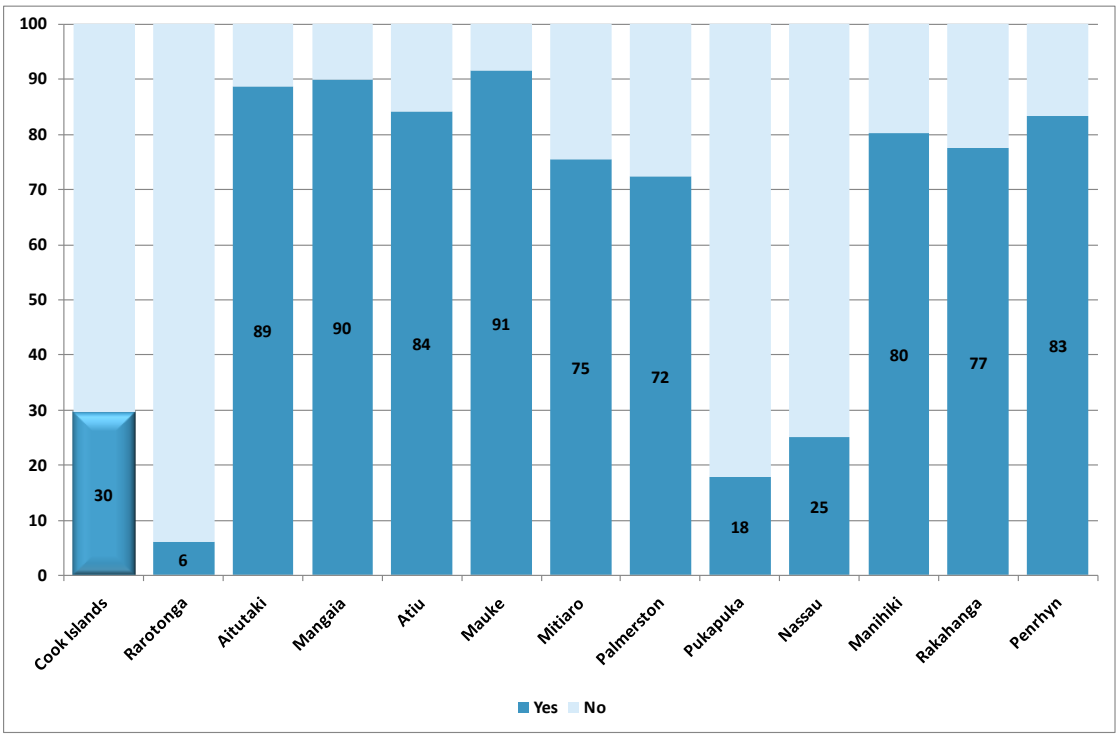


Figure 124: Proportion of private households by island and availability of a shaver, Cook Islands: 2006

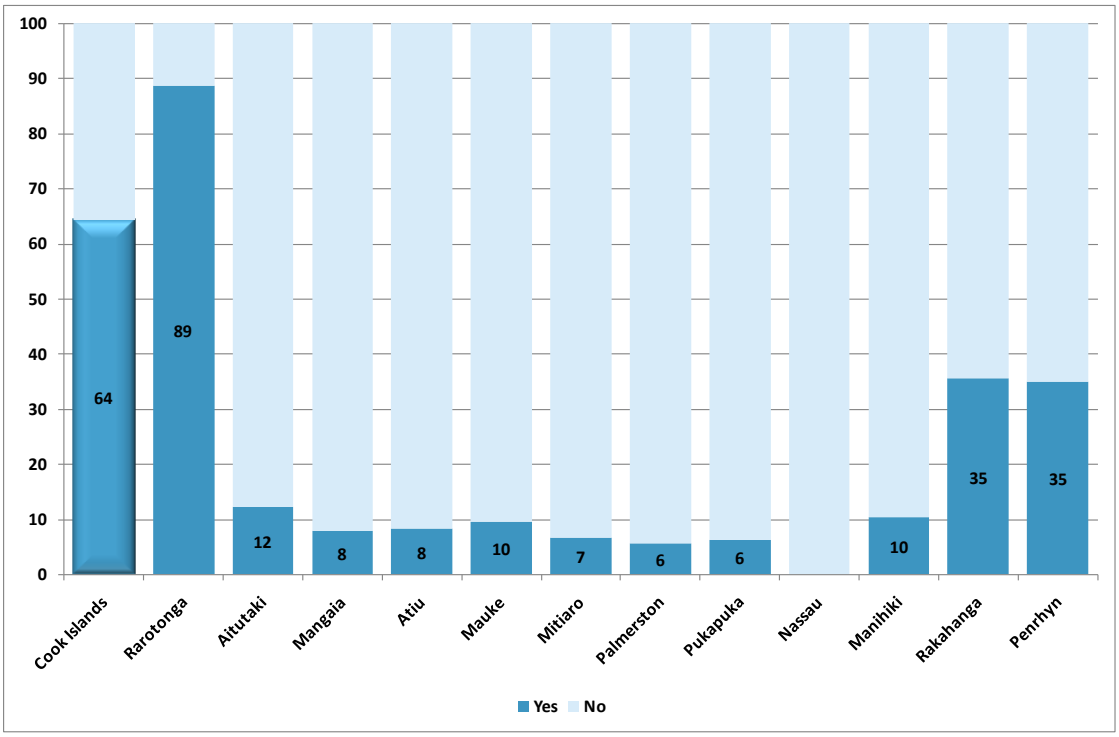


Figure 125: Proportion of private households by island and availability of a hair cutter, Cook Islands: 2006

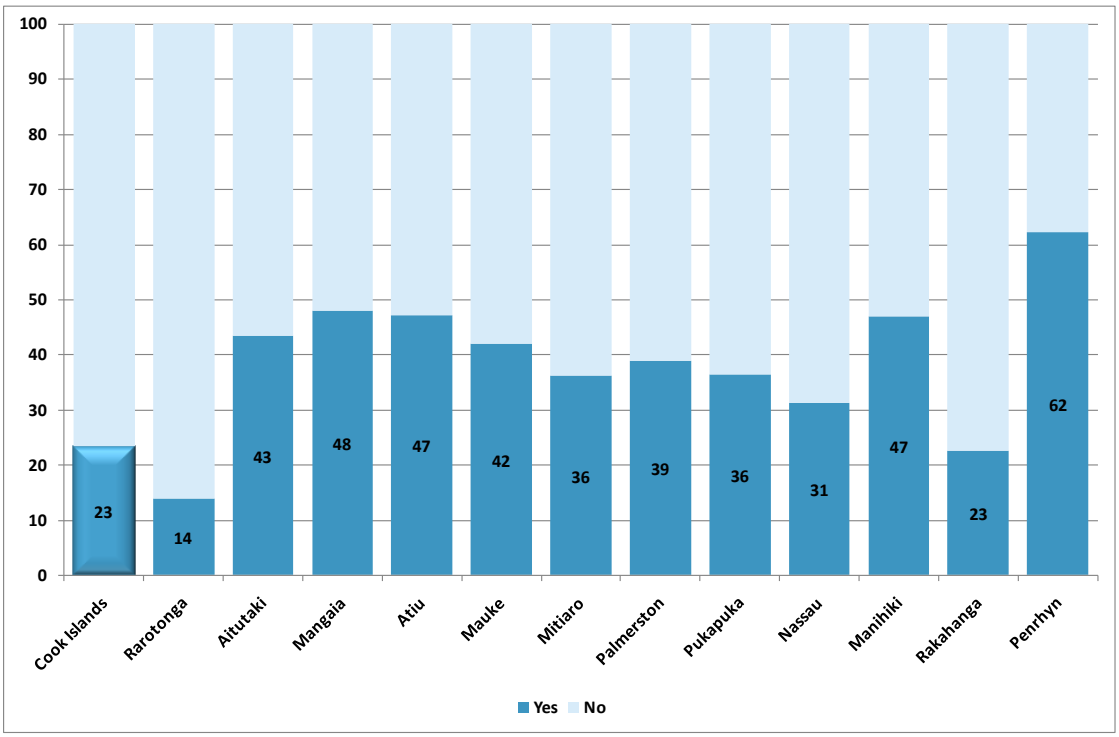


Figure 126: Proportion of private households by island and availability of a hair dryer, Cook Islands: 2006

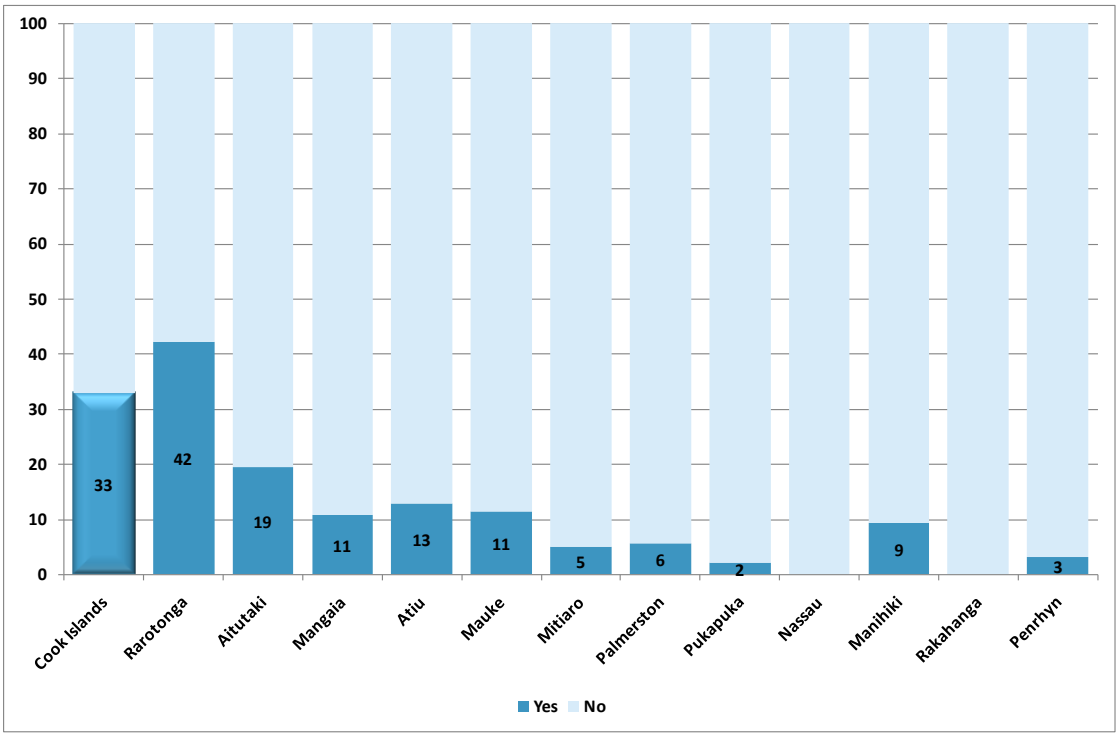


Figure 127: Proportion of private households by island and availability of a washing machine, Cook Islands: 2006

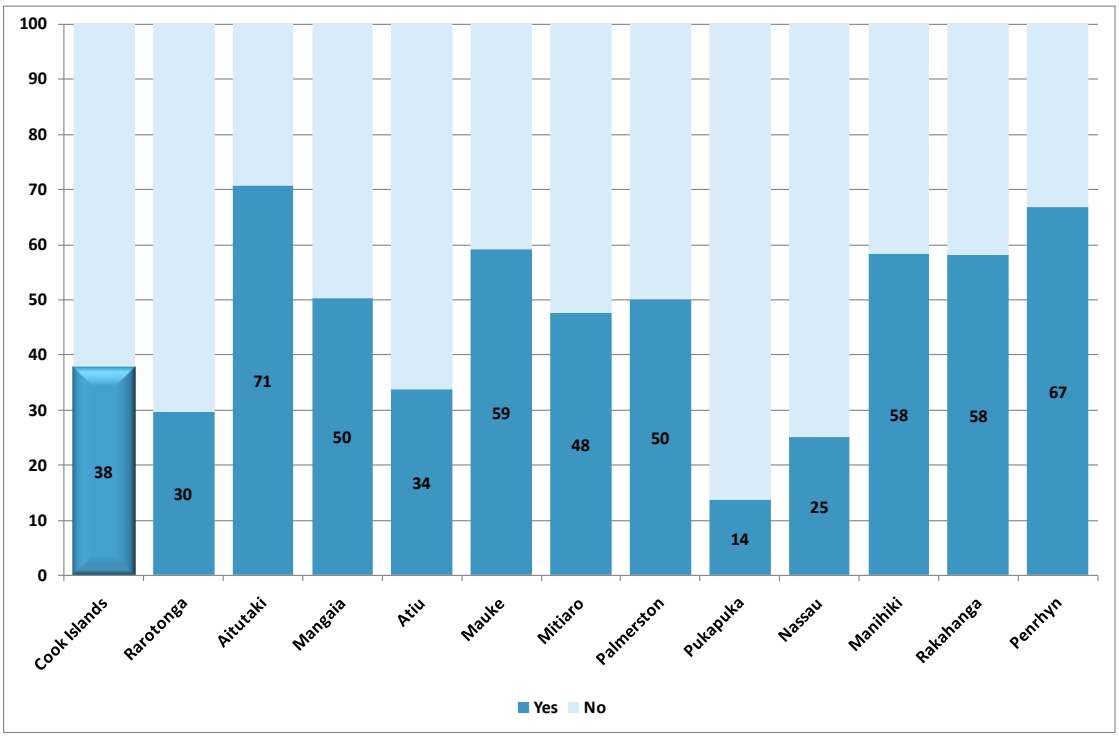


Figure 128: Proportion of private households by island and availability of a clothes dryer, Cook Islands: 2006

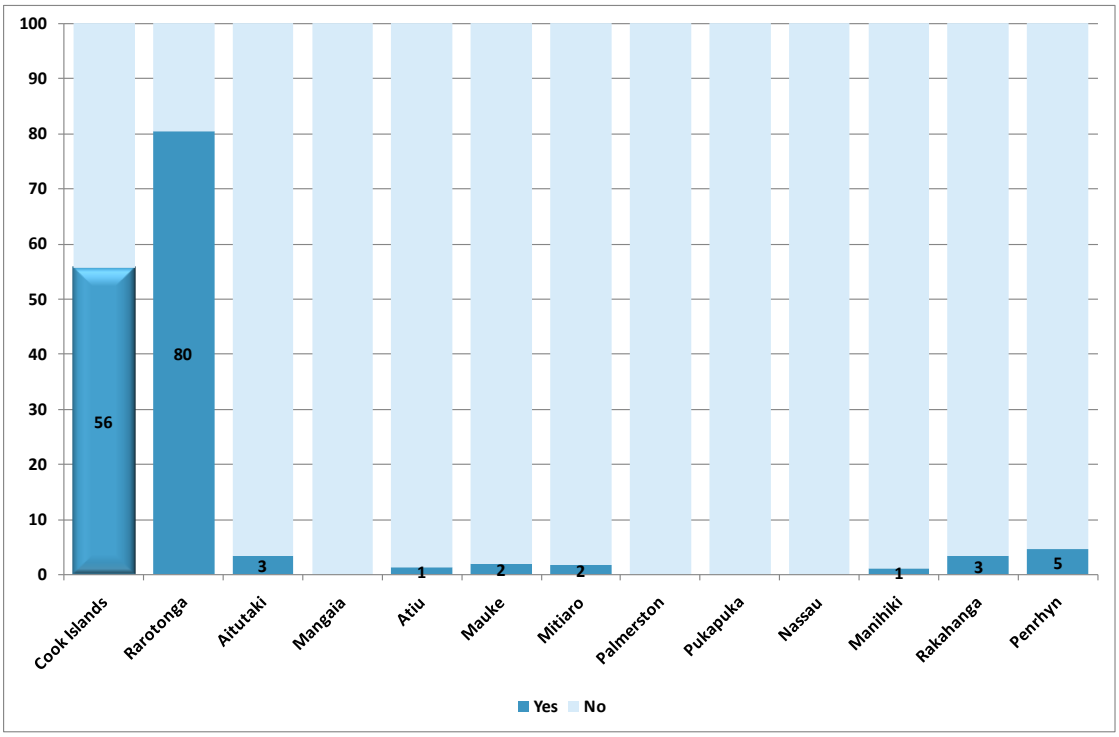


Figure 129: Proportion of private households by island and availability of a sewing machine, Cook Islands: 2006

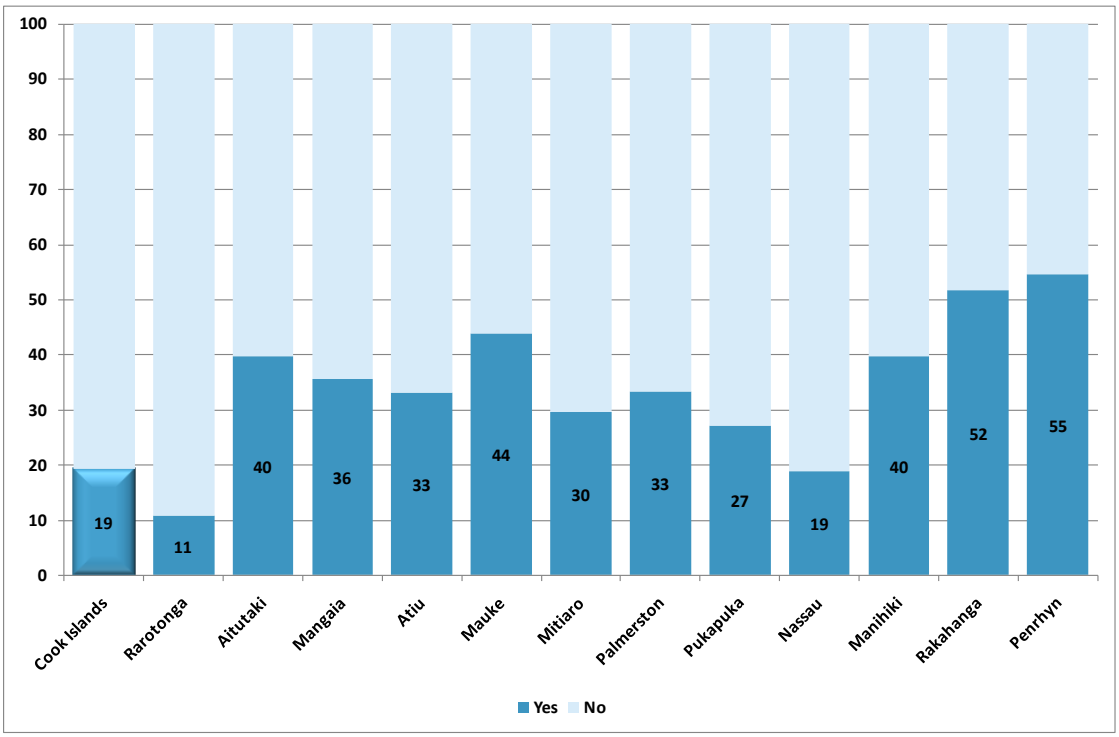


Figure 130: Proportion of private households by island and availability of a vacuum cleaner, Cook Islands: 2006

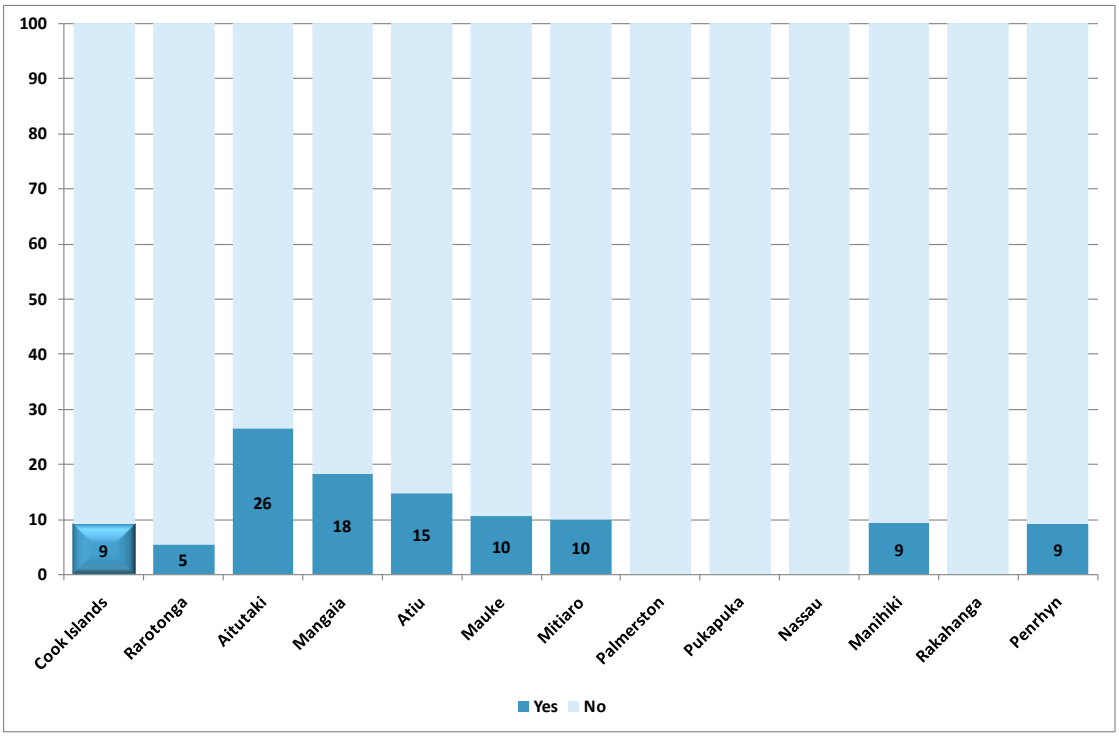


Figure 131: Proportion of private households by island and availability of a fan, Cook Islands: 2006

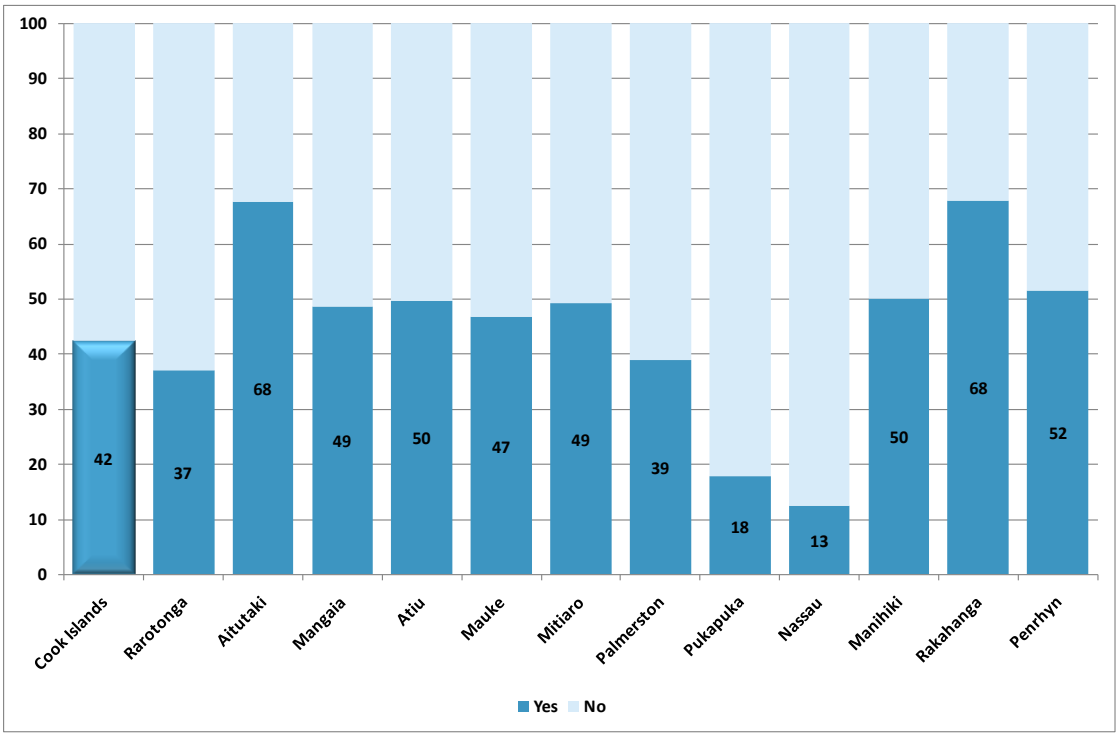
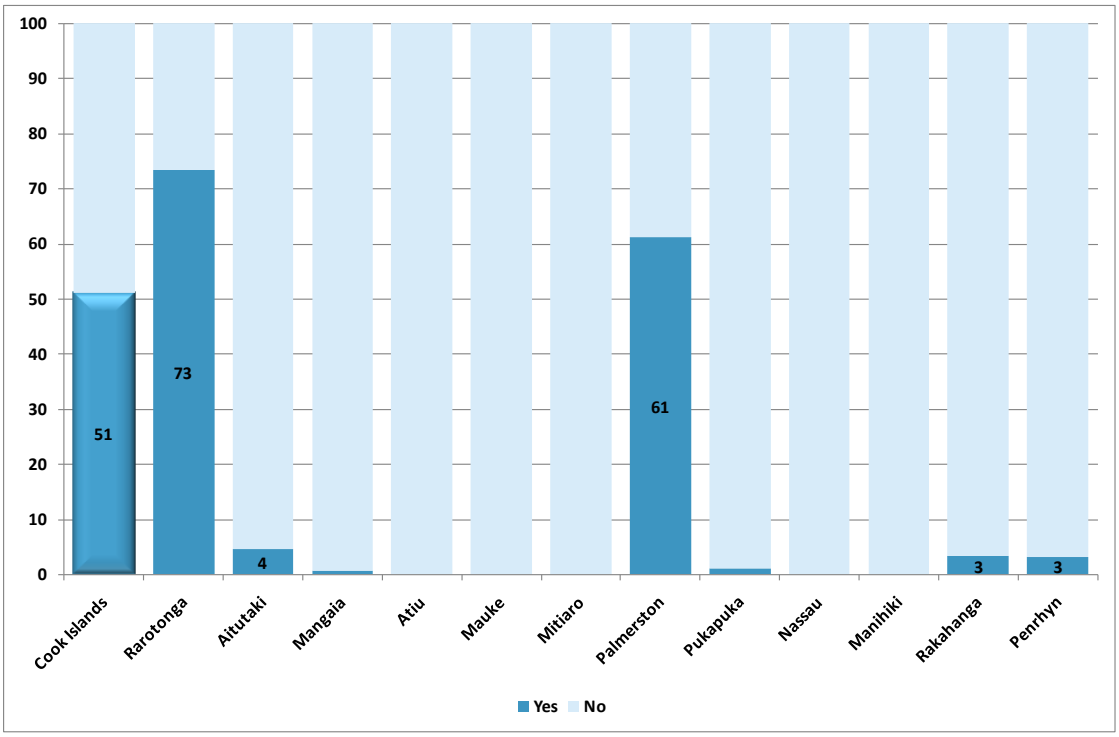


Figure 132: Proportion of private households by island and availability of an air conditioner, Cook Islands: 2006



5.3.12.6 Private households and availability of entertainment appliances

Table 43: Number of items of entertainment appliances by island, Cook Islands: 2006

Island	Item											
	Radio/casette	TV	Video player	Camera	Play station	Computer	Guitar	Piano	Organ	TV dish	DVD player	Ipod
Rarotonga	3,873	6,758	2,880	1,944	1,146	1,936	1,765	155	197	186	4,961	642
Aitutaki	681	839	450	183	154	203	196	19	22	26	699	42
Mangaia	200	282	123	39	48	50	92	4	15	2	188	10
Atiu	221	211	138	13	38	35	71	2	5	2	162	-
Mauke	159	131	76	15	26	22	44	3	1	-	108	1
Mitiaro	51	71	36	5	10	8	5	-	1	1	42	1
Palmerston	29	25	13	11	3	5	7	1	-	-	21	-
Pukapuka	181	76	82	20	2	7	27	-	3	-	60	1
Nassau	40	28	18	4	2	-	4	-	1	-	23	-
Manihiki	167	175	90	25	54	24	54	2	6	11	96	4
Rakahanga	36	89	22	8	17	2	4	-	1	2	16	-
Penrhyn	74	79	52	16	27	8	35	-	13	5	63	4
Cook Islands	**5,712**	**8,764**	**3,980**	**2,283**	**1,527**	**2,300**	**2,304**	**186**	**265**	**235**	**6,439**	**705**

Figure 133: Proportion of private households by island and availability of a radio/cassette, Cook Islands: 2006

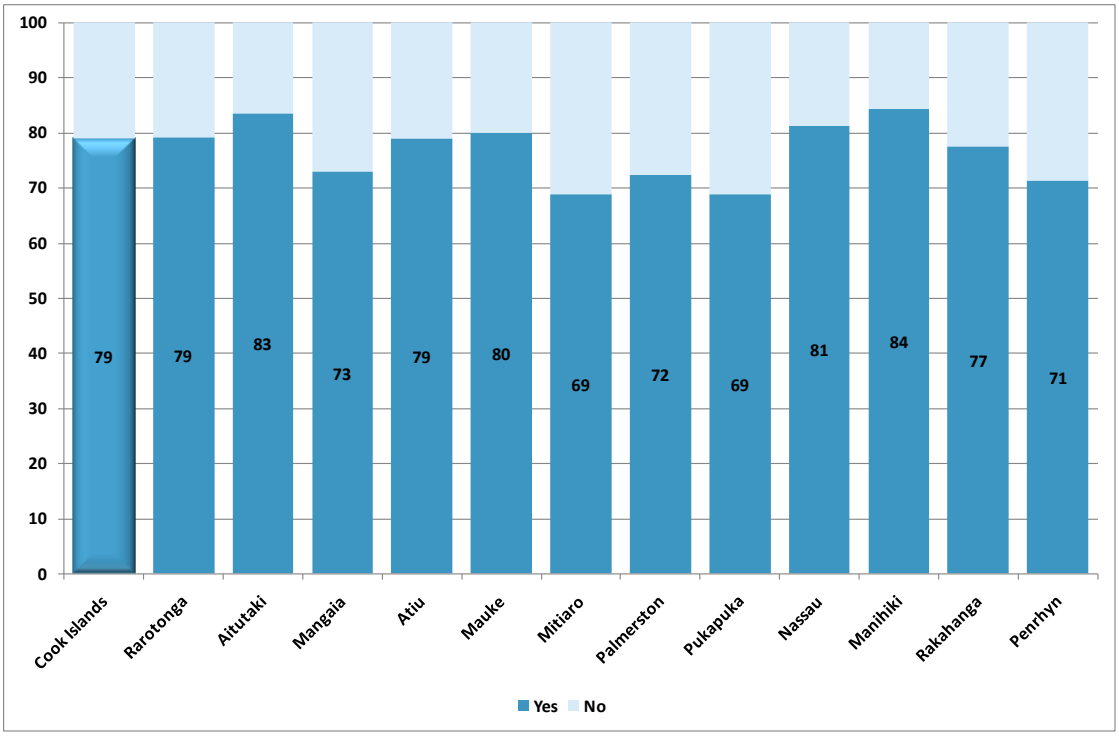


Figure 134: Proportion of private households by island and availability of a TV, Cook Islands: 2006

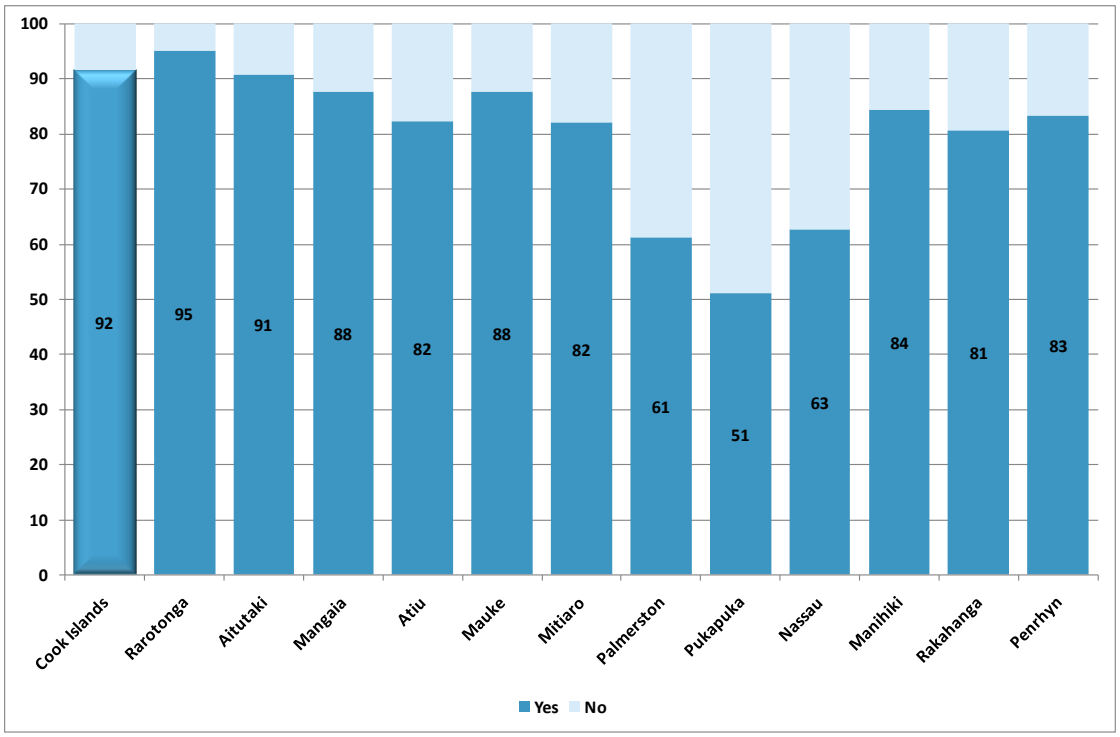


Figure 135: Proportion of private households by island and availability of a video player, Cook Islands: 2006

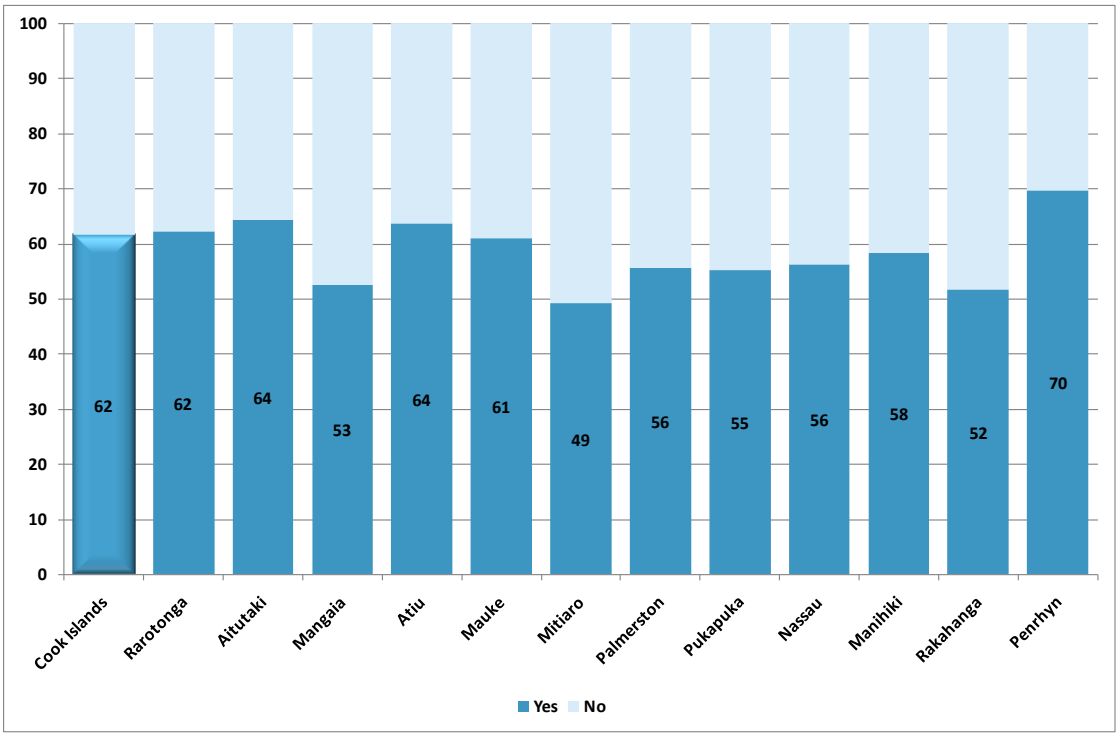


Figure 136: Proportion of private households by island and availability of a camera, Cook Islands: 2006

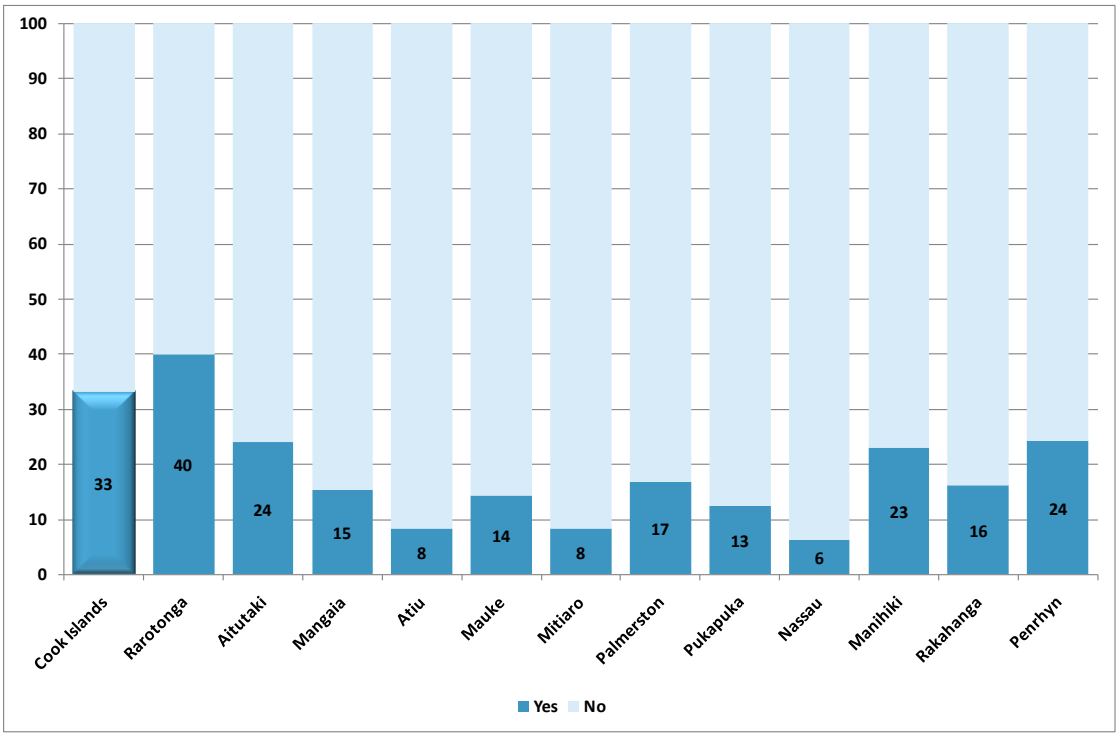


Figure 137: Proportion of private households by island and availability of a play station, Cook Islands: 2006

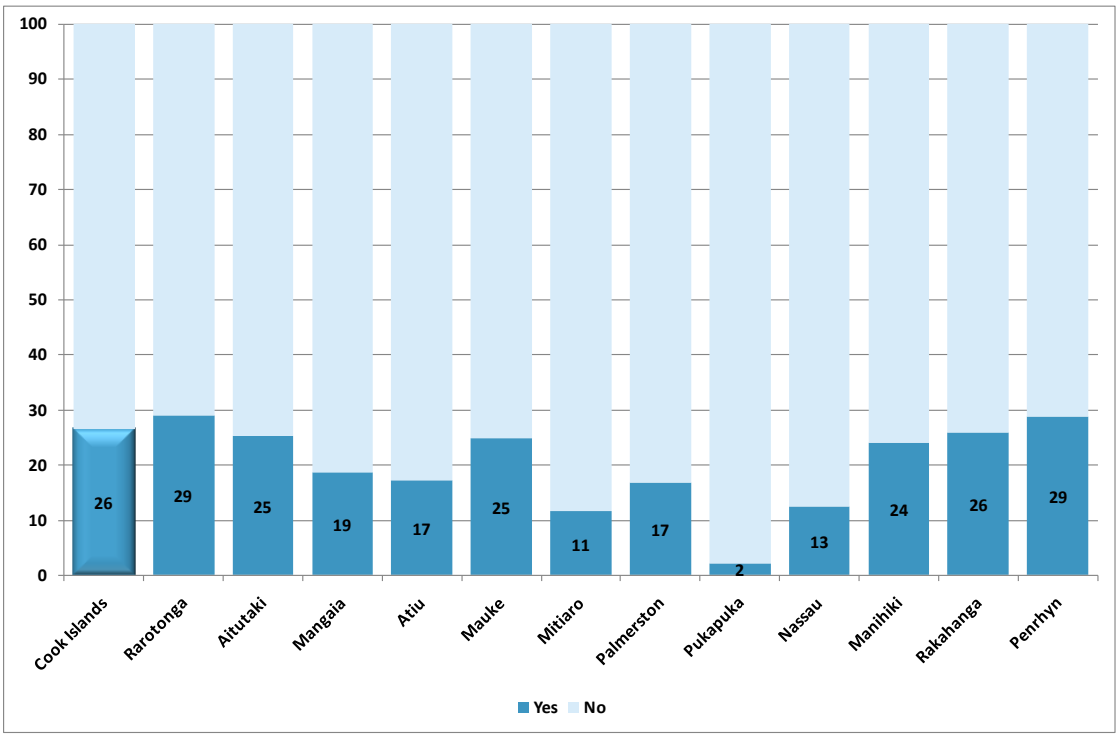


Figure 138: Proportion of private households by island and availability of a computer, Cook Islands: 2006

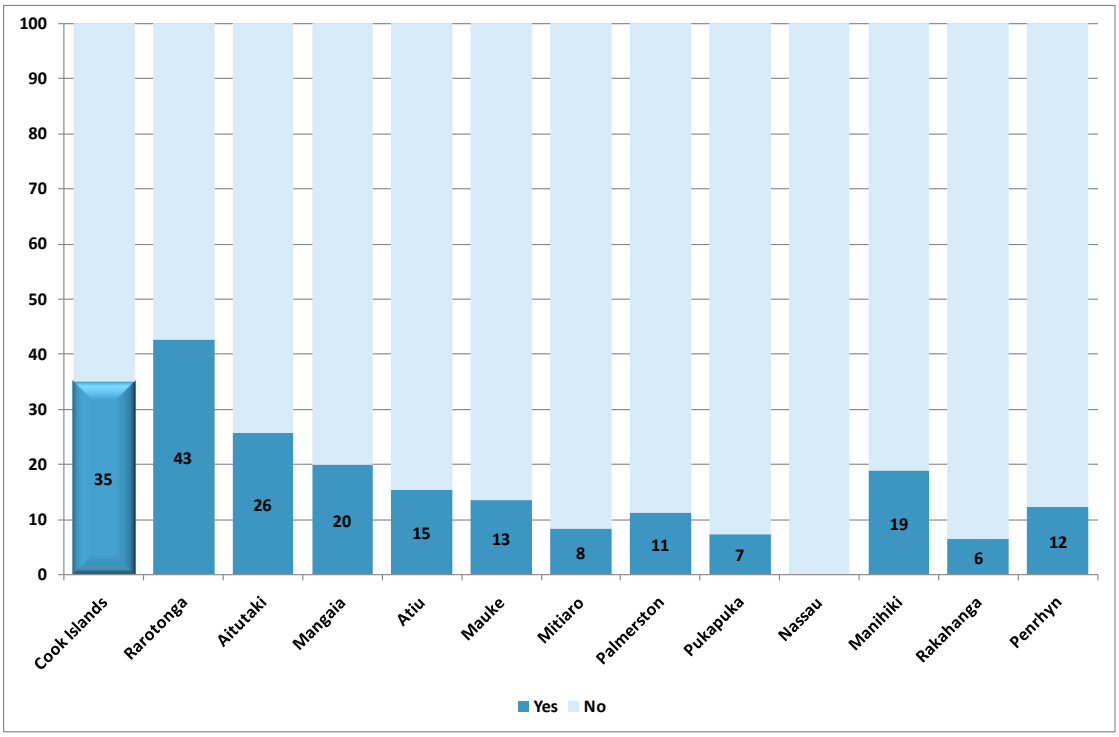


Figure 139: Proportion of private households by island and availability of a guitar, Cook Islands: 2006

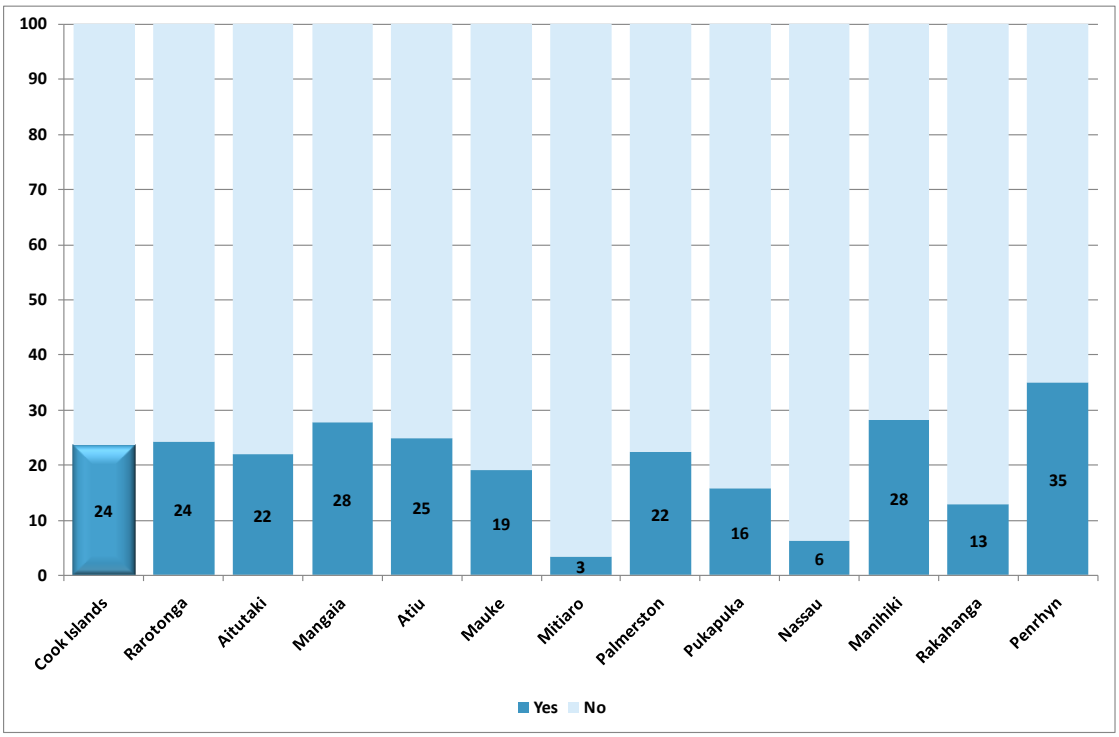


Figure 140: Proportion of private households by island and availability of a piano, Cook Islands: 2006

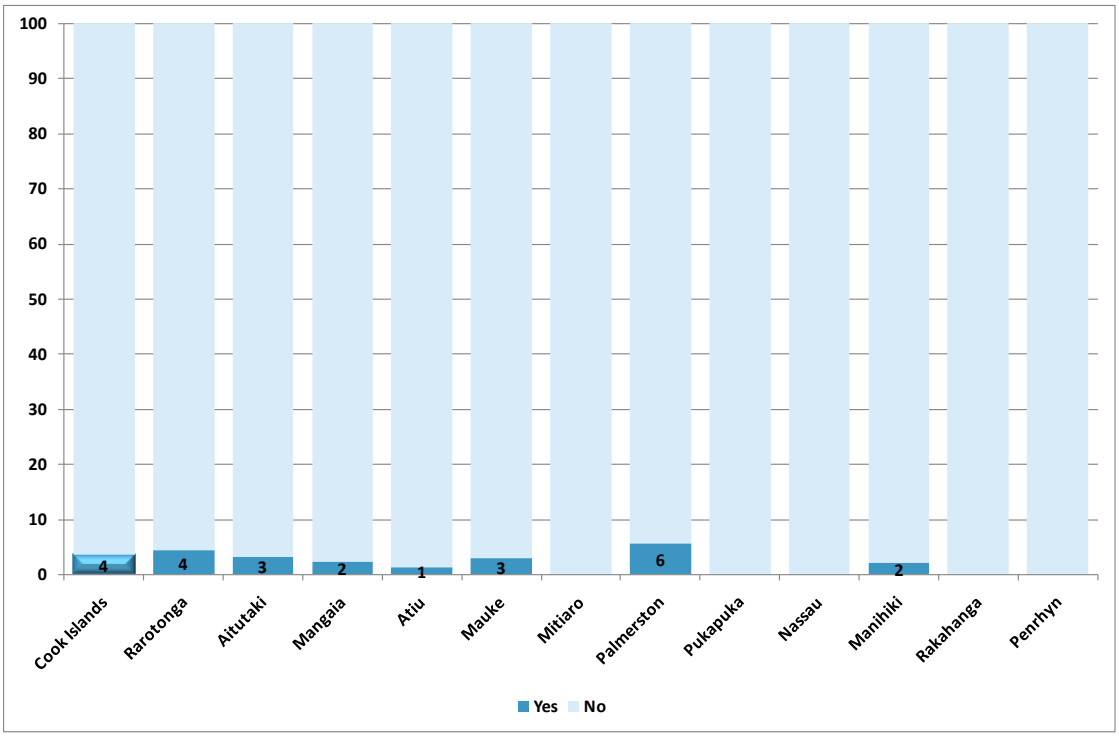


Figure 141: Proportion of private households by island and availability of an organ, Cook Islands: 2006

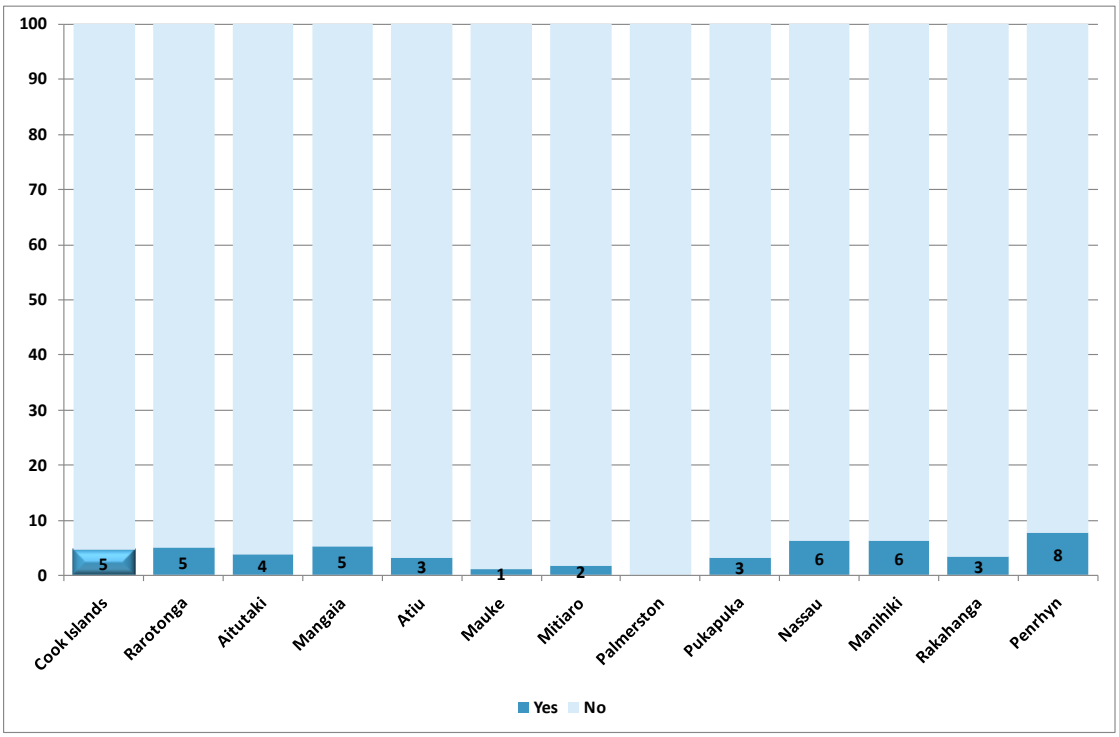


Figure 142: Proportion of private households by island and availability of a TV dish, Cook Islands: 2006

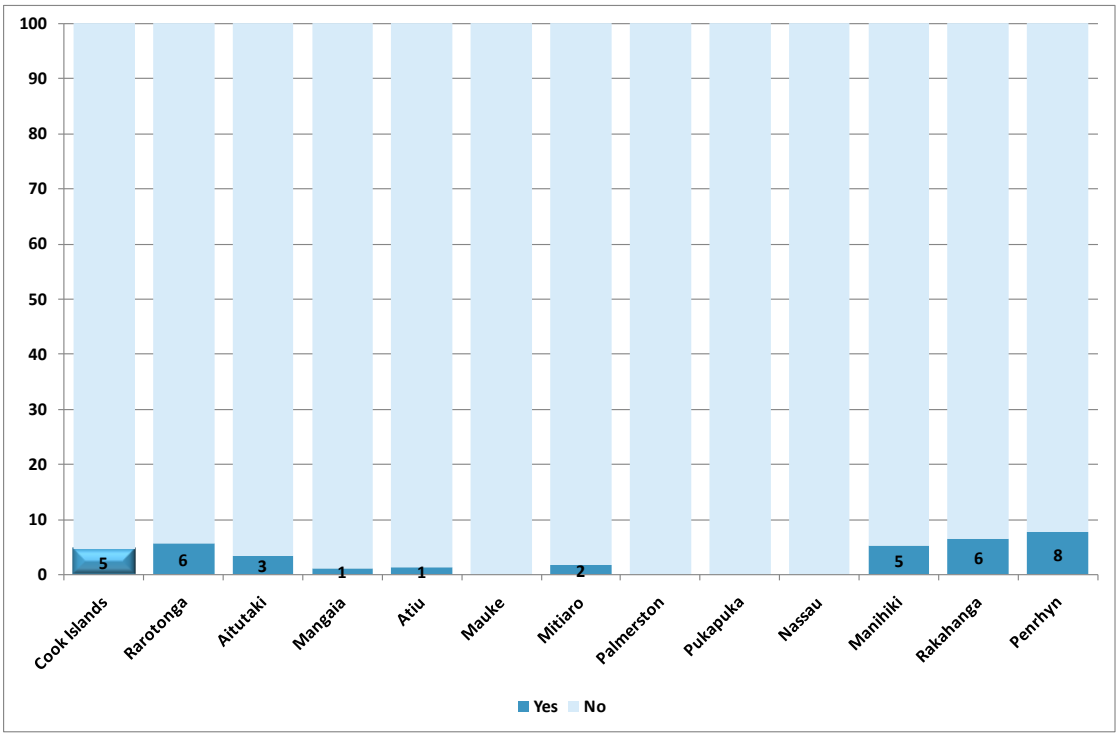


Figure 143: Proportion of private households by island and availability of a DVD player, Cook Islands: 2006

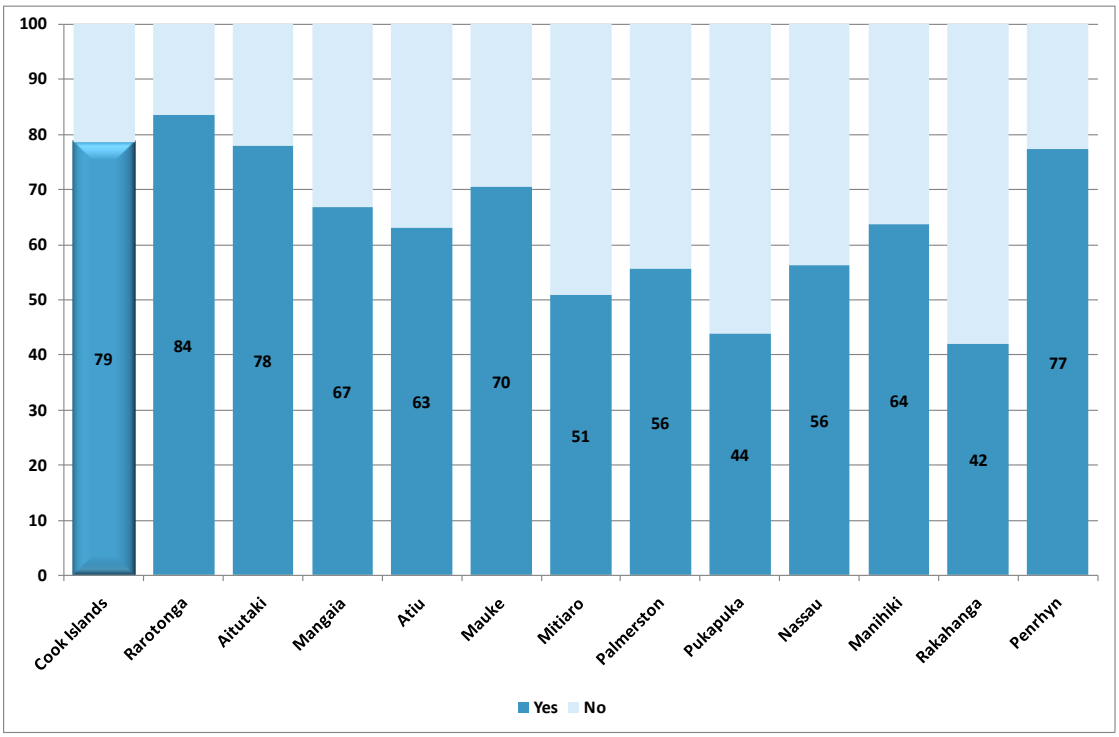
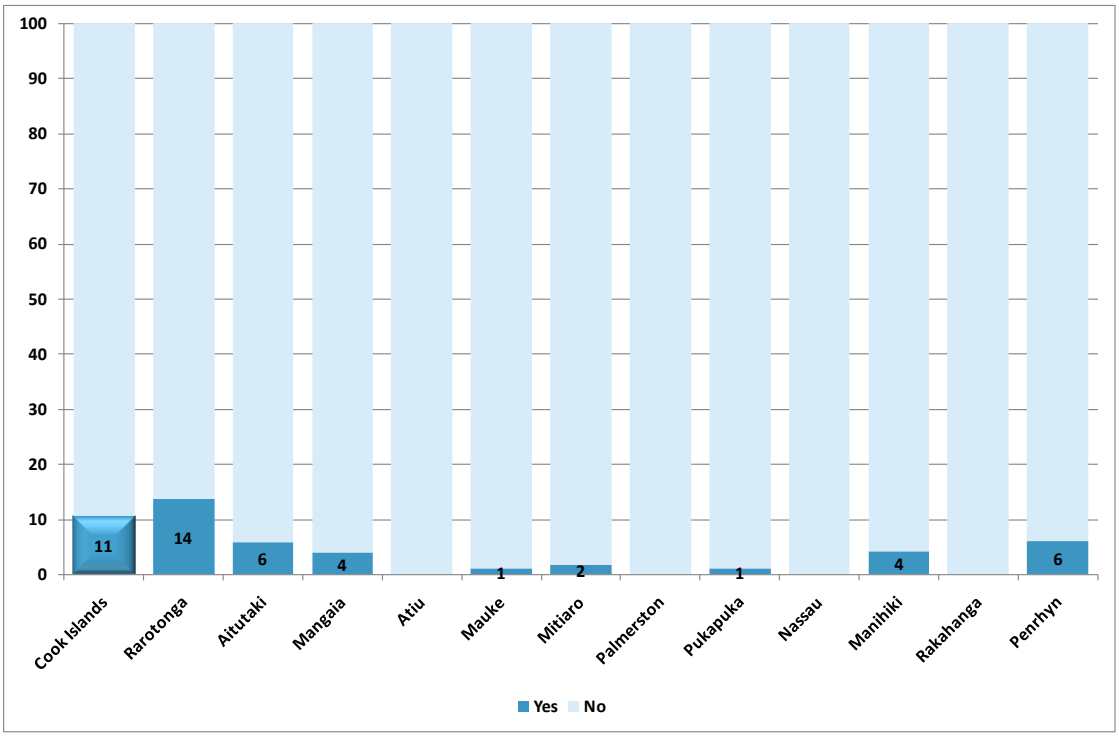


Figure 144: Proportion of private households by island and availability of an IPod, Cook Islands: 2006



5.3.12.7 Private households and availability of various means of transport

Table 44: Number of transport items by island, Cook Islands: 2006

Island	Item					
	Motor cycle	Motor car	Van	Truck	Utility vehicle	Bicycle
Rarotonga	7,862	2,297	397	721	414	3,894
Aitutaki	2,262	209	37	99	52	581
Mangaia	671	11	1	8	77	65
Atiu	497	13	7	25	6	231
Mauke	416	17	1	4	13	102
Mitiaro	112	7	-	3	1	43
Palmerston	2	-	-	-	1	54
Pukapuka	250	-	-	3	-	128
Nassau	48	-	-	-	-	29
Manihiki	201	-	-	6	3	74
Rakahanga	86	-	-	1	-	46
Penrhyn	230	-	-	6	4	172
Cook Islands	**12,637**	**2,554**	**443**	**876**	**571**	**5,419**

Figure 145: Proportion of private households by island and availability of a motor cycle, Cook Islands: 2006

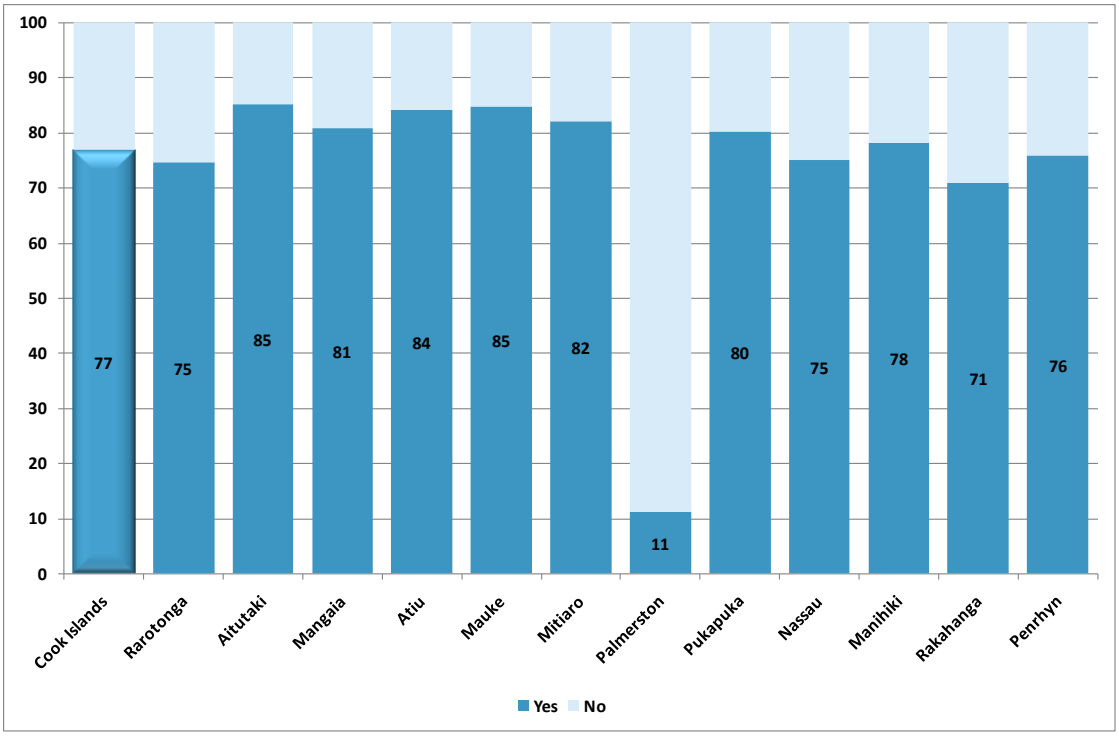


Figure 146: Proportion of private households by island and availability of a motor car, Cook Islands: 2006

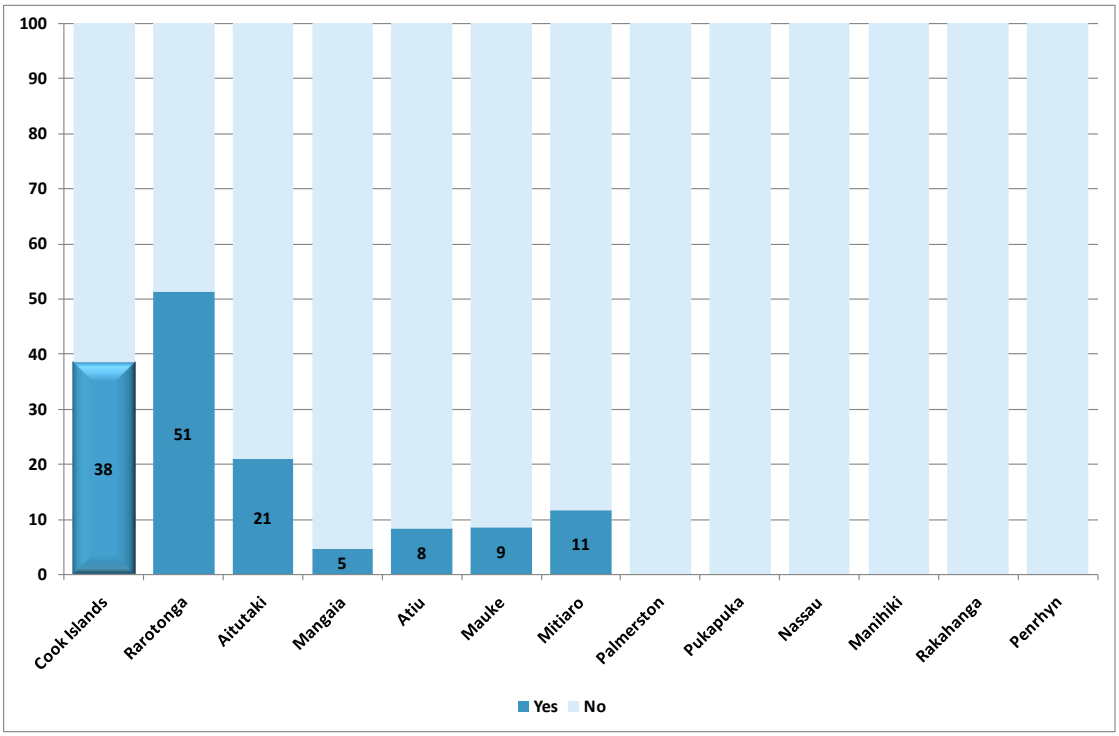


Figure 147: Proportion of private households by island and availability of a van, Cook Islands: 2006

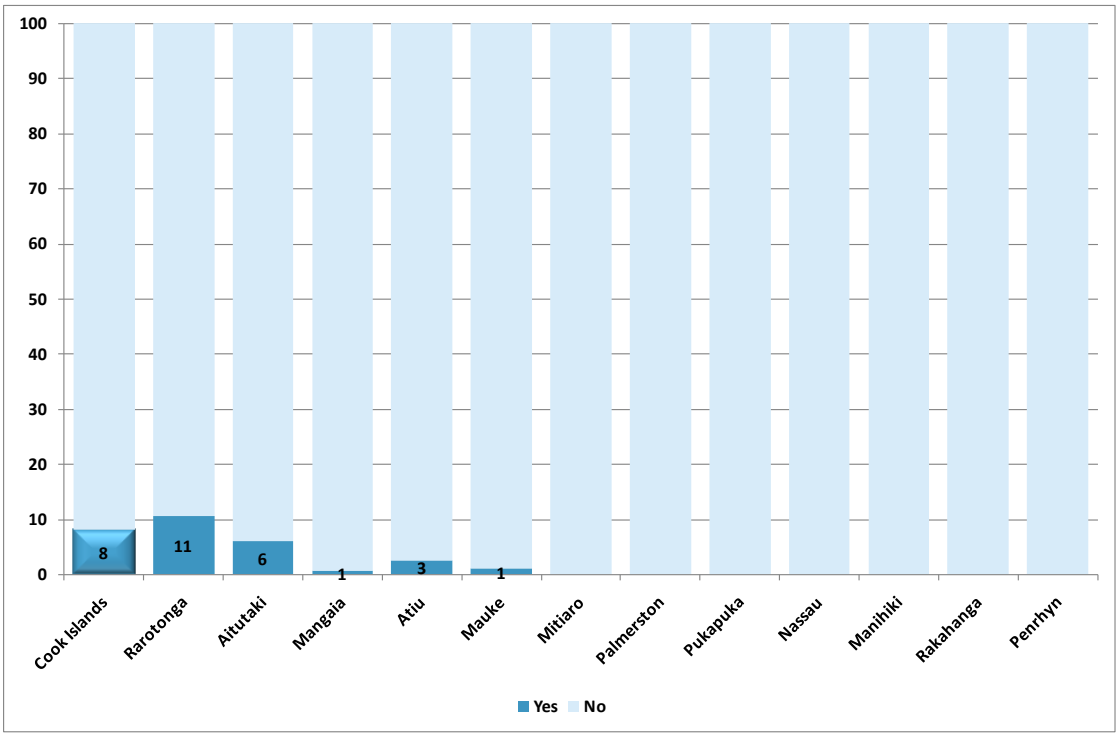


Figure 148: Proportion of private households by island and availability of a truck, Cook Islands: 2006

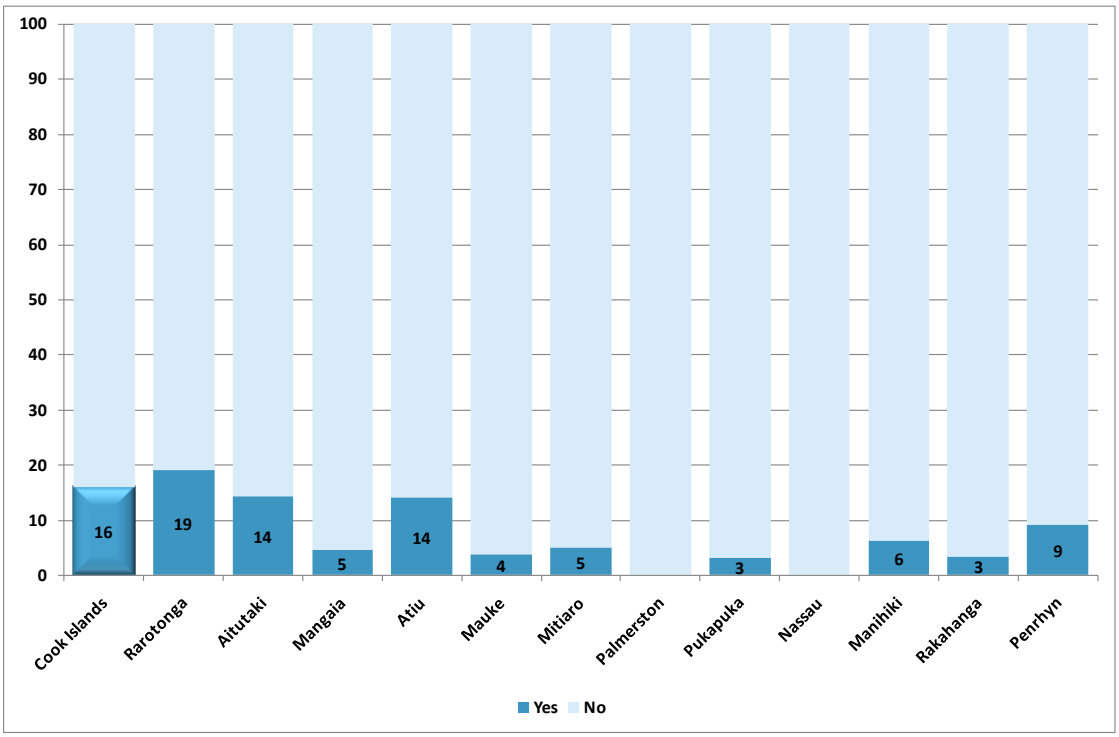


Figure 149: Proportion of private households by island and availability of a utility vehicle, Cook Islands: 2006

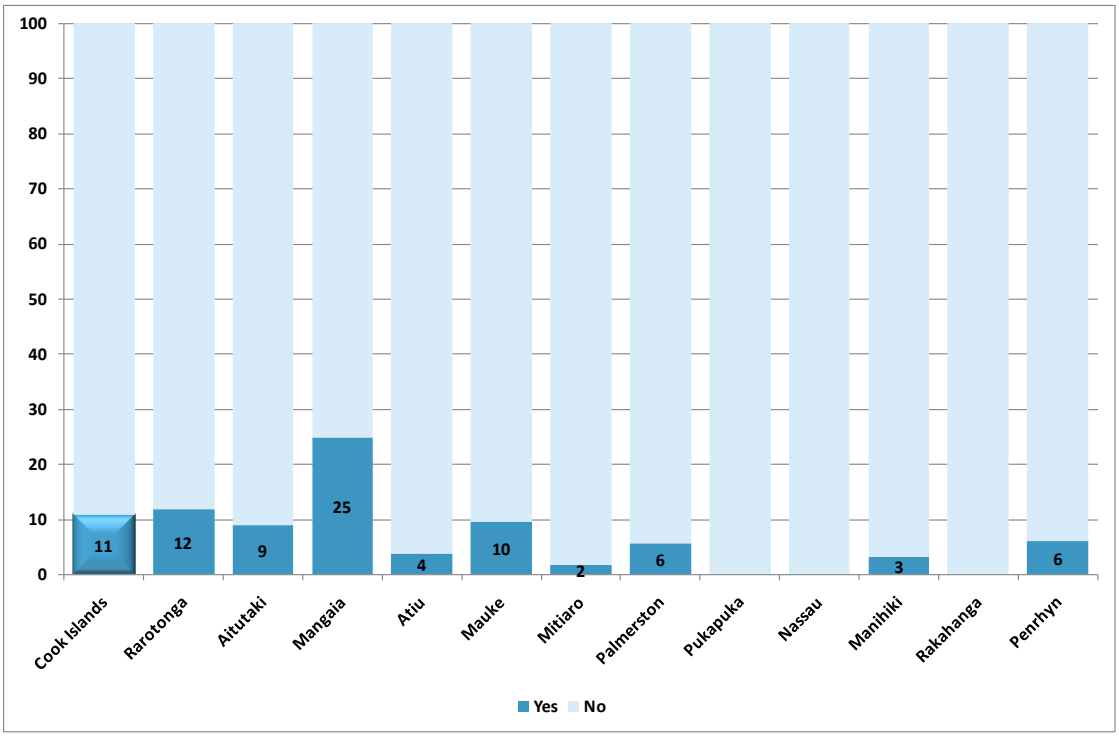
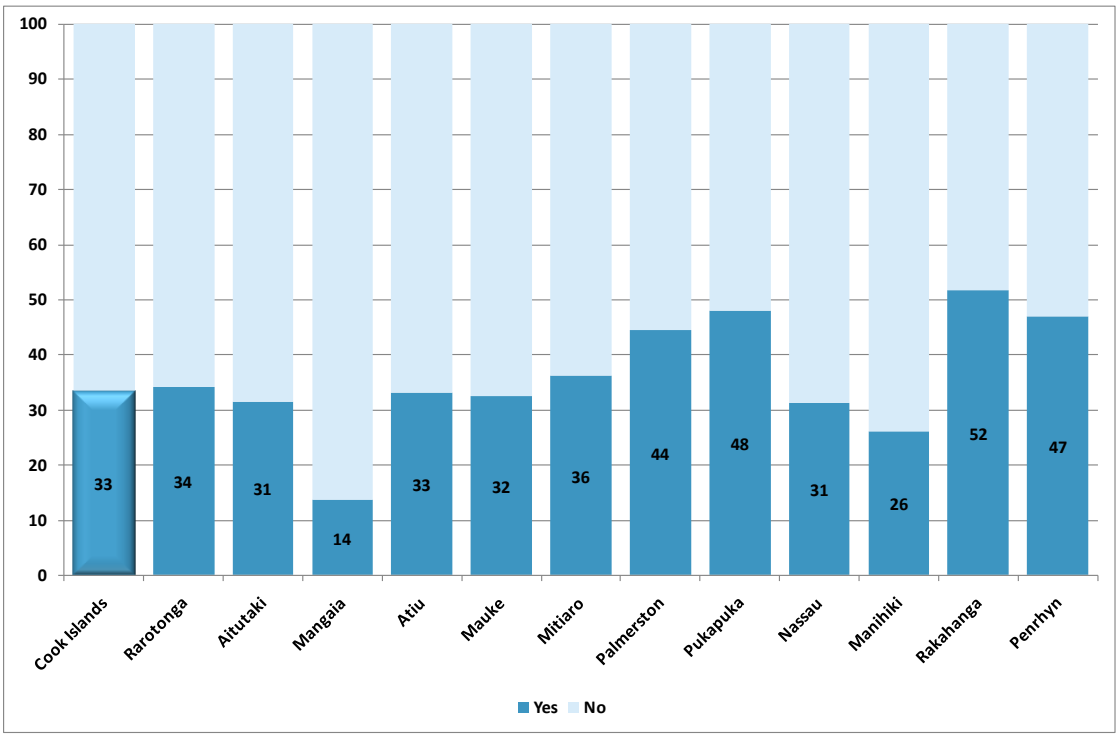


Figure 150: Proportion of private households by island and availability of a bicycle, Cook Islands: 2006



5.3.12.8 Private households and availability of safety equipment

Table 45: Number of items of safety equipment by island, Cook Islands: 2006

Island	Item				
	Fire extinguisher	Fire safety alarm	First aid kit	Lantern	Emergency lighting
Rarotonga	337	200	1,244	669	2,844
Aitutaki	110	50	180	223	583
Mangaia	5	2	43	19	276
Atiu	6	1	35	26	153
Mauke	1	-	21	8	187
Mitiaro	1	-	11	9	68
Palmerston	2	-	13	10	15
Pukapuka	-	-	8	9	9
Nassau	-	-	-	-	-
Manihiki	5	1	35	38	65
Rakahanga	1	-	3	2	28
Penrhyn	3	-	25	20	33
Cook Islands	**471**	**254**	**1,618**	**1,033**	**4,261**

Figure 151: Proportion of private households by island and availability of a fire extinguisher, Cook Islands: 2006

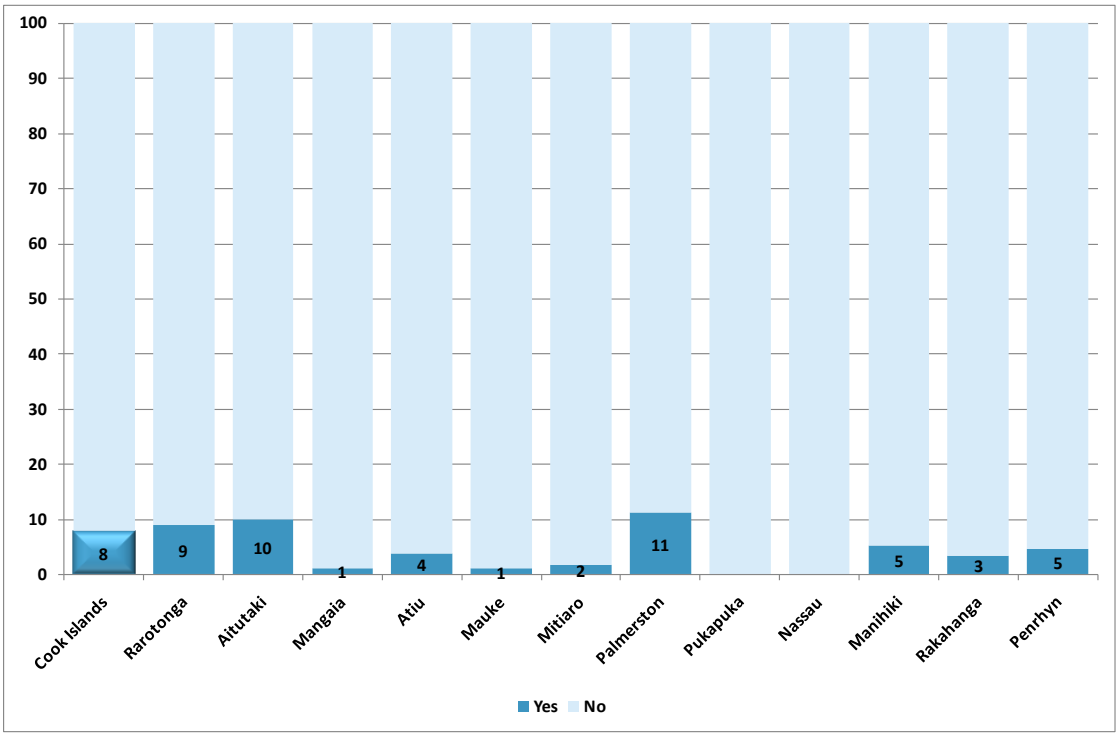


Figure 152: Proportion of private households by island and availability of a fire safety alarm, Cook Islands: 2006

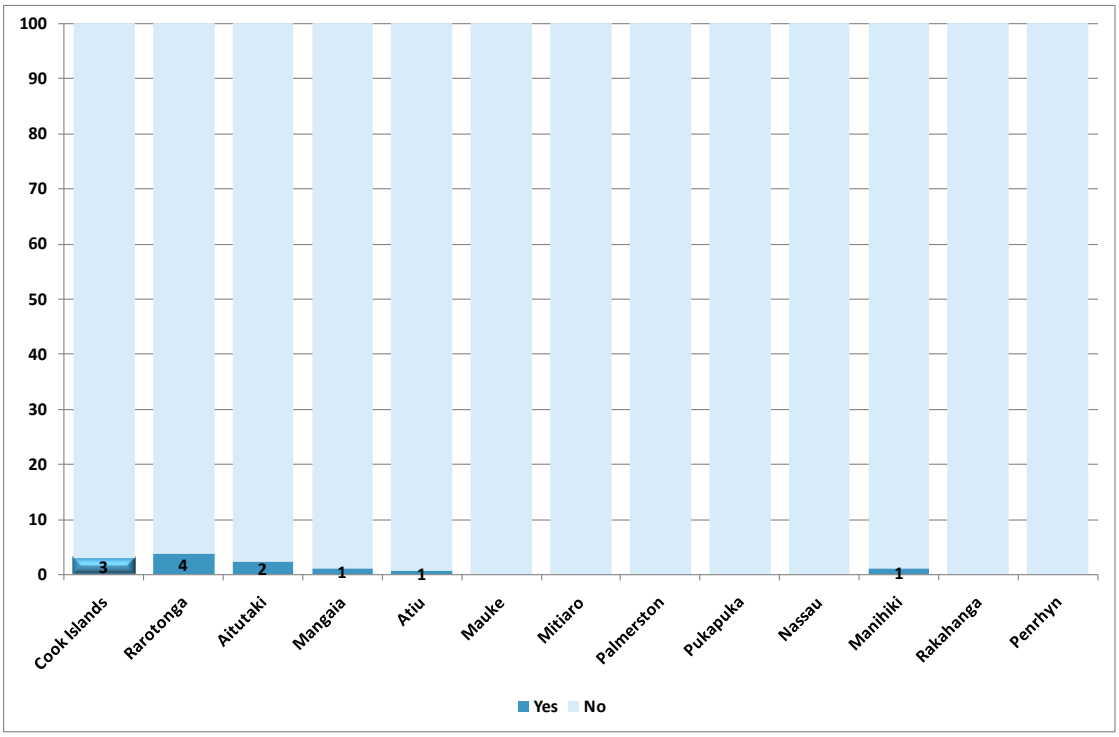


Figure 153: Proportion of private households by island and availability of a first aid kit, Cook Islands: 2006

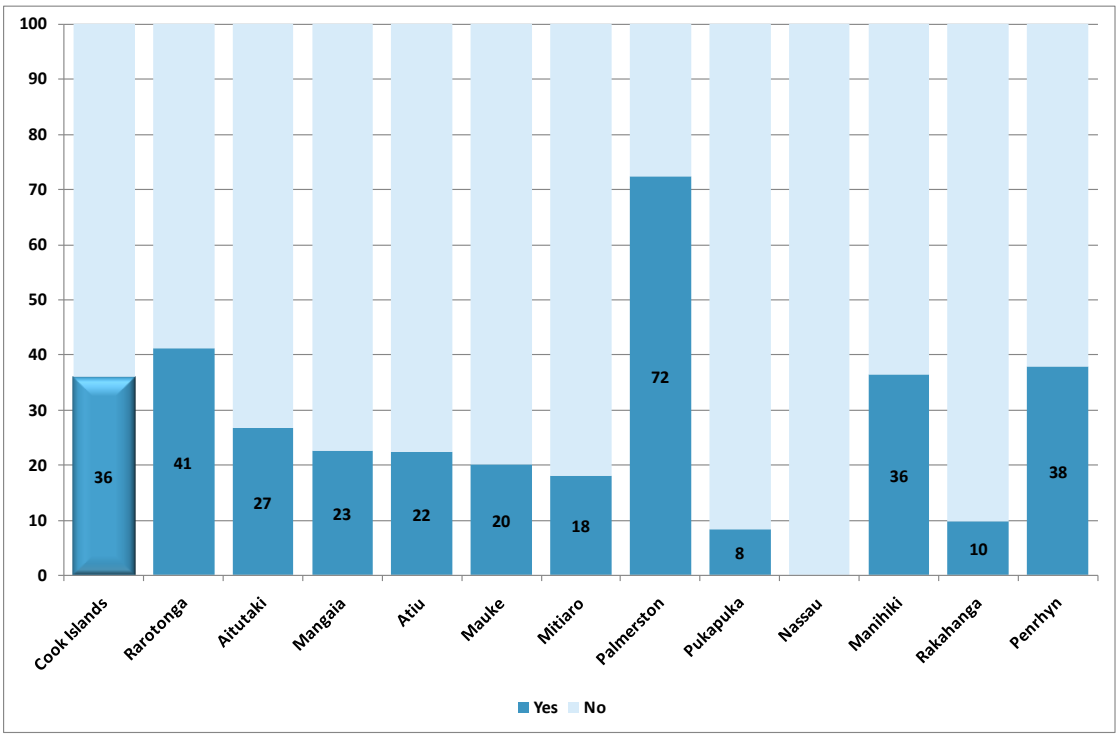


Figure 154: Proportion of private households by island and availability of a lantern, Cook Islands: 2006

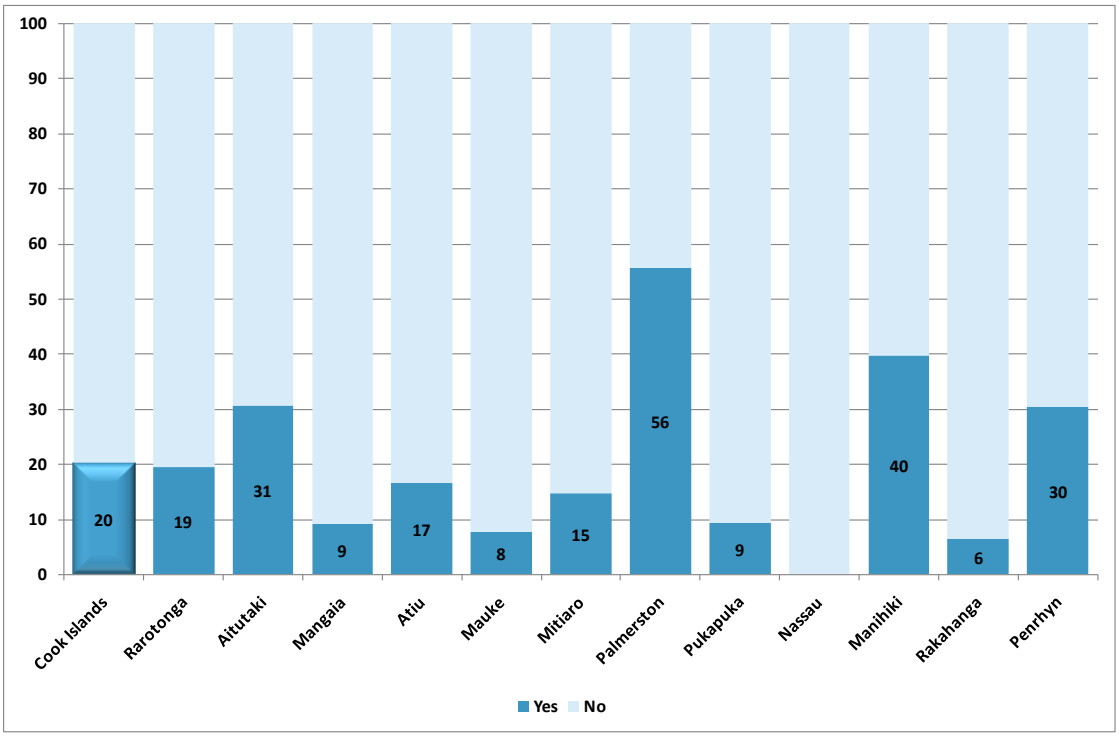
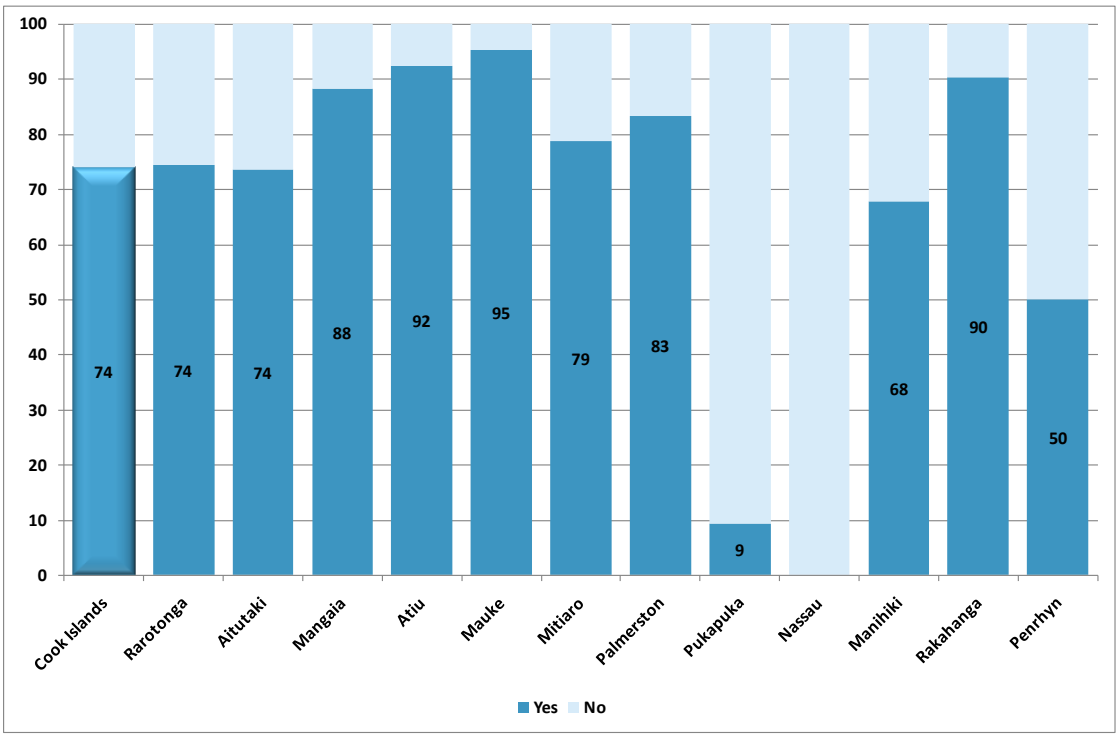


Figure 155: Proportion of private households by island and availability of a emergency lighting, Cook Islands: 2006



6. POPULATION PROJECTIONS

Timely and accurate information about population trends is in high demand by policy-makers, planners, and researchers. Knowledge about the current size and structure of a country's population is needed for the formulation and implementation of policies and programmes in almost all areas of public life. Because policies are aimed at resolving current issues through the achievement of goals in the future, knowledge about future population trends is required. Activities in areas as diverse as health, environment, poverty reduction, social progress, and economic growth rely on comprehensive and consistent demographic information.

The appropriate method to produce population trends is to prepare estimates and projections of population size and structure by age and sex.

The starting point for any projection is a reliable and current age–sex distribution of a population. Furthermore, information on recent levels and patterns of fertility, mortality, and migration is needed.

The cohort-component method was used to compute the population projections presented in this report. This procedure simulates population changes as a result of changes in the components of growth: fertility, mortality and migration. Based on past information and current levels, assumptions are made about future trends in these components of change. The assumed rates are applied to the age and sex structure of the population in a simulation that takes into account:

- the age at which people die is related to their sex and age,
- women have children, and
- some people change their country of residence.

The cohort-component method of projecting a population follows each cohort of people of the same age and sex throughout their lifetime, according to their exposure to fertility, mortality and migration[6].

The key to making meaningful projections lies in the choice of assumptions about future population developments. These assumptions concern possible future birth, death and migration rates.

6.1 Projection assumptions

As a general guideline, when preparing multiple assumptions about future levels of fertility, mortality and migration, it is advisable to arrive at outcomes that are symmetrical. This means that the level of low and high, or fast and slow, growth assumptions should be equally positioned with respect to the medium level assumption (i.e. above and below).

The following demographic inputs were developed for the projections.

Projection period

The population projections cover the 45-year period of 2006–2051.

Base population

Projections are based on the 2006 Cook Islands census age and sex distribution of the **resident** population, adjusted to mid-year 2006.

[6] 1994. Arriaga E.E. Population analysis with microcomputers, volume I, Presentation of techniques, p. 309–310. US Census Bureau, Department of Commerce, USA.

Fertility

The estimated TFR of the period 2006 and associated ASFR, as described in section 3.1 (Table 9), are used as a starting point, with three different assumptions made about future fertility developments (Fig.156).

The future TFR level of the medium fertility assumption is assumed to reach 2.0, which is the average level of TFR of populations in present-day Australia, France, New Zealand and the United States (App. 8). This level will be reached (by means of linear extrapolation) with a pace of fertility decline that is based on Cook Islands' recent past fertility trend. According to this pace, Cook Islands will reach a TFR of 2.0 in the year 2036. It will remain at this level for the remainder of the projection period.

The reason for choosing the fertility level of countries such as Australia, France, New Zealand and the United States as the future level for Cook Islands is twofold:

1) These countries have completed the "demographic transition" (see explanatory note in App.9). Appendix 6 shows that the TFR of these four countries has remained at an almost constant level of 2.0 over the last 30 years (1975–2007).

2) They are regarded as the metropolitan focal points of Pacific Island countries.

Therefore the medium fertility assumption is set as follows.

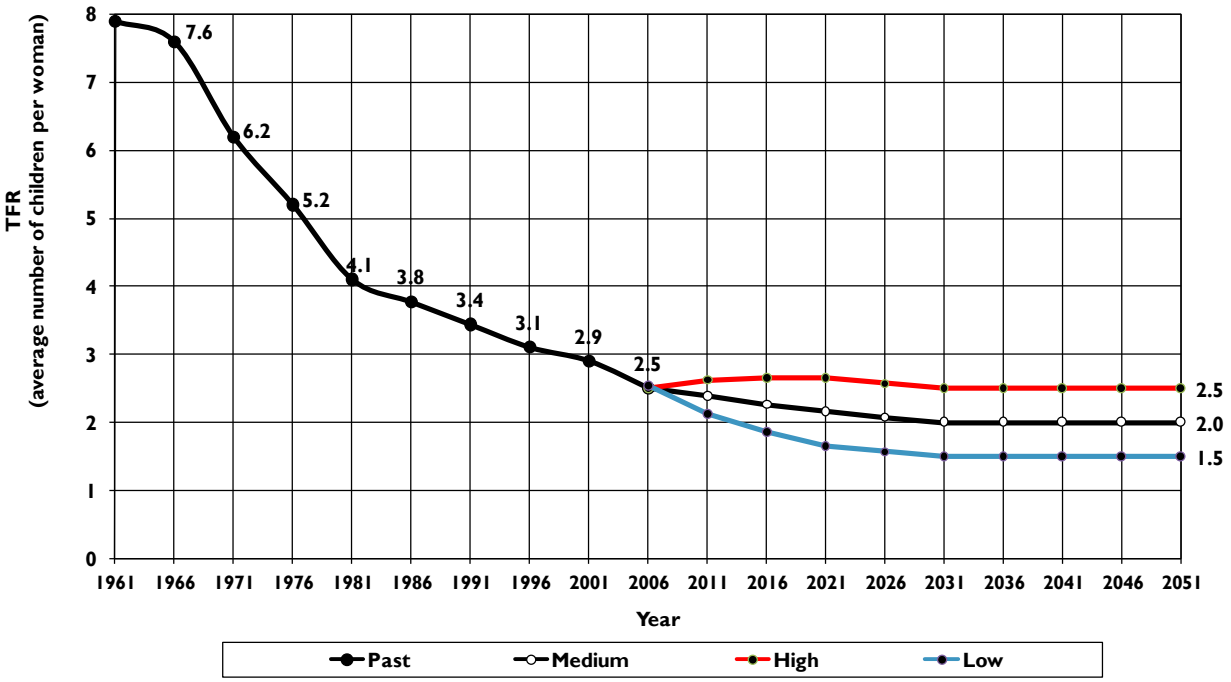
Assumption 1 — Medium Fertility: Fertility decreases to 2.0 in the year 2036 (and remains at this level until the end of the projection period).

The high and low fertility assumptions were built symmetrically around the medium fertility assumption.

Assumption 2 — High Fertility: The high fertility assumption assumes a TFR of 0.5 higher than the medium fertility level. Therefore, during the period 2006–2026, TFR initially rises above the 2006 level of 2.0, before it decreases to 2.5 in 2036, and remains at this level until the end of the projection period.

Assumption 3 — Low Fertility: The low fertility assumption assumes a TFR of 0.5 lower than the medium fertility level. Fertility decreases to 1.5 in the year 2036, and remains at this level until the end of the projection period.

Figure 156: Estimated past levels of fertility, and future fertility assumptions for projections, Cook Islands: 1961–2051



Mortality

It is thought that under normal circumstances (meaning in the absence of catastrophes such as wars, epidemics and major natural disasters), the Cook Islands' health situation and mortality levels will continuously improve throughout the projection period.

The estimated life expectancies at birth [E(0)] — 69.5 years and 76.2 years for males and females, respectively — are used as the starting point for projections in 2006. These estimates are based on the estimates as outlined in section 3.2.

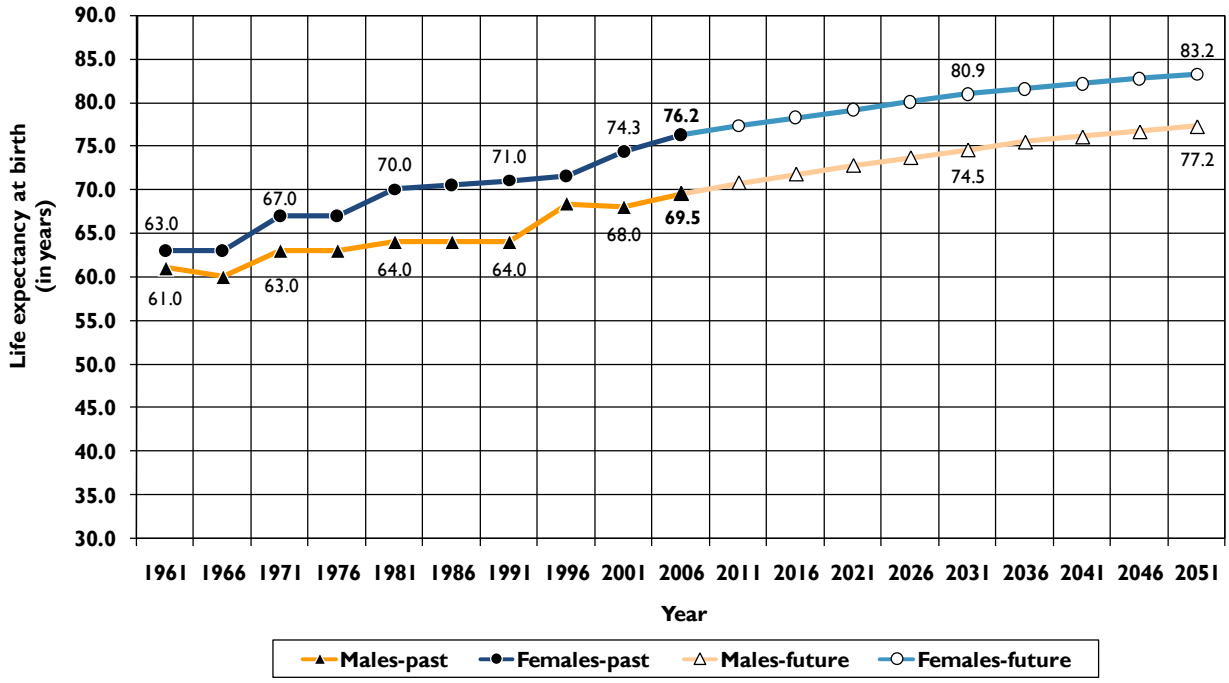
Assumption: The population projections presented here assume a rising trend in life expectancy for males and females according to the UN working models of mortality improvement, as described in "World Population Prospects" (p. 144)[7]. According to this model, current estimated life expectancies gradually increase and reach 77.2 and 83.2 years in 2051 for males and females, respectively (Fig.157).

Only one assumption regarding mortality is made. The reason for this is that variations in mortality levels (multiple assumptions) usually have only a minor impact on final projection results; they also would require the production of too many different scenarios that ultimately would only complicate the presentation of results.

The derived mortality pattern (age-specific death rates) was compared with the different Coale-Demeny and United Nations model life tables using MORTPAK4.1, procedure COMPAR. The assumption was made that possible under-registration of deaths is not age specific and therefore does not affect the overall pattern of mortality. It was found that the Coale-Demeny West model pattern resembles most closely the empirical mortality pattern of Cook Islands.

[7] 1995. United Nations. World Population Prospects. NewYork: United Nations. 886 p.

Figure 157: Estimated past levels of mortality, and future mortality assumptions for projections, Cook Islands: 1961–2051



Migration

Making meaningful assumptions about future migration developments provides the single greatest difficulty for undertaking population projections, because many of the social and economic parameters shaping migration patterns depend largely on countries' overall social, economic and political developments, as well as environmental factors (e.g. possible sea level rise, frequency and strength of cyclones). All of these factors fluctuate widely and are hard to predict. Migration projections also depend on economic and political developments overseas.

Apart from these global consideration, making assumptions about migration is difficult because the level and pattern of Cook Islands resident migration has changed dramatically after the implementation of the Cook Islands Government's economic restructuring programme. While there were about –300 net annual migrants during the period 1991–1996, from 1996 to 2001 about –4,284 more people left Cook Islands than arrived, resulting in an annual average net migration of –857. The estimated level of the period 2001-2006 was only about -130 (see section 3.4).

In view of the changing level and pattern of migration in the Cook Islands, a UN model has been used to project the number of male and female migrants by age: the so-called family migration model (App.7). Furthermore it is assumed that there will be equal numbers of males and female migrants.

The level, however, differs among the different projections. Three different migration assumptions have been prepared (Figure 158):

The total number of migrants is expressed as **net migration**, which is the difference between the number of arrivals (immigrants) and departures (emigrants) during a certain time period.

Net migration = **Arrivals (immigrants)** minus **Departures (emigrants)**

Therefore, if net migration is positive it means that the number of arrivals (immigrants) was higher than the number of departures (emigrants); if net migration is negative, the number of departures (emigrants) is higher than the number of arrivals.

In section 3.3.2 the net migration rate for the intercensal period 2001–2006 was estimated to be about –8.6(‰). That is, approximately –130 people per year.

In total, four different migration assumptions were made, and the high and the low migration assumptions were built symmetrically around the medium net migration assumption. An additional migration variant assumes zero net migration for projections for the purpose of illustrating the impact of migration on Cook Islands' population development.

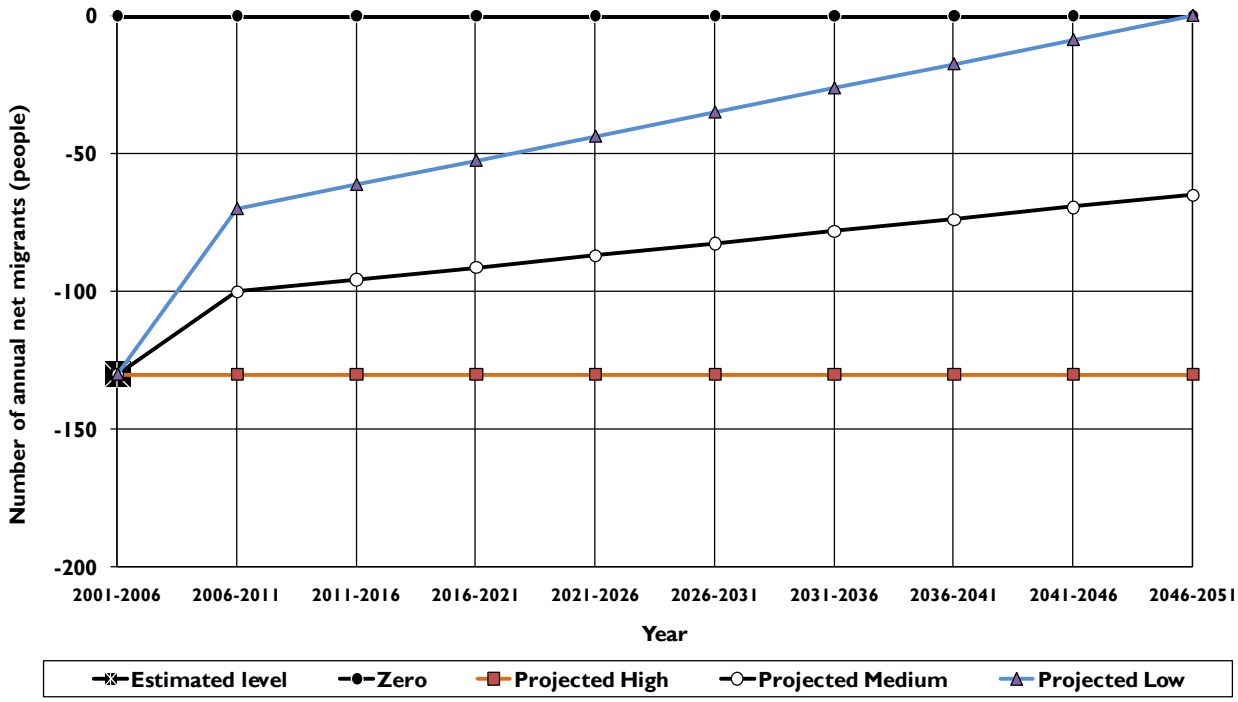
Assumption 1 — Medium net migration: net migration is assumed to start with a level of -100 people per year in 2006 in order to continue with the current population growth of 0.4% for the medium scenario projection. It then gradually decreases to -65 people per year which resembles exactly the middle level of the high and the low migration assumption in the year 2051.

Assumption 2 — High net migration: net migration is assumed to continue with the estimated level of the period 2001-2006 at a constant level of -130 people per year for the entire projection period 2006–2051.

Assumption 3 — Low net migration: net migration is assumed to gradually decrease to zero towards the end of the projection period with a starting level of -70 people per year in 2006. The level of -70 has been chosen to ensure symmetry of the 3 different migration assumptions.

Assumption 4 — Zero net migration: net migration is assumed to be zero for the entire projection period (number of arrivals [immigrants] and departures [emigrants] are equal).

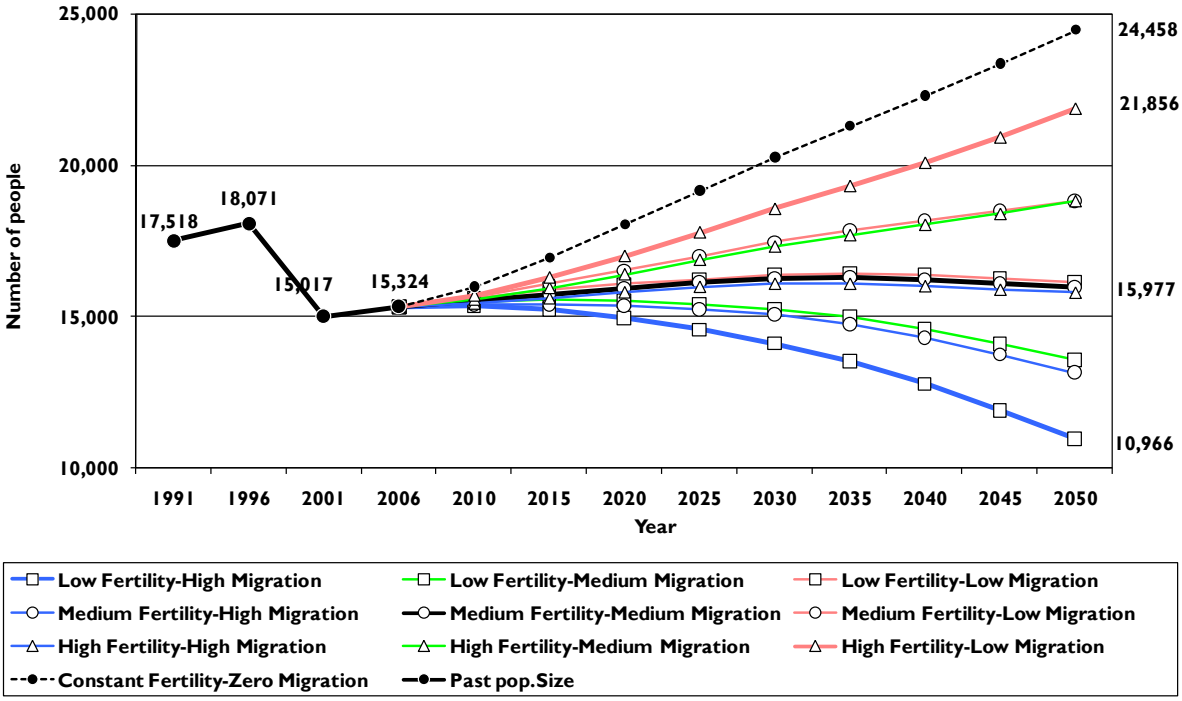
Figure 158: Migration assumptions for population projections, Cook Islands: 2001–2051



6.2 Projection results

The combination of the previously described three different fertility and three different migration assumptions (with one general mortality assumption), results in nine different projections (Fig.159 and App.8). These nine different projections highlight the impact of different levels of fertility on one hand, and the impact of migration on the other. An additional projection variant shows the growth of the population if net migration were zero (number of arrivals [immigrants] and departures [emigrants] are equal).

Figure 159: Past and future population trends according to 10 projection variants, Cook Islands: 2006–2050



Appendix 8 and Figure 159 illustrate the results and show the future population size. The higher the fertility level assumed, the higher the population outcome; and, the higher the number of annual net migrants (in negative terms), the lower the population size will be in the future.

It also can be seen that different fertility levels have a relatively small impact on the population size compared with the impact that migration assumptions have.

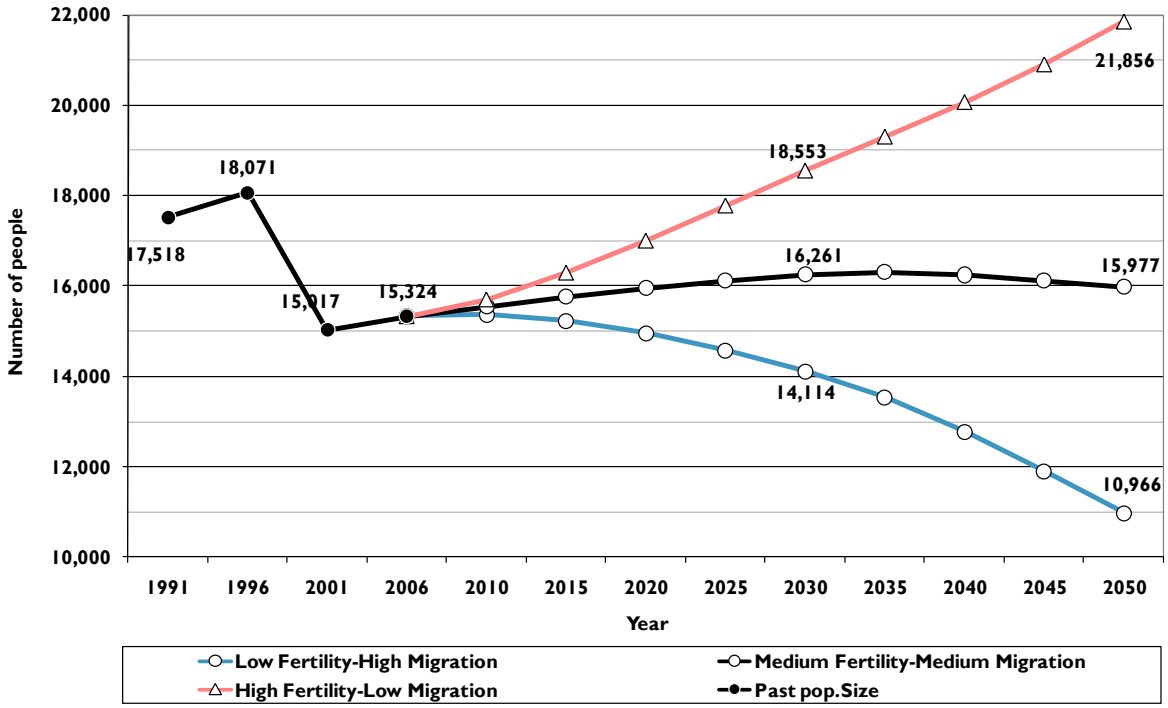
The three population projection scenarios (or variants) that show the most extreme impact on the population size and structure in comparison to an intermediate (medium) outcome (Fig.160) are described in detail below:

1) **High population scenario.** This projection outcome is determined by applying the high fertility assumption (constant fertility) while assuming rapidly declining net migration rates. This scenario results in a population size of 18,553 in the year 2030, and 21,856 in the year 2050.

2) **Medium population scenario.** This projection outcome is determined by applying the medium fertility assumption (moderate fertility decline), and the medium net migration assumption (assuming net migrants of -100 to decrease to -65 until the year 2051 — the end of the projection period). This scenario results in a population size of 16,261 in the year 2030, and 15,977 in 2050.

3) **Low population scenario.** This projection outcome is determined by applying the low fertility assumption (fast fertility decline) in combination with a high net migration assumption (assuming constant current high level of net migration of -130 people annually throughout the projection period). This scenario results in a population size of 14,114 in the year 2030, and only 10,966 in the year 2050.

Figure 160: Past and future population trends according to high, medium, and low population projection scenarios, Cook Islands: 2006–2050



It can be seen that the impact of the different projections on the population size for the year 2010 are relatively minor. Significant population differences based on the different projection assumptions can only be expected thereafter. According to the extreme scenarios (low and high population scenarios), the Cook Islands' population size will be between 14,114 and 18,553 people in the year 2030. It also shows that the population would decrease in size significantly if migration levels remain at its current level of -130 people per year.

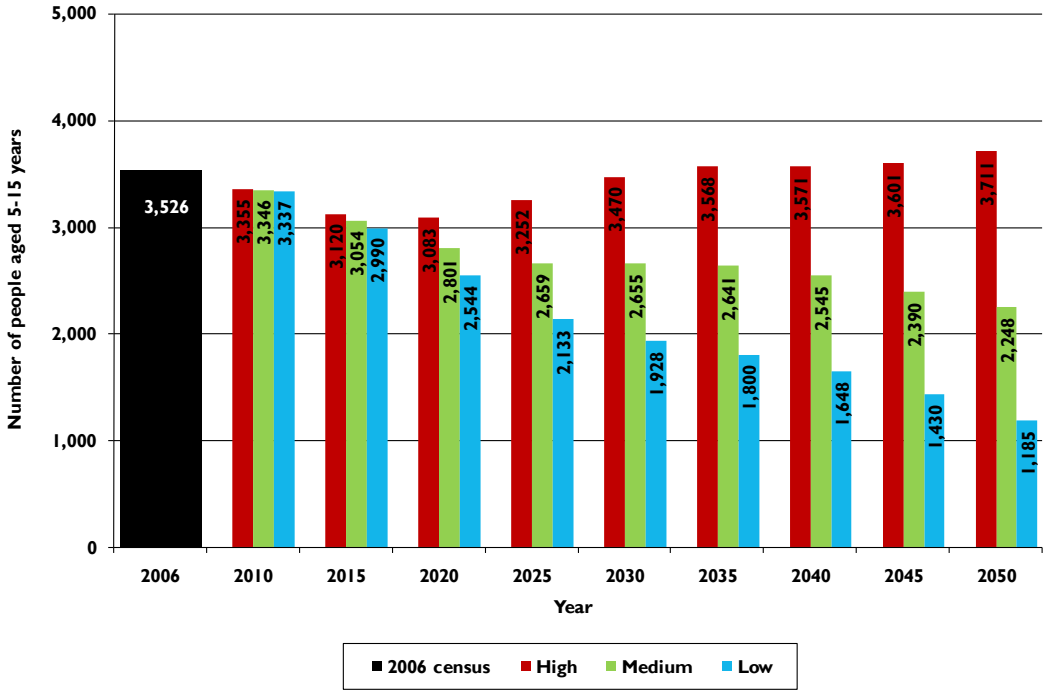
According to the medium population scenario, the population size would be 16,261 people in 2030, and slightly lower in 2050.

Figures 161–164 provide the comparative results of the various projections, and highlight the differential impact on population size, growth and structure, as a result of different levels and trends of fertility and different levels of migration.

The population aged 5–15 — the mandatory school age population — can be expected to decrease in size until at least the year 2030 regardless of the projection scenario used (Fig.161); only according to the high population projection the school age population can be expected to grow above the 2006 level, and even then only slightly. All other projection scenarios will result in a significant lower school age population than in 2006. The reason is the assumed fertility decline (lower number of children per woman), and the continued level of migration, incl. parent and their children.

According to the medium variant, the school age population aged 5–15 would decrease to about 3,000 people in 2015 before decreasing further to 2,600 in 2030.

Figure 161: Population aged 5–15 (mandatory school age) according to high, medium and low population projection scenarios, Cook Islands: 2006-2050



The general impact on the future population structure by broad age groups can be seen in Table 46 and Figures 162–164.

Regardless of the projection scenario used, the proportion and size of the working age population (aged 15–59) will be larger in 2010 than in 2006, and it will become much larger according to the high and the medium projection scenario. In contrast to those two scenarios, the working age population will be much lower according to the low population scenario. However, even assuming a low population scenario, the proportional size of the population aged 15–59 would be larger in 2030 (60%) than in 2006 (58%).

Another general outcome is that the population aged 60 and older will be significantly larger than 1,711 in 2006, and will be 17-21% of the total population. Therefore the population will grow older regardless of which projection variant is used, as is expressed in the median age, which will increase from 27.5 years in 2006 to between 31 and 36 years.

The proportion of the young population aged 0–14 (as part of the total population) will decrease until 2030, regardless of the type of projection scenario used (Table 46). It will decrease from 31% to a range of 18–26% of the total population.

The size of the population younger than 15 years is likely to decrease from about 4,700 in 2006 to about 3,600 in 2030 (according to the medium and low population scenarios), and would only be 2,600 people according to the low population scenario. Only the high population scenario would result in a higher number of 0–14 year-olds in 2006.

The three different projection scenarios will produce very different population growth rates: the high population scenario will result in an annual population growth rate of +0.8% between 2006 and 2030, while the medium population scenario will only produce 0.2% annual growth (slightly lower than current population growth rate), while the low population scenario will produce negative growth (i.e. population decline) of -0.3% annually.

Table 46: Population structure and indicators according to three different projection scenarios, Cook Islands: 2030

Indicator	2006 Census	2030		
		High	Medium	Low
Population by broad age groups (%)				
0–14 years	**31**	26	22	18
15–59 years	**58**	57	59	60
60 years and older	**11**	17	19	21
	100	100	100	100
Dependency ratio	**72**	75	70	65
Median age	**27.5**	31.3	33.4	35.5
Average annual growth rate (%)	**0.4**	0.8	0.2	-0.3

Figure 162: 2010 population projections by broad age groups according to three scenarios

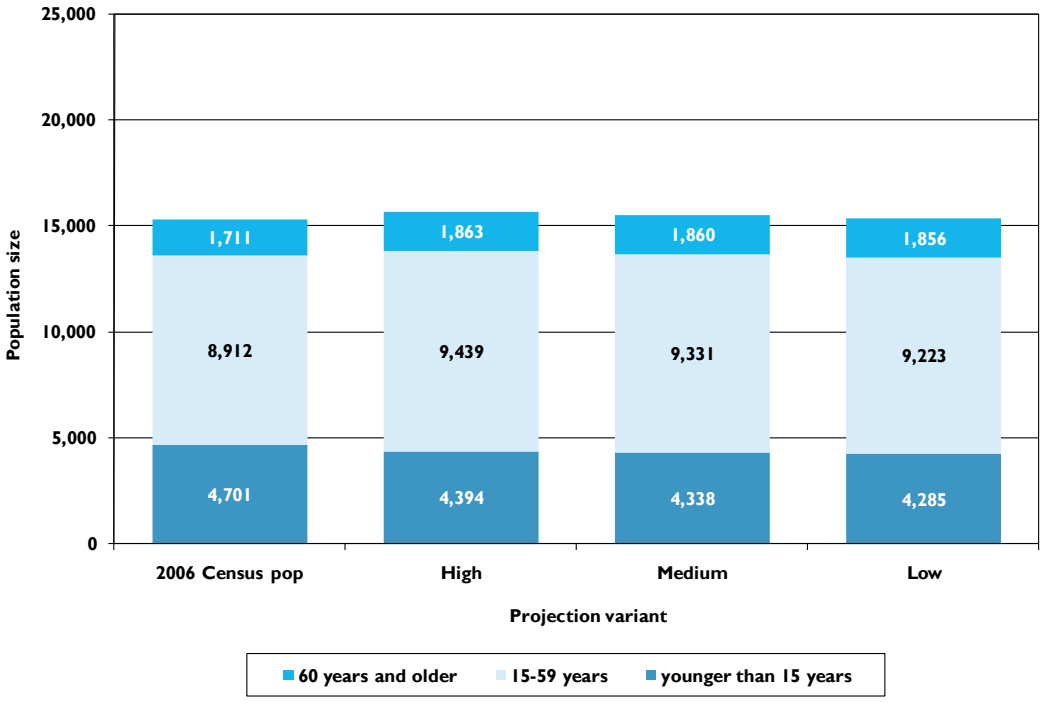


Figure 163: 2030 population projections by broad age groups according to three scenarios

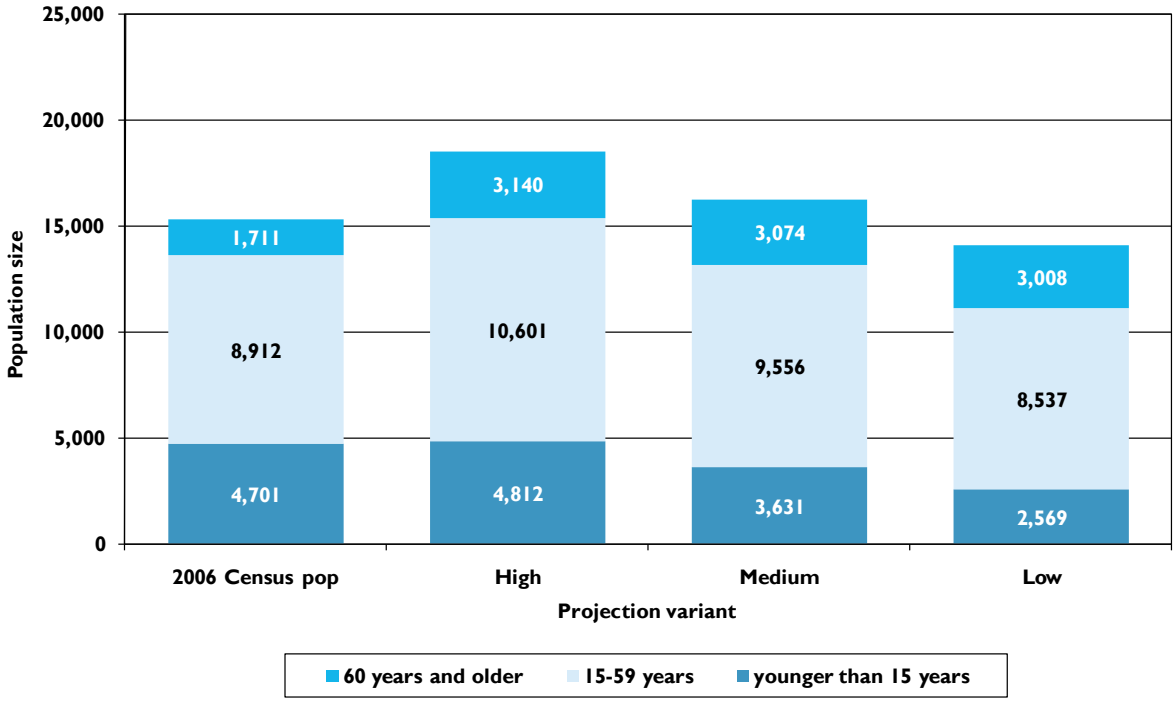
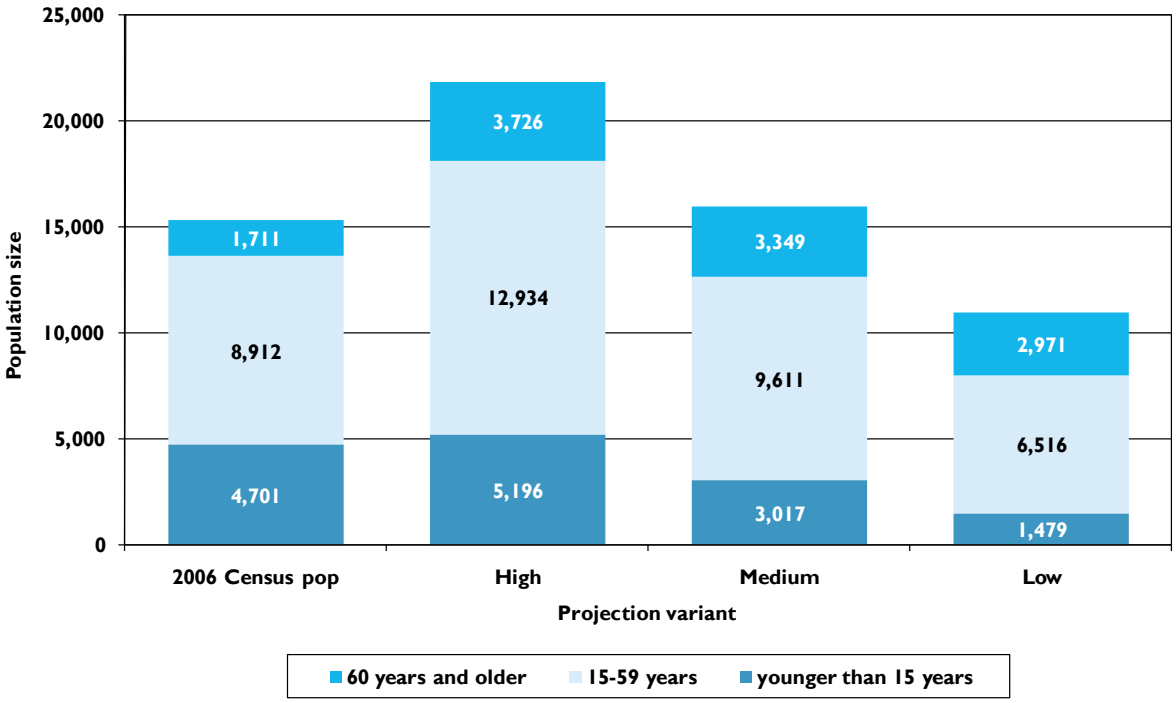


Figure 164: 2050 population projections by broad age groups according to three scenarios



The different impacts on the population size and structure are furthermore illustrated as population pyramids (Figs. 165–168). The shaded area represents the enumerated 2006 population size by sex and age group, and the outlined area represents the estimated (projected) population size in 2030, according to the high (Fig.165), medium (Fig.166), and low (Fig.167) population scenarios.

In addition, Figure 168 illustrates the impact of migration, or rather the lack of it. It compares the population size in 2030 if net migration is zero during the entire projection period 2006–2030. As was shown in Figure 75, the population would then be 20,252 people.

Figure 165: Population pyramid, high population projection, Cook Islands: 2006 and 2030

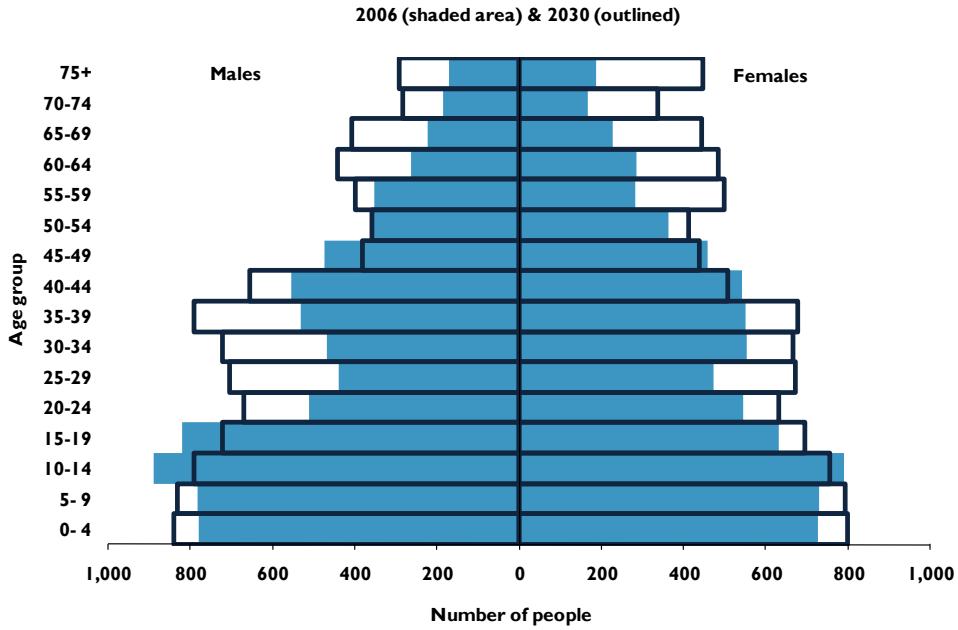


Figure 166: Population pyramid, medium population projection, Cook Islands: 2006 and 2030

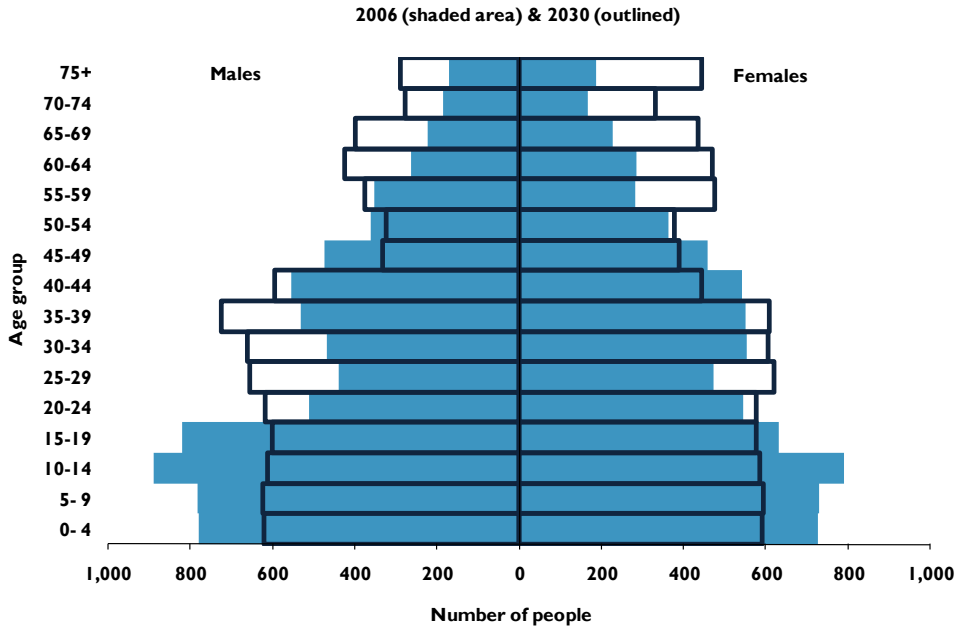


Figure 167: Population pyramid, low population projection, Cook Islands: 2006 and 2030

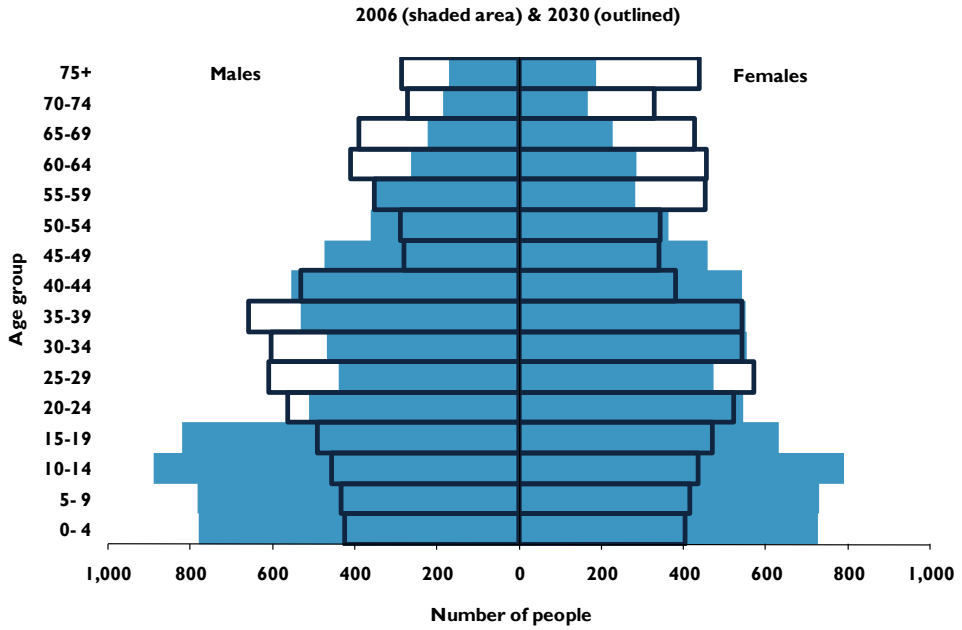
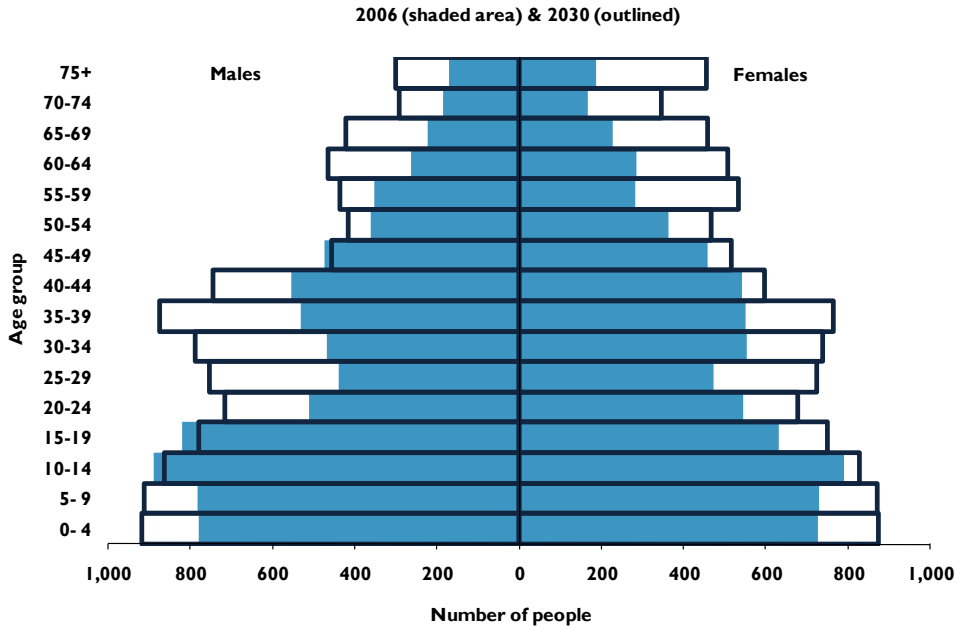


Figure 168: Population pyramid, zero migration projection, Cook Islands: 2006 and 2030



The different shaped pyramids of the three different projection scenarios clearly illustrate that the difference in population size and structure in 2030 is the size of the population aged 0–19. It highlights the predominant effect of the assumed fertility level on future population size and structure: the lower the assumption of the future fertility level, the smaller the size of the population younger than 20 years of age in the future.

Comparing the pyramids of the high, medium and low population growth variants (Figs.165–167) with the pyramid that shows the population size and structure if migration were zero for the period 2006–2030 (Fig.168), clearly shows the impact of international migration. It shows that without the impact of international migration (negative net migration), the population will be significantly larger, and "bulkier" in shape, meaning that the working age population will be especially affected by migration.

Most likely outcome

Predicting the likelihood of a certain future population size and structure is difficult for any country, and the further into the future the prediction, the more uncertain the outcome. It is particularly difficult for a small country such as the Cook Islands whose population size and structure is heavily shaped by international migration that fluctuates significantly from year to year.

Therefore, several projection variants need to be produced to allow users to choose from an outcome that seems most probable according to their own views and opinions. Most data users, however, prefer to use a recommended projection variant that depicts a "most likely outcome". Such a variant is usually called the "medium" projection variant using the medium fertility and migration assumption.

Population changes close to those presented in the medium population scenario — which uses the medium fertility assumption (TFR decreases from its current level of 2.5 to 2.0 in 2036), and the medium migration assumption (a gradual decline of -100 net migrants annually to -65 annually in 2036) — appear to be the most likely outcome (Figs159–160, black middle line, and App.8 middle outlined boxes) because:

- The current fertility level is expected to decline as it has in the Cook Islands' recent past, and is furthermore expected to do so based on historical worldwide observations of countries with a similar level of fertility (see also the "theory of demographic transition", App.9). Therefore, the high fertility assumption, with its very slow fertility decline, seems to be a more unlikely outcome.

  Although fertility levels (TFR) have already declined to well below 2 in many parts of the world, such rapid fertility decline does not seem likely to occur in the Cook Islands as it seems "uncharacteristic" for Pacific Islands populations at the moment.

- While it is nearly impossible to predict future migration patterns and levels, the medium migration assumption appears to be the most realistic because it produces similar rates of population growth as those experienced during the past 5 years. Higher levels of migration are limited through a reduction in anticipated birth rates, there will be fewer numbers of potential migrants in future, resulting in a reduction of the "migrant stock".

- On the other hand, lower levels seem unlikely in view of the Cook Islands long established steady flow of migration to destination countries such as New Zealand and more recently to Australia. A certain level of negative net migration has prevailed in the Cook Islands since the early 1970s and there are no signs that this trend will change, let alone reverse in the near future.

7. IMPLICATIONS OF DEMOGRAPHIC TRENDS

7.1 Population dynamics

7.1.1 Fertility

With a rate of approximately 60 births per 1000 women aged 15-19 years, the teenage fertility rate of Cook Islands women is relatively high compared to that of other Pacific Island countries. Pregnancies of young women are often unwanted and the result of unprotected sex. This is a major health concern, especially considering the risk of HIV/AIDS and sexually transmitted diseases.

Many stakeholders are involved in teenage reproductive health strategies, working at various levels to reduce teenage pregnancy by increasing the knowledge and practice of family planning, promoting peer education, providing sex education advisory services including contraceptives, involving young people in service design, educating the parents of teenagers on effective communication, providing better support for teenage mothers (such as help returning to education, advice and support), working with young fathers, and providing better childcare.

To produce reliable estimates of future population size and growth, it is essential to have a complete birth registration system recording the number of births of all Cook Islands' residents. A system needs to be in place that ensures that the births by residents while overseas are adequately captured in Cook Islands vital statistics.

7.1.2 Mortality

Estimates of mortality level presented in this report suggest that females live longer than males, and live on average about seven years longer than males. Life expectancy at birth is estimated at 69.5 and 76.2 for males and females, respectively. This compares with 78.4 and 82.4 years for males and females in New Zealand in 2007-2009. However, the estimated life expectancies for the Cook Islands are most likely an over estimate, as they are based on the number of registered deaths that do not include the deaths of Cook Islands residents which occur while they are overseas (in New Zealand hospitals).

Improved mortality rates mean that healthier people live longer lives. In working towards this goal, the following efforts should be made:

- improve infant, child and maternal health by improving primary health care programmes;
- expand immunization programmes;
- prevent HIV/AIDS and STDs by:
    - Increasing awareness and knowledge of safer sexual behaviours and practices by using appropriate language;
    - Targeting vulnerable groups (youth, women and men, particularly aged 10–24);
    - Enhancing education programmes to encourage open discussions (between partners and their children) on issues of sexual behaviours;
    - Promoting and disseminating information outlining the advantages and proper use of condoms by men and women, with an emphasis on targeting male organisations;
    - Reviewing, developing, implementing and evaluating the effectiveness of appropriate policies;
    - Delaying young peoples' initial sexual activity;
    - Developing a well-planned media campaign throughout the year based on health promotion with regards to HIV/AIDS;
    - Ensuring protection of the rights of people living with HIV/AIDS;
    - Ensuring that people living with HIV/AIDS have free and unrestricted access to medical treatment, facilities and support services;
    - Ensuring that a reliable HIV/AIDS testing system is in place;

- Establishing a voluntary, confidential system of HIV/AIDS testing with informed consent that includes pre and post test counseling;

- combat the prevalence of diabetes and heart disease;
- provide a hygienic and safe living environment;
- promote healthy eating habits and food nutrition programmes;
- advocate a general healthy life style including regular physical exercise; and
- discourage smoking and excessive alcohol consumption.

In order to facilitate reliable estimates of the level and trend of mortality indicators, it is essential to have a complete death registration system recording the number of deaths by age and sex of all Cook Islands' residents. A system needs to be in place that ensures that deaths of residents that occur overseas are accounted for in Cook Islands statistics. This may be preceded by a special research project investigating the number of deaths of residents that occur overseas.

7.1.3 Internal migration

The fact that many islands in the Southern and Northern Group islands have shown substantial negative population growth rates (i.e. a population decline) during the last two intercensal periods (1996-2001 and 2001-2006), points to a possible dissatisfaction with living conditions in these islands. Reasons may include the lack of post-secondary education opportunities (for tertiary or vocational/technical qualifications), limited employment opportunities'. Rarotonga and/or overseas destinations attract people by offering higher living standards through the availability and accessibility to services such as medical and educational institutions, entertainment facilities, and a wide range of employment opportunities.

The remoteness of most islands and high transportation costs cause imported products to be quite expensive. This will increasingly be aggravated by the smaller size of the market (economy of scale). A declining population might result in a general reduction in the supply and variety of goods and services, as an ever declining population means fewer customers (demand) for educational and health services, established businesses, farmers and fishers, who supply the local market. This may lead to a decline in improved services of any kind, and may even result in the closure of shops and general services, which in turn may lead to further population decline.

If the government wishes to change this trend, at least some of the disadvantages of living in the outer islands need to be eased by improving the above mentioned services and opportunities.

Since Rarotonga's population growth rate was also relatively low — certainly much lower than the national natural growth rate — it can be concluded that many, if not most, emigrants from the outer islands chose to reside overseas rather than in Rarotonga.

7.1.4 International migration

The Cook Islands' population decline during the period 1971–1986 and 1996-2001 – even its slight population increase between 1986 and 1996 was, and still is, due to negative net migration of Cook Island residents, primarily to New Zealand.

The Cook Islands' 2001–2006 intercensal number of net migration (arrivals – departures) is estimated at about -650 people. This translates into a net loss of 130 people annually. The high rate of (negative) migration offsets, to a large extent, Cook Islands' otherwise positive natural growth rate.

The fact that many people are leaving Cook Islands points to a possible dissatisfaction with local living conditions. Overseas destinations, mainly New Zealand, may be seen as places of opportunity, with better access to employment and education for one's children, as well as to a wider range of services and benefits, all of which are widely reported to be the main incentives that entice Cook Islanders to its shores. A move may also be seen as a sign of progress and a means of bettering oneself. Even the

prospect of not securing a good job, or any job at all, but qualifying for other social benefits in New Zealand might be perceived as more rewarding than life with low or no income in the Cook Islands.

Cook Islanders who emigrate expect to better themselves, in ways that vary from person to person. A specially designed survey may shed more light on the specific motives and aspirations of migrants.

A system needs to be introduced that accurately accounts for the movement (arrivals and departures) of resident Cook Islanders.

7.2 Crosscutting issues

The Cook Islands may experience a continued slow population growth during the next few years. Appropriate health, education, and social welfare programmes must be in place to fulfill the needs and aspirations of Cook Islands' communities.

7.2.1 Vital statistics

A well functioning registration system, able to supply accurate and timely statistics on population developments, is of fundamental importance to planners and policy-makers. To make reliable estimates regarding fertility and mortality indicator levels and trends, a complete registration system needs to be in place; one that records the number of births and deaths, including those occurring overseas. Improved coordination between all agencies involved is required.

Cook Islands law requires the registration at birth of all children born in the Cook Islands. This registration provides each baby with a single bonus payment of $300 and a monthly child welfare benefit of $60 until that child turns 12 years old.

Cook Islands babies born outside of the Cook Islands to residents are not legally required to be registered at the Ministry of Justice. However, the baby's birth certificate must be submitted for the baby to be eligible for the child welfare benefit.

7.2.2 The environment

Careful use of terrestrial and marine resources forms the basis of a sustainable and healthy life for Cook Islands' people. As such, maintaining a healthy and sustainable living environment should be a top priority for the government and people of Cook Islands. Apart from enabling a good quality of life for local people, conservation of the environment can foster a vibrant tourism industry.

The size and density of the population has a direct impact on water and energy consumption, sewage and waste production, general infrastructure such as roads, the use of land, and the development of agriculture and marine resources.

In recent years, environment groups have voiced their concern regarding the water quality of Muri lagoon, which is a major attraction to both the local population and tourists. The coastal strip is dotted with hotels and motels catering to tourists from various countries. Offensive smells, the presence of algae, and muddy water can all act as tourist deterrents, which may lead to a decline in occupancy rates. Since tourism is the most important income source of Cook Islanders, the protection of Cook Islands' environmental beauty, and the prevention of pollution of any kind, should be of the highest importance to the people of the country to ensure the sustainability of the industry.

The latest environmental concern was the new waste and sewage area in Ruaau which was built and funded by ADB. Some residents who reside around that area were alarmed at the increasing number of flies at the same time offensive smell coming from the area. This was mainly due to the mismanagement

of the whole area and people were not heeding to the appeal from the Environment Services in sorting out their waste, recycling and reusing those waste that can used as compost.

7.2.3 Households

Population growth not only contributes to an increased demand in water and energy supply, waste disposal, sewage connections and general infrastructure, but also to an increase in the number of households due to changes in average household size. Even if the population size remained stable, the number of households would still increase when households and/or family structures break up into smaller units, often described as the transition from extended family type households to nuclear family type living arrangements.

Households and families that are economically incapable of sustaining an acceptable and healthy lifestyle might need extra assistance from the government, since unhealthy living environments affect everyone in the long term. In particular, access to clean water, public electricity, an adequate publicsewage system and waste disposal facilities should all be the minimum housing standard for Cook Islands's population.

7.2.4 Health services and well-being

The health status of each individual and his/her family members is probably one of the most important concerns people have. Therefore, the availability, use and affordability of quality health care and medical services are major issues of concern. Government and health officials need to address the challenges of health services and the health care system.

On Cook Islands's outer islands, small population sizes and remoteness inhibit the operation of state-of-the-art health services that require the employment of specialist personnel and the purchase and maintenance of specialised equipment. However resident medical staff need to be sufficiently qualified to provide basic health care. An efficient referral service to the nearest health facility, together with regular visits by medical specialists, is needed to ensure that peoples' health demands are met.

The population projections have shown that the population aged 60 and older will increase during the next 25 years. This requires strengthening of special services for the growing number of elderly people, including a pension scheme with retirement benefits, and specialised health care for the elderly.

7.2.5 Education

Educational level is a key indicator of development and quality of life in a country. Education plays an important role in development through its links with demographic, as well as economic and social factors. In general, there is a close and complex relationship between education, fertility, morbidity, mortality and mobility: when couples are better educated, they tend to have fewer children, their children's health status improves, and their survival rates tend to increase. Higher levels of educational attainment also contribute to a better qualified workforce, higher wages, and better economic performance than for people who have little or no formal education and training.

In this regard, it is a benefit that young people leave the country to attend higher educational institutions. However, graduates need to return to suitable employment to avoid a "brain drain" and to retain the educated with their newly acquired knowledge and skills.

Although data on educational attainment show that men have achieved, on average, slightly higher educational levels than females, information on current school enrolment shows a far more balanced picture, with more females currently enrolled than males.

Government has also recognized that they need to train the early 'drop outs' from school and the problem children into some kind of trade for example mechanic, electrician, carpentry,

hospitality courses even academic courses through USP. This will enable these young adults to have basic skills and be able to enter into the workforce.

7.2.6 Economic activity and labour market

Economic activity and employment are shaped by the size of the working age population, the educational skill level of the labour force, and the economic resources available to a country.

As New Zealand citizens, Cook Islanders are entitled to live and work in New Zealand. There is a regular two-way movement of Cook Islanders between the islands and the metropolitan labour market of New Zealand. These movements strongly depend on economic opportunities in Cook Islands and overseas, and socio-economic developments in Cook Islands are very much interwoven with developments overseas, especially in New Zealand. In this regard, Cook Islands has to compete with higher wages, lower prices and the better quality of many goods and services offered in New Zealand, which is one of the major reasons people leave the islands.

The recent high emigration rates, especially of people of young working age, has led to a labour shortage, specifically in the tourism industry in Rarotonga. Vacancies cannot be filled, and businesses have recruited staff from overseas.

7.2.7 Supply and demand of goods and services

The remoteness of most islands and high transportation costs cause imported products to be rather expensive. This will increasingly be aggravated by the smaller size of the market (economy of scale). A declining population might result in a general reduction in the supply and variety of goods and services, as an ever declining population means less customers (demand) for educational and health services, established businesses, farmers and fishers, who supply the local market. This may lead to a stalling in the improvement of services of any kind, and may even result in closure of shops and general services. This in turn may lead to further population decline: a vicious circle.

7.2.8 Quality of life

The fact that many people are leaving Cook Islands points to dissatisfaction with local living conditions. It shows that those who emigrate or who are planning to leave expect to better themselves, in ways that vary from person to person. A specially designed survey may shed more light on the specific motives and aspirations of migrants.

7.2.9 Good governance

Good governance and effective policy-making should provide the framework for sustainable development within which the interrelationship of population, environment, and all possible socioeconomic aspects of a country can prosper cohesively.

In this regard it is important that policy-makers, planners, politicians and community leaders are aware of the needs and aspirations of their country's people in order to effectively provide for the specific needs of the population, and the different population sub-groups. Then government needs to know about its country’s population structure, population processes and socioeconomic characteristics in order to plan for an adequate standard of living, and for a proper provision and distribution of goods and services.

GLOSSARY

Indicator	Definition
Age–dependency ratio	Number of people in the "dependent" age category (population younger than 15 years plus population 60 years and older) per 100 in the "economically productive ages" 15–59 years
Average age at (first) marriage (SMAM)	Approximation of average age at marriage, based on proportion of population never married (single)
Balance equation	Population growth = births – deaths + net migration
Child mortality rate (1q5)	The probability of dying between age 1 and age 5
Crude birth rate (CBR)	Estimated number of births per 1,000 population (2,945/101,991 X 1,000)
Crude death rate (CDR)	Estimated number of deaths per 1,000 population (709/101,991 X 1,000)
Crude net migration rate	Rate of growth minus rate of natural increase
Employment–population ratio	Proportion of employed people in cash work (by a given age and sex), as part of the corresponding total number of people of the same age and sex
Infant mortality rate (IMR)	Number of infant deaths (children younger than 1 year) per 1,000 births
Intercensal period	Time period between two censuses
Labour force	People employed (cash work plus village work) and unemployed (excludes those not seeking employment)
Labour force participation rate	Proportion of people in the labour force (by a given age and sex), as part of the corresponding total number of people of the same age and sex
Life expectancy at birth	Number of years a newborn baby can expect to live on average
Mean age at childbearing	Average age of women when giving birth
Median age	The age at which exactly half the population is older and half is younger
Parity (average)	Average number of children per woman

Rate of growth (%)	Average annual growth rate during 2001–2006 ln(TotPop2006/TotPop2001)/5 X 100
Rate of natural increase	Crude birth rate (CBR) minus crude death rate (CDR)
Resident population	Persons whose usual residential address is the Cook Islands and lived there for at least the last 12 months
Sex ratio	Number of males per 100 females
Teenage fertility rate	Number of births by women aged 15–19 per 1,000
Total fertility rate (TFR)	Average number of children per woman
Under 5 mortality (q5)	The probability of dying between birth and age 5.
Urban population	Total population of Rarotonga

APPENDIX TABLES

Appendix 1: Estimating total fertility rate of the period 2001-2006, using the ARFE-2 procedure of the PAS software package of the United States Census Bureau, Cook Islands: 2001 – 2006

Year and item or age	ASFR from CEB		ASFR		Adjusting factors	Adjusted ASFR's based on age group			
	ASFR	cumulative	pattern	cumulative		20-29	25-29	25-34	30-34
2001 Census									
ASFR corrected for one-half year between birth and reporting.									
15-19	0.067	0.067	0.058	0.058	1.169	**0.055**	0.051	0.050	0.049
20-24	0.159	0.226	0.166	0.223	**1.014**	**0.157**	0.147	0.143	0.140
25-29	0.104	0.331	0.151	0.374	**0.885**	**0.143**	0.133	0.131	0.128
30-34	0.087	0.418	0.119	0.493	0.847	**0.113**	0.106	0.103	0.101
35-39	0.043	0.462	0.089	0.582	0.792	**0.085**	0.079	0.077	0.076
40-44	0.002	0.463	0.034	0.616	0.752	**0.032**	0.030	0.029	0.028
45-49	0.001	0.464	0.000	0.616	0.753	**0.000**	0.000	0.000	0.000
TFR	2.3		3.1			**2.92**	2.72	2.67	2.61
Mean age at childbearing			**28.5**						
2006 Census									
ASFR corrected for one-half year between birth and reporting.									
15-19	0.066	0.066	0.069	0.069	0.953	**0.060**	0.058	0.057	0.057
20-24	0.119	0.184	0.137	0.206	**0.896**	**0.119**	0.116	0.114	0.112
25-29	0.100	0.285	0.131	0.337	**0.845**	**0.114**	0.111	0.109	0.108
30-34	0.094	0.378	0.123	0.460	0.822	**0.107**	0.104	0.103	0.101
35-39	0.037	0.416	0.077	0.537	0.774	**0.067**	0.065	0.064	0.063
40-44	0.008	0.423	0.026	0.563	0.752	**0.023**	0.022	0.022	0.022
45-49	0.001	0.424	0.005	0.568	0.747	**0.004**	0.004	0.004	0.004
TFR	2.1		2.8			**2.47**	2.40	2.37	2.33
Mean age at childbearing			**28.4**						

Appendix 2: Estimating total fertility rate of the period 1996-2006, using the ARFE-3 procedure of the PAS software package of the United States Census Bureau, Cook Islands: 1996 – 2006

Year and item or age	ASFR from CEB		ASFR		Adjusting factors	Adjusted ASFR's based on age group			
	ASFR	cumulative	pattern	cumulative		20-29	25-29	25-34	30-34
1996 Census									
ASFR corrected for one-half year between birth and reporting.									
15-19	0.082	0.082	0.078	0.078	1.040	**0.068**	0.067	0.065	0.064
20-24	0.163	0.245	0.201	0.280	**0.875**	**0.173**	0.171	0.167	0.164
25-29	0.148	0.392	0.182	0.462	**0.849**	**0.157**	0.155	0.151	0.148
30-34	0.091	0.483	0.132	0.594	0.814	**0.114**	0.112	0.110	0.107
35-39	0.093	0.576	0.094	0.687	0.839	**0.081**	0.080	0.078	0.076
40-44	0.095	0.671	0.029	0.717	0.937	**0.025**	0.025	0.024	0.024
45-49	0.035	0.707	0.006	0.723	0.977	**0.005**	0.005	0.005	0.005
TFR	3.5		3.6			**3.12**	3.07	3.01	2.94
Mean age at childbearing			**28.0**						
2001 Census									
ASFR corrected for one-half year between birth and reporting.									
15-19	0.065	0.065	0.058	0.058	1.134	**0.056**	0.054	0.053	0.052
20-24	0.160	0.225	0.166	0.223	**1.009**	**0.161**	0.154	0.151	0.148
25-29	0.123	0.348	0.151	0.374	**0.930**	**0.146**	0.140	0.138	0.135
30-34	0.094	0.442	0.119	0.493	0.895	**0.116**	0.111	0.109	0.107
35-39	0.068	0.510	0.089	0.582	0.876	**0.086**	0.083	0.081	0.080
40-44	0.014	0.524	0.034	0.616	0.850	**0.033**	0.031	0.031	0.030
45-49	0.003	0.526	0.000	0.616	0.854	**0.000**	0.000	0.000	0.000
TFR	2.6		3.1			**2.99**	2.87	2.81	2.76
Mean age at childbearing			**28.5**						
2006 Census									
ASFR corrected for one-half year between birth and reporting.									
15-19	0.066	0.066	0.069	0.069	0.953	**0.060**	0.058	0.057	0.057
20-24	0.119	0.184	0.137	0.206	**0.896**	**0.119**	0.116	0.114	0.112
25-29	0.100	0.285	0.131	0.337	**0.845**	**0.114**	0.111	0.109	0.108
30-34	0.094	0.378	0.123	0.460	0.822	**0.107**	0.104	0.103	0.101
35-39	0.037	0.416	0.077	0.537	0.774	**0.067**	0.065	0.064	0.063
40-44	0.008	0.423	0.026	0.563	0.752	**0.023**	0.022	0.022	0.022
45-49	0.001	0.424	0.005	0.568	0.747	**0.004**	0.004	0.004	0.004
TFR	2.1		2.8			**2.47**	2.40	2.37	2.33
Mean age at childbearing			**28.4**						

Appendix 3: Registered number of deaths by age and sex, Cook Islands: 2001-2009

Age group	2001			2002			2003			2004			2005			2006			2007			2008			2009		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
0-1	4	3	1	2	1	1	5	3	2	5	4	1	6	4	2	3	3		4	3	1	1	1	0	2	1	1
1-4	4	1	3	1	1	0	0			1	1		0			0			3		3	0	0	0	1	1	
5-9	0	0	0	0	0	0	1	1		1	1		0			0			2	2		0			0		
10-14	0	0	0	1	1	0	0			2	2		0			1	1		1	1		0			0		
15-19	1	0	1	3	3	0	1	1		1	1		3	2	1	4	3	1	2	1	1	2		2	3	2	1
20-24	1	1	0	1	1	0	2	2		4	2	2	1	1		1		1	2	2		1	1		3	3	
25-29	1	1	0	1	0	1	1		1	1		1	3	2	1	0			1		1	1	1		1	1	
30-34	2	1	1	2	1	1	1	1		1	1		2	2		0			1		1	0			2	1	1
35-39	0	0	0	1	1	0	4	3	1	2	2		1	1		0			1	1		7	4	3	4	3	1
40-44	3	1	2	2	1	1	4	3	1	3	3		3	2	1	2		2	1	1		3	2	1	0		
45-49	2	1	1	5	4	1	3	2	1	2	2	0	3	2	1	0			4	3	1	1		1	2	1	1
50-54	3	1	2	7	3	4	4	3	1	4	4		10	9	1	4	3	1	1		1	3	2	1	3	1	2
55-59	6	1	5	7	5	2	7	4	3	6	5	1	6	4	2	10	9	1	8	8		3	3		1	1	
60-64	5	4	1	8	6	2	6	5	1	13	9	4	8	7	1	6	5	1	7	5	2	1	1		6	3	3
65-69	11	5	6	12	10	2	12	9	3	12	8	4	11	5	6	5	4	1	8	5	3	4	3	1	8	4	4
70-74	13	8	5	6	4	2	14	9	5	12	7	5	9	8	1	19	11	8	12	10	2	10	9	1	9	1	8
75-79	10	7	3	18	8	10	12	8	4	12	8	4	8	4	4	10	8	2	9	4	5	9	4	5	8	5	3
80+	22	11	11	20	7	13	15	0	15	17	4	13	17	8	9	20	9	11	17	9	8	10	6	4	14	9	5
Total	**88**	46	42	**97**	57	40	**92**	54	38	**99**	64	35	**91**	61	30	**85**	56	29	**84**	55	29	**56**	37	19	**67**	37	30

Source: Ministry of Justice, Cook Islands

Appendix 4: Number of referrals, Cook Islands: 2005--2009

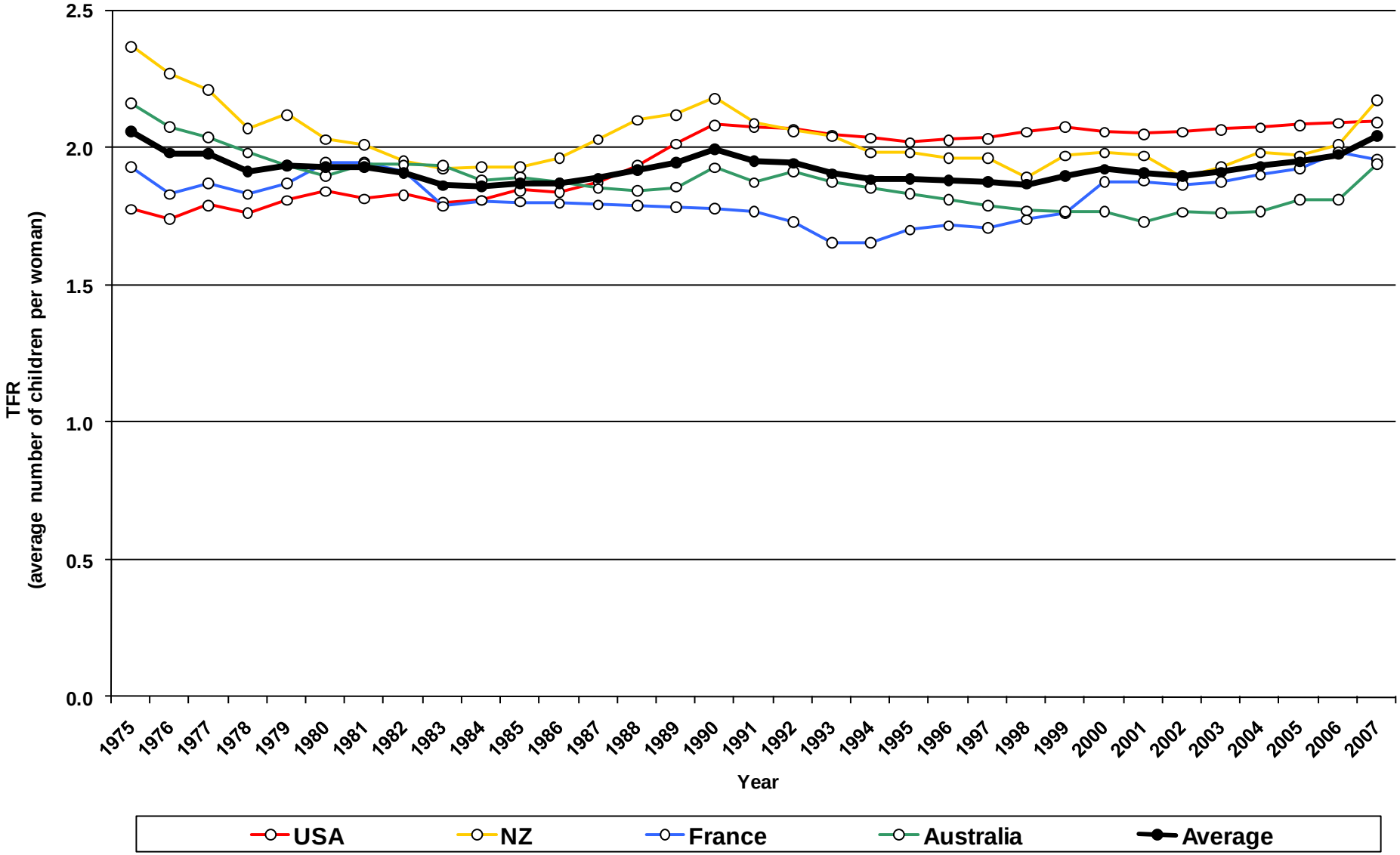
	2005	2006	2007	2008	2009
Males	2	2	4	3	4
Females	2	5	4	3	1
Total	**4**	**7**	**8**	**6**	**5**

Referrals: patients that were sent from the Cook Islands to New Zealand to receive special medical care, and who have died in New Zealand
Source: Ministry of Health, Cook Islands

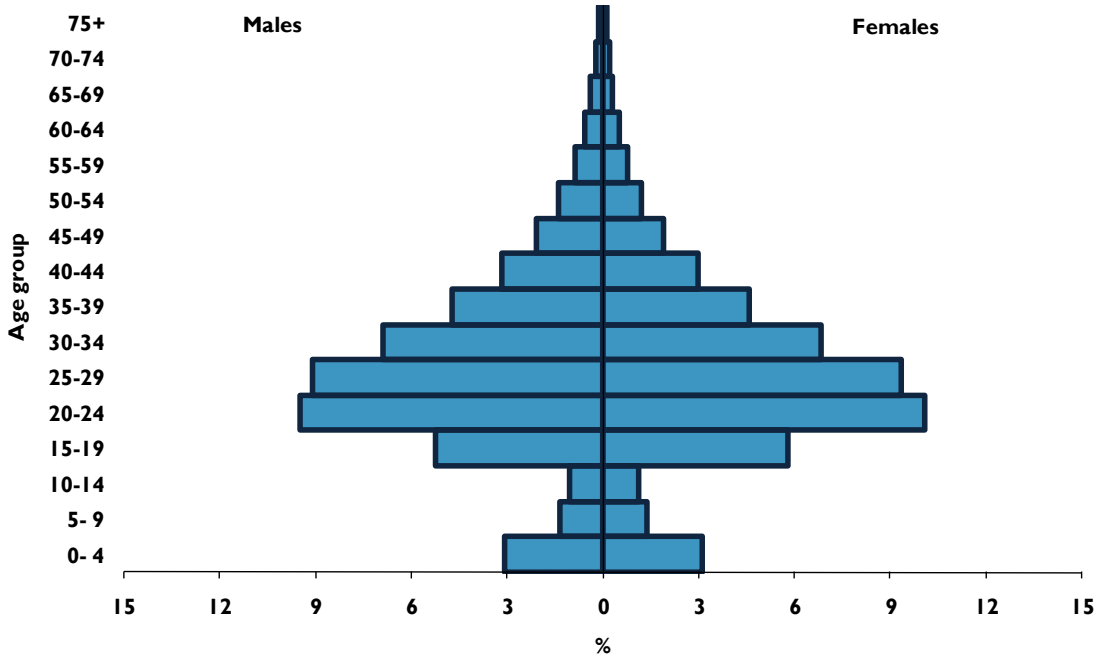
Appendix 5: Resident population aged 15 and older by labour market status, sex, and region, Cook Islands: 2006

Region/Sex	Labour Force					Non Labour Force					Total
	Employer/ Self employed	Employee for wage/salary	Unpaid family worker	Un-employed	Total	Full time student	Retired	Home duties	Not stated	Total	
Cook Islands	964	5,742	87	666	7,459	820	923	1,417	4	3,164	**10,623**
Males	605	3,080	53	348	4,086	423	499	358	1	1,281	5,367
Females	359	2,662	34	318	3,373	397	424	1,059	3	1,883	5,256
Rarotonga	748	4,401	46	328	5,523	566	587	573	-	1,726	**7,249**
Males	475	2,286	33	154	2,948	302	305	110	-	717	3,665
Females	273	2,115	13	174	2,575	264	282	463	-	1,009	3,584
Southern Group	163	1,011	24	236	1,434	195	285	613	4	1,097	**2,531**
Males	98	578	8	126	810	95	163	184	1	443	1,253
Females	65	433	16	110	624	100	122	429	3	654	1,278
Northern Group	53	330	17	102	502	59	51	231	-	341	**843**
Males	32	216	12	68	328	26	31	64	-	121	449
Females	21	114	5	34	174	33	20	167	-	220	394

Appendix 6: Total fertility rate (TFR) of Australia, France, New Zealand and the United States of America, and the average TFR of these four countries: 1975–2007



Appendix 7: Net migrants (in %) according to the UN family migration model



Source: United Nations Population Division, New York

Appendix 8: Projected population size according to nine projection scenarios (combination of three different fertility and migration assumptions), Cook Islands: 2010, 2030 and 2050

Year 2010			
Fertility assumption	**Migration assumption**		
(TFR from 2006 to 2036)	**Low (fast decline)**	**Medium (slow decline)**	**High (constant)**
High (constant) (2.5 → 2.5)	**15,696**	15,563	15,430
Medium (medium decline) (2.5 → 2.0)	15,662	**15,529**	15,396
Low (fast decline) (2.5 → 1.5)	15,629	15,497	**15,364**
Year 2030			
Fertility assumption	**Migration assumption**		
(TFR from 2006 to 2036)	**Low (fast decline)**	**Medium (slow decline)**	**High (constant)**
High (constant) (2.5 → 2.5)	**18,553**	17,319	16,085
Medium (medium decline) (2.5 → 2.0)	17,453	**16,261**	15,069
Low (fast decline) (2.5 → 1.5)	16,384	15,249	**14,114**
Year 2050			
Fertility assumption	**Migration assumption**		
(TFR from 2006 to 2036)	**Low (fast decline)**	**Medium (slow decline)**	**High (constant)**
High (constant) (2.5 → 2.5)	**21,856**	18,822	15,788
Medium (medium decline) (2.5 → 2.0)	18,810	**15,977**	13,144
Low (fast decline) (2.5 → 1.5)	16,165	13,566	**10,966**

Appendix 9: The demographic transition

According to the theory of demographic transition, over time all countries will undergo change from high rates of births and deaths to low rates of births and deaths. This transition process is usually closely associated with economic, social and scientific developments. This is assumed to happen in four distinct stages:

Stage 1: High birth rate, high death rate → little or no population growth
Stage 2: High birth rate, falling death rate → high growth
Stage 3: Declining birth rate, relatively low death rate → slowed growth
Stage 4: Low birth rate, low death rate → very low growth

Historically, high levels of births and deaths kept most populations from growing rapidly through time. In fact, many populations not only failed to grow but also completely died out when birth rates did not compensate for high death rates (**stage 1**). There are few populations/communities left today at stage 1.

Death rates eventually fell as living conditions, nutrition and public health improved. The decline in mortality usually preceded the decline in fertility, resulting in population growth during the transition period (**stage 2**). In Europe and other industrialised countries, death rates fell slowly. With the added benefit of medical advances, death rates fell more rapidly in the countries that began the transition in the 20th century. These are/were primarily developing countries. Their death rates often fell much faster than in European countries because they benefited from Western inventions and innovations.

In general, fertility rates fell neither as quickly nor as dramatically as death rates, and thus populations grew rapidly.

Stage 3 is characterized by falling birth rates, which occur for many reasons and vary from country to country and population to population. A decrease in birth rates may result from: a transition from a non-monetary to a monetary economy, urbanization, a change in values from a community emphasis to individualism, increasing emphasis on consumerism, improved education, availability of (modern) family planning methods (i.e. contraceptives), greater involvement of women in the workplace, rising cost of living, rising cost of raising children, and preferences in how people want to spend their time.

The demographic transition is regarded as completed when both birth and death rates have reached a low and stable level (**stage 4**). As a result, population growth is very low.

Originally, the theory of demographic transition included only the four stages described above. There is now another stage, the **post-transition period** (although it is uncertain whether all countries will reach this stage).

Post-transition period: Very low birth rate, low death rate → negative growth

When fertility falls to very low levels and stays there for a protracted period, a slow rate of population growth can turn into a negative one, resulting in a population decrease. Many countries in Europe and some in Asia now have TFRs well below two children per woman. The TFRs of the Republic of Korea, Ukraine, Czech Republic, Slovakia, Slovenia, Republic of Moldova, Bulgaria, and Belarus — all about 1.2 — are among the world's lowest, and those of several other countries were not far behind. The TFRs of Macao and Hong Kong were even less than 1 child per woman on average. Many of the factors that

lowered fertility in the first place — greater involvement of women in the workplace, rising cost of living, and preferences in how people want to spend their time — appear to be keeping fertility rates very low.

While the theory of demographic transition describes the population history of western Europe quite well, for many reasons developing countries do not always exhibit the same patterns of change. In some cases early contact with outside societies resulted in local epidemics, as groups succumbed to diseases against which they had no natural immunity, resulting in increased death rates. When health conditions improved as a result of the application of new and efficient disease control technologies, death rates declined, while birth rates sometimes increased. This combination of factors produced population growth rates in today's developing countries that are much higher than ever experienced in pre-industrial western Europe.

Stylised graph of the European demographic transition

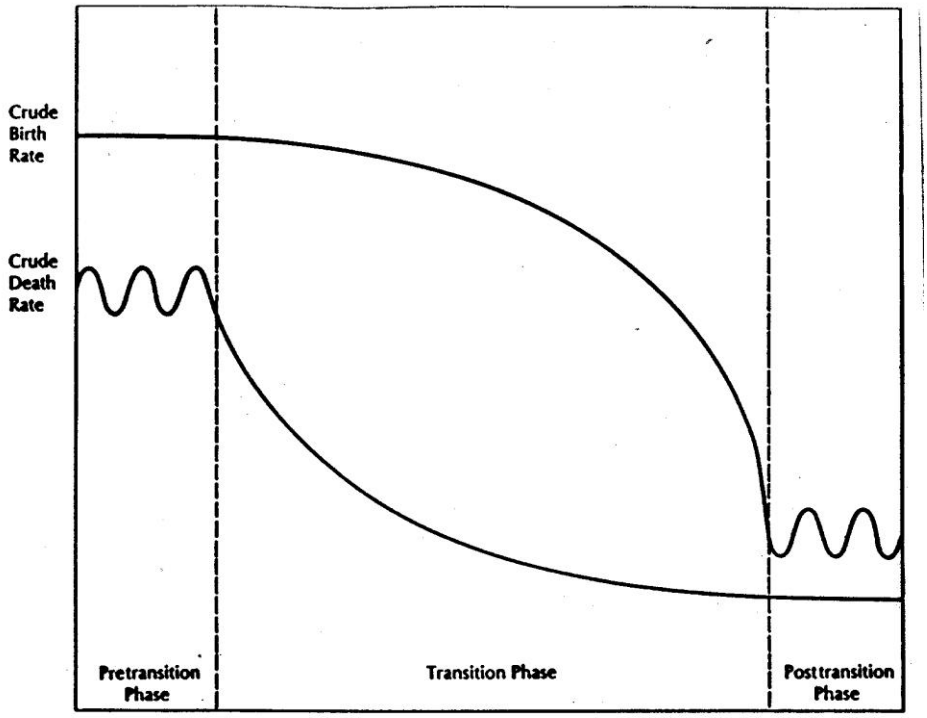


Figure 3–2 A SIMPLIFIED DIAGRAM OF THE EUROPEAN DEMOGRAPHIC TRANSITION
Source: Ansley J. Coale, 1974, p. 49.

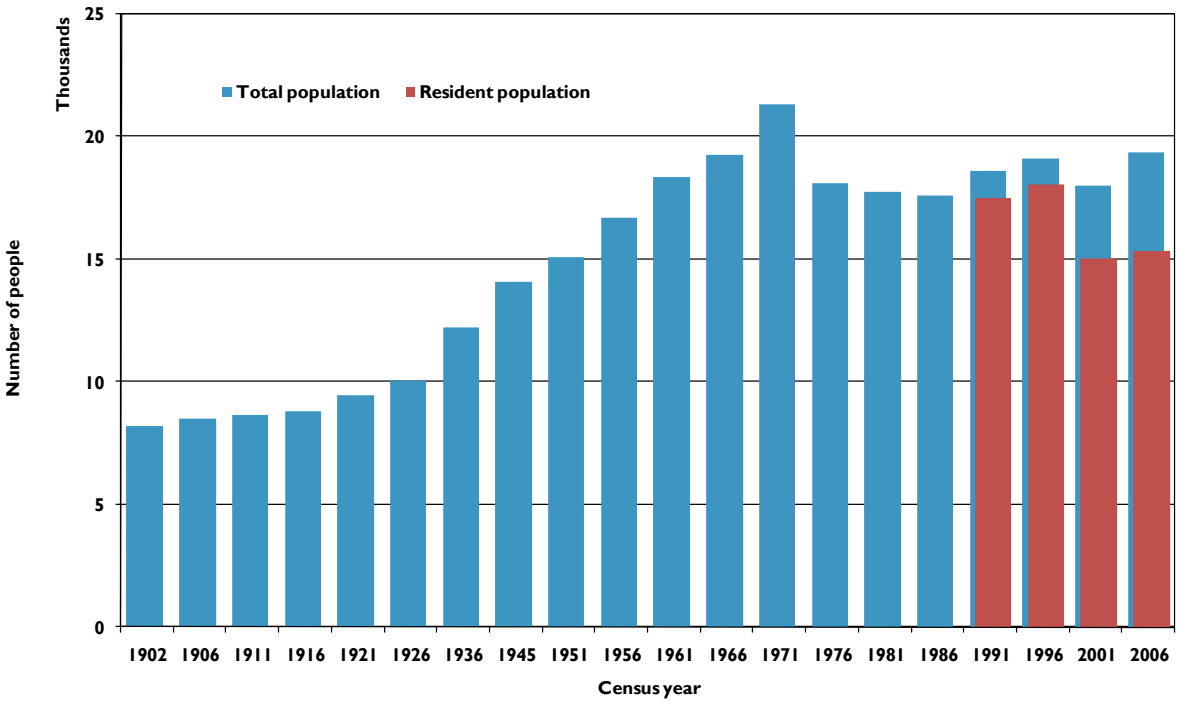
Sources: 2004. Population Handbook, Population Reference Bureau, Inc, Washington D.C., 5th Edition; 1999. Papua New Guinea National Population Policy 2000–2010, Department of Planning

Appendix 10: Population trend and structure of islands

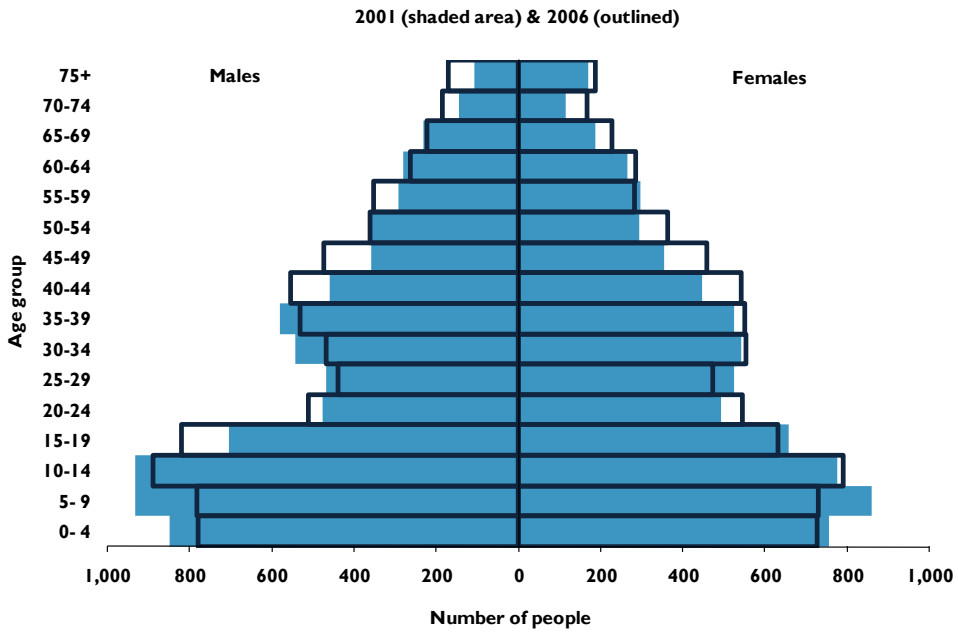
Note: Data shown in population pyramids and tables refer to the **resident** population

COOK ISLANDS

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

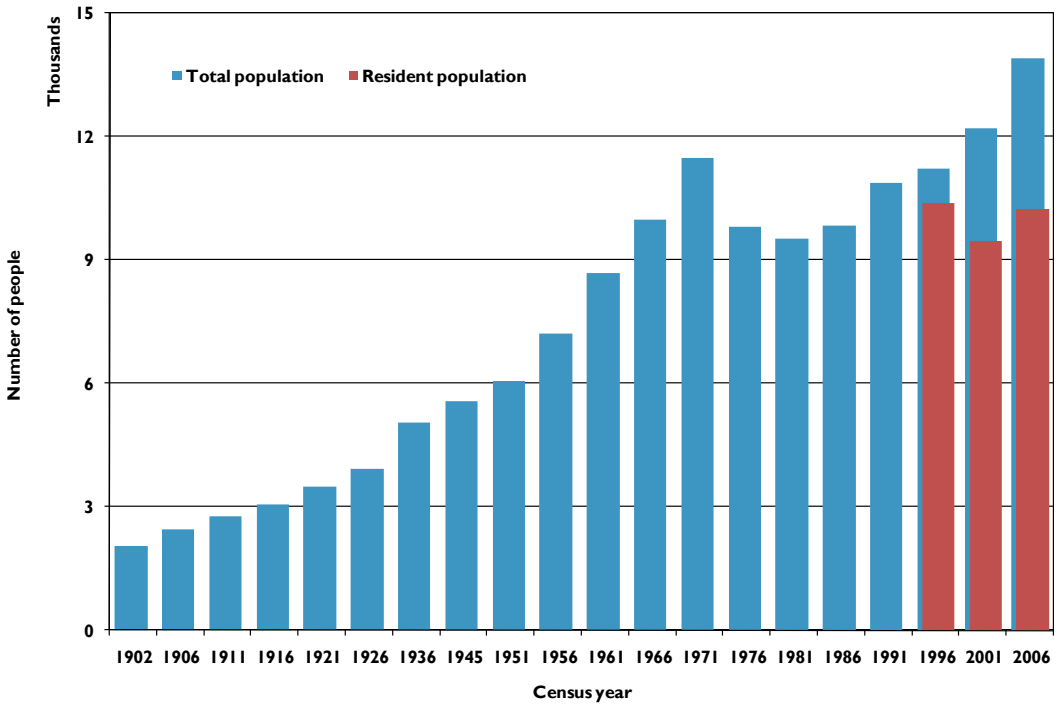


COOK ISLANDS

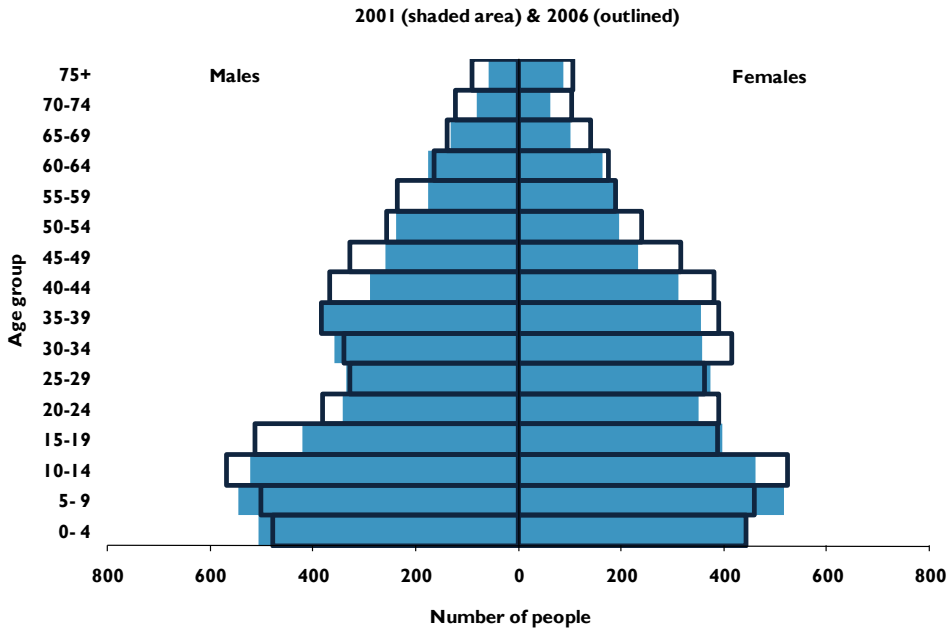
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	850	754	1,604	0-4	782	727	1,509
5-9	935	859	1,794	5-9	784	729	1,513
10-14	933	775	1,708	10-14	889	790	1,679
15-19	706	657	1,363	15-19	820	630	1,450
20-24	477	492	969	20-24	513	545	1,058
25-29	470	524	994	25-29	440	473	913
30-34	544	542	1,086	30-34	468	554	1,022
35-39	581	524	1,105	35-39	532	551	1,083
40-44	460	447	907	40-44	556	540	1,096
45-49	360	353	713	45-49	474	457	931
50-54	360	294	654	50-54	363	362	725
55-59	292	297	589	55-59	353	281	634
60-64	281	265	546	60-64	265	284	549
65-69	233	186	419	65-69	224	227	451
70-74	147	113	260	70-74	187	165	352
75+	109	170	279	75+	172	187	359
Total	7,738	7,252	**14,990**	Total	7,822	7,502	**15,324**
Population by broad age groups (in numbers)							
0-14	2,718	2,388	5,106	**0-14**	2,455	2,246	4,701
15-24	1,183	1,149	2,332	**15-24**	1,333	1,175	2,508
25-59	3,067	2,981	6,048	**25-59**	3,186	3,218	6,404
25-64	3,348	3,246	6,594	**25-64**	3,451	3,502	6,953
60+	770	734	1,504	**60+**	848	863	1,711
65+	489	469	958	**65+**	583	579	1,162
Population by broad age groups (in percentages)							
0-14	35	33	34	**0-14**	31	30	31
15-24	15	16	16	**15-24**	17	16	16
25-59	40	41	40	**25-59**	41	43	42
25-64	43	45	44	**25-64**	44	47	45
60+	10	10	10	**60+**	11	12	11
65+	6	6	6	**65+**	7	8	8
Age dependency ratio							
15-59			**79**	**15-59**			**72**
15-64			**68**	**15-64**			**62**
Sex ratio (males per 100 females)							
			107				**104**
Median age (years)							
Total	**24.7**	**25.9**	**25.3**	**Total**	**26.4**	**28.5**	**27.5**
Population change 2001-2006							
					Males	Females	**Total**
Total difference					84	250	**334**
Average annual change (in numbers)					17	50	**67**
Percentage difference (%)					1.1	3.4	**2.2**
Average annual growth rate (%)					0.2	0.7	**0.4**

RAROTONGA

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006



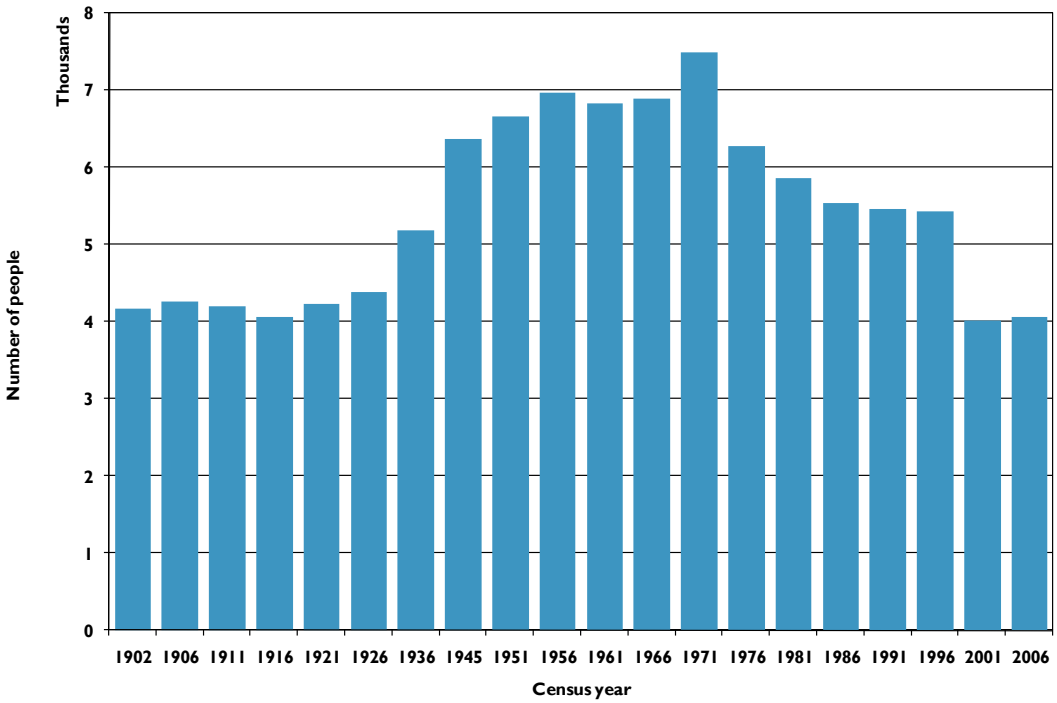
RAROTONGA

2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	506	441	947	0-4	480	442	922
5-9	547	517	1,064	5-9	503	459	962
10-14	522	460	982	10-14	570	523	1,093
15-19	422	395	817	15-19	514	386	900
20-24	342	350	692	20-24	382	388	770
25-29	335	374	709	25-29	330	361	691
30-34	358	357	715	30-34	340	415	755
35-39	389	354	743	35-39	385	390	775
40-44	289	311	600	40-44	368	379	747
45-49	259	232	491	45-49	330	316	646
50-54	239	196	435	50-54	258	238	496
55-59	177	193	370	55-59	237	189	426
60-64	177	163	340	60-64	166	174	340
65-69	132	101	233	65-69	140	140	280
70-74	81	61	142	70-74	123	103	226
75+	58	86	144	75+	92	105	197
Total	4,833	4,591	**9,424**	Total	5,218	5,008	**10,226**
Population by broad age groups (in numbers)							
0-14	1,575	1,418	2,993	**0-14**	1,553	1,424	2,977
15-24	764	745	1,509	**15-24**	896	774	1,670
25-59	2,046	2,017	4,063	**25-59**	2,248	2,288	4,536
25-64	2,223	2,180	4,403	**25-64**	2,414	2,462	4,876
60+	448	411	859	**60+**	521	522	1,043
65+	271	248	519	**65+**	355	348	703
Population by broad age groups (in percentages)							
0-14	33	31	32	**0-14**	30	28	29
15-24	16	16	16	**15-24**	17	15	16
25-59	42	44	43	**25-59**	43	46	44
25-64	46	47	47	**25-64**	46	49	48
60+	9	9	9	**60+**	10	10	10
65+	6	5	6	**65+**	7	7	7
Age dependency ratio							
15-59			**69**	**15-59**			**65**
15-64			**59**	**15-64**			**56**
Sex ratio (males per 100 females)							
			105				**104**
Median age (years)							
Total	**26.2**	**26.8**	**26.5**	**Total**	**27.4**	**29.2**	**28.4**

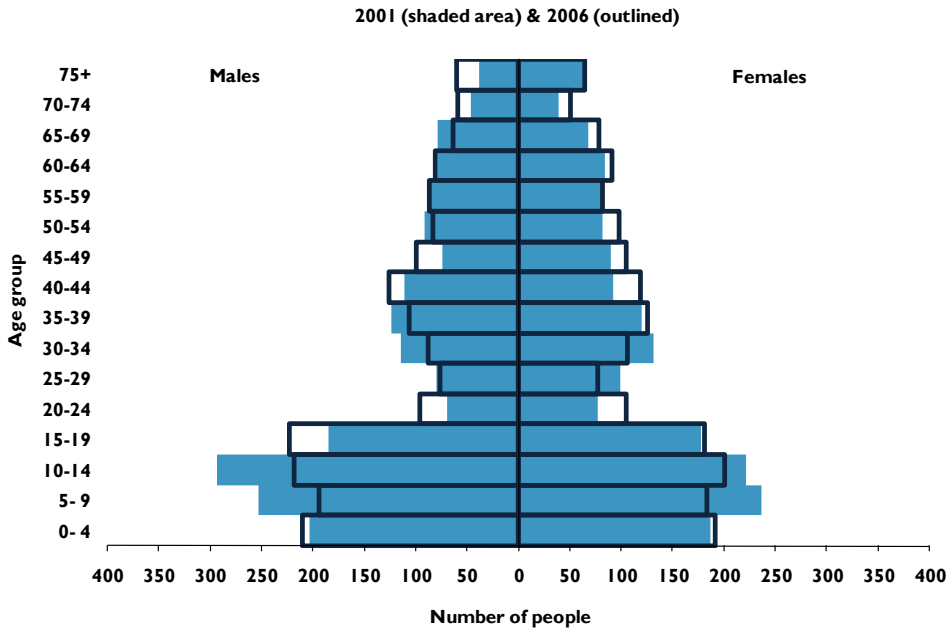
Population growth 2001-2006			
	Males	Females	**Total**
Total difference	385	417	**802**
Average annual change (in numbers)	77	83	**160**
Percentage difference (%)	8.0	9.1	**8.5**
Average annual growth rate (%)	1.5	1.7	**1.6**

SOUTHERN GROUP ISLANDS

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

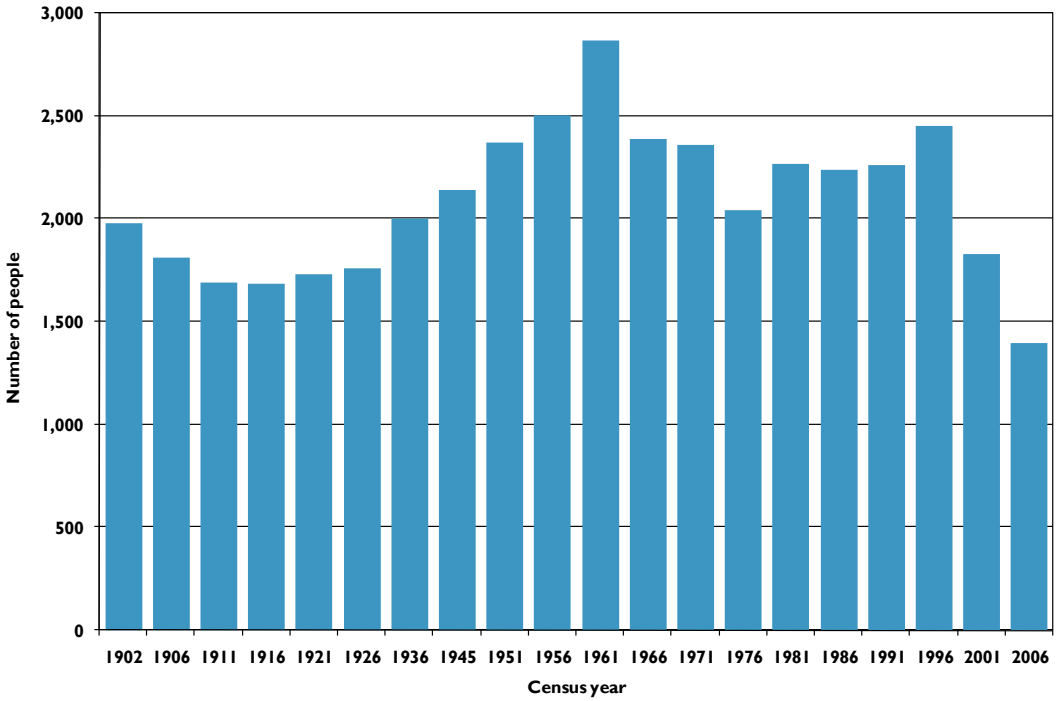


Southern Group Islands

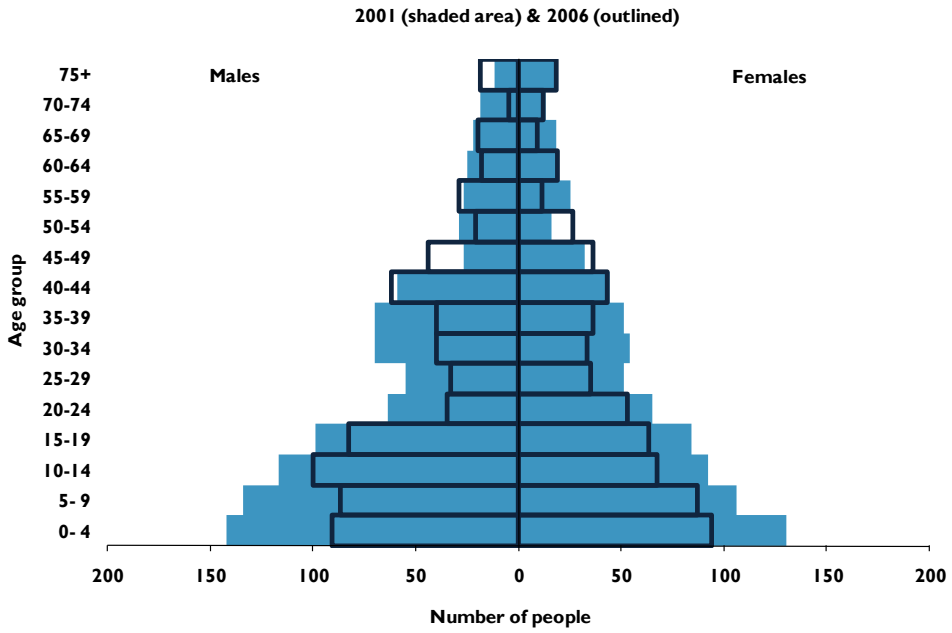
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	204	186	390	0-4	211	191	402
5-9	253	236	489	5-9	194	183	377
10-14	294	221	515	10-14	219	200	419
15-19	185	177	362	15-19	223	181	404
20-24	70	77	147	20-24	96	104	200
25-29	80	99	179	25-29	77	77	154
30-34	115	131	246	30-34	88	106	194
35-39	124	119	243	35-39	107	125	232
40-44	111	92	203	40-44	126	118	244
45-49	74	89	163	45-49	100	105	205
50-54	92	81	173	50-54	84	98	182
55-59	88	80	168	55-59	87	81	168
60-64	79	84	163	60-64	81	91	172
65-69	79	67	146	65-69	64	78	142
70-74	47	39	86	70-74	59	50	109
75+	39	65	104	75+	61	64	125
Total	1,934	1,843	**3,777**	Total	1,877	1,852	**3,729**
Population by broad age groups (in numbers)							
0-14	751	643	1,394	**0-14**	624	574	1,198
15-24	255	254	509	**15-24**	319	285	604
25-59	684	691	1,375	**25-59**	669	710	1,379
25-64	763	775	1,538	**25-64**	750	801	1,551
60+	244	255	499	**60+**	265	283	548
65+	165	171	336	**65+**	184	192	376
Population by broad age groups (in percentages)							
0-14	39	35	37	**0-14**	33	31	32
15-24	13	14	13	**15-24**	17	15	16
25-59	35	37	36	**25-59**	36	38	37
25-64	39	42	41	**25-64**	40	43	42
60+	13	14	13	**60+**	14	15	15
65+	9	9	9	**65+**	10	10	10
Age dependency ratio							
15-59			**100**	**15-59**			**88**
15-64			**85**	**15-64**			**73**
Sex ratio (males per 100 females)							
			105				**101**
Median age (years)							
Total	**22.3**	**26.3**	**24.5**	**Total**	**24.8**	**29.4**	**27.0**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-57	9	**-48**
Average annual change (in numbers)					-11	2	**-10**
Percentage difference (%)					-2.9	0.5	**-1.3**
Average annual growth rate (%)					-0.6	0.1	**-0.3**

NORTHERN GROUP ISLANDS

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

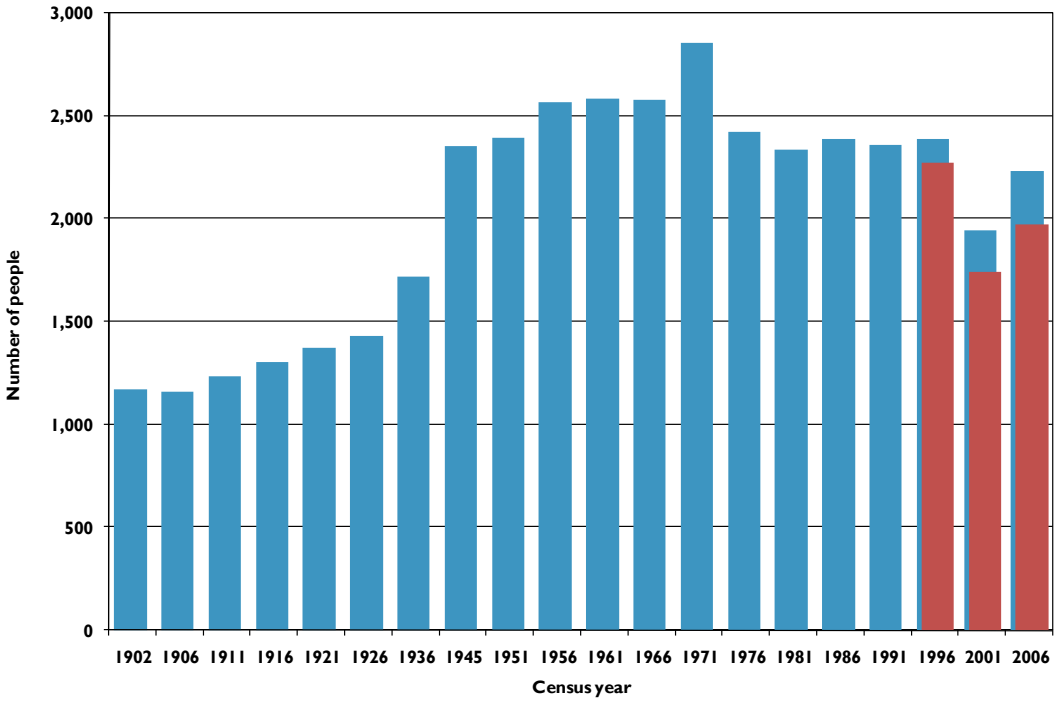


Northern Group Islands

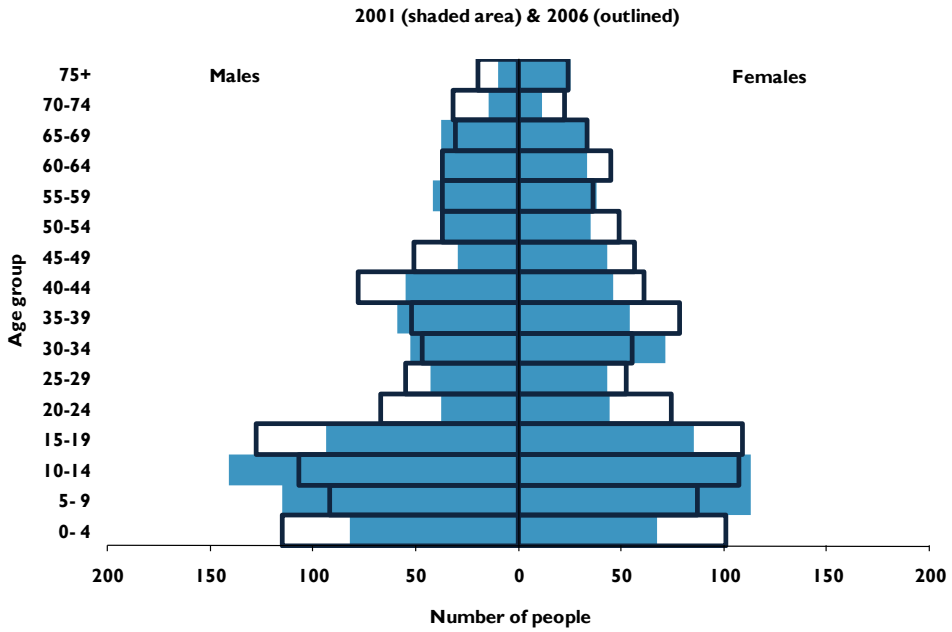
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	142	130	272	0-4	91	94	185
5-9	134	106	240	5-9	87	87	174
10-14	117	92	209	10-14	100	67	167
15-19	99	84	183	15-19	83	63	146
20-24	64	65	129	20-24	35	53	88
25-29	55	51	106	25-29	33	35	68
30-34	70	54	124	30-34	40	33	73
35-39	70	51	121	35-39	40	36	76
40-44	59	44	103	40-44	62	43	105
45-49	27	32	59	45-49	44	36	80
50-54	29	16	45	50-54	21	26	47
55-59	27	25	52	55-59	29	11	40
60-64	25	18	43	60-64	18	19	37
65-69	22	18	40	65-69	20	9	29
70-74	19	13	32	70-74	5	12	17
75+	12	19	31	75+	19	18	37
Total	971	818	**1,789**	Total	727	642	**1,369**
Population by broad age groups (in numbers)							
0-14	393	328	721	**0-14**	278	248	526
15-24	163	149	312	**15-24**	118	116	234
25-59	337	273	610	**25-59**	269	220	489
25-64	362	291	653	**25-64**	287	239	526
60+	78	68	146	**60+**	62	58	120
65+	53	50	103	**65+**	44	39	83
Population by broad age groups (in percentages)							
0-14	40	40	40	**0-14**	38	39	38
15-24	17	18	17	**15-24**	16	18	17
25-59	35	33	34	**25-59**	37	34	36
25-64	37	36	37	**25-64**	39	37	38
60+	8	8	8	**60+**	9	9	9
65+	5	6	6	**65+**	6	6	6
Age dependency ratio							
15-59			**94**	**15-59**			**89**
15-64			**85**	**15-64**			**80**
Sex ratio (males per 100 females)							
			119				**113**
Median age (years)							
Total	**19.7**	**19.9**	**19.8**	**Total**	**20.4**	**21.0**	**20.7**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-244	-176	**-420**
Average annual change (in numbers)					-49	-35	**-84**
Percentage difference (%)					-25.1	-21.5	**-23.5**
Average annual growth rate (%)					-5.8	-4.8	**-5.4**

AITUTAKI

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006



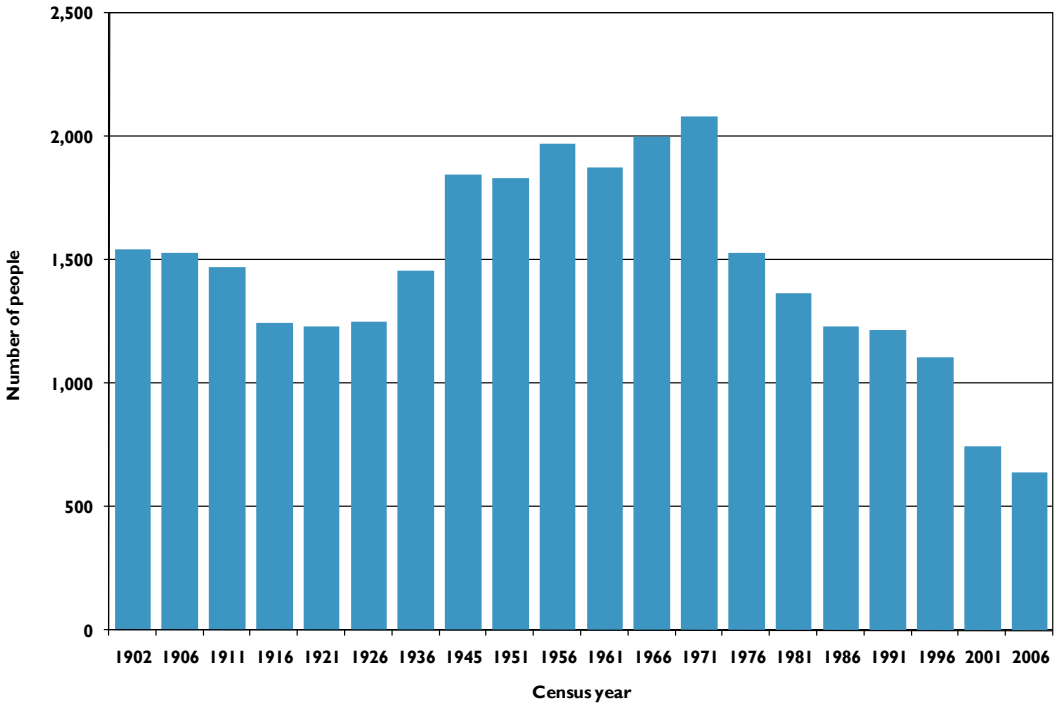
AITUTAKI

2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	82	67	149	0-4	115	101	216
5-9	115	113	228	5-9	92	87	179
10-14	141	113	254	10-14	107	107	214
15-19	94	85	179	15-19	128	109	237
20-24	38	44	82	20-24	67	74	141
25-29	43	43	86	25-29	55	52	107
30-34	53	71	124	30-34	47	55	102
35-39	59	54	113	35-39	52	78	130
40-44	55	46	101	40-44	78	61	139
45-49	30	43	73	45-49	51	56	107
50-54	37	35	72	50-54	37	49	86
55-59	42	38	80	55-59	37	36	73
60-64	37	33	70	60-64	37	45	82
65-69	38	33	71	65-69	31	33	64
70-74	15	11	26	70-74	32	22	54
75+	10	25	35	75+	20	24	44
Total	889	854	**1,743**	Total	986	989	**1,975**
Population by broad age groups (in numbers)							
0-14	338	293	631	**0-14**	314	295	609
15-24	132	129	261	**15-24**	195	183	378
25-59	319	330	649	**25-59**	357	387	744
25-64	356	363	719	**25-64**	394	432	826
60+	100	102	202	**60+**	120	124	244
65+	63	69	132	**65+**	83	79	162
Population by broad age groups (in percentages)							
0-14	38	34	36	**0-14**	32	30	31
15-24	15	15	15	**15-24**	20	19	19
25-59	36	39	37	**25-59**	36	39	38
25-64	40	43	41	**25-64**	40	44	42
60+	11	12	12	**60+**	12	13	12
65+	7	8	8	**65+**	8	8	8
Age dependency ratio							
15-59			**92**	**15-59**			**76**
15-64			**78**	**15-64**			**64**
Sex ratio (males per 100 females)							
			104				**100**
Median age (years)							
Total	**21.7**	**25.6**	**23.8**	**Total**	**23.8**	**26.6**	**25.0**

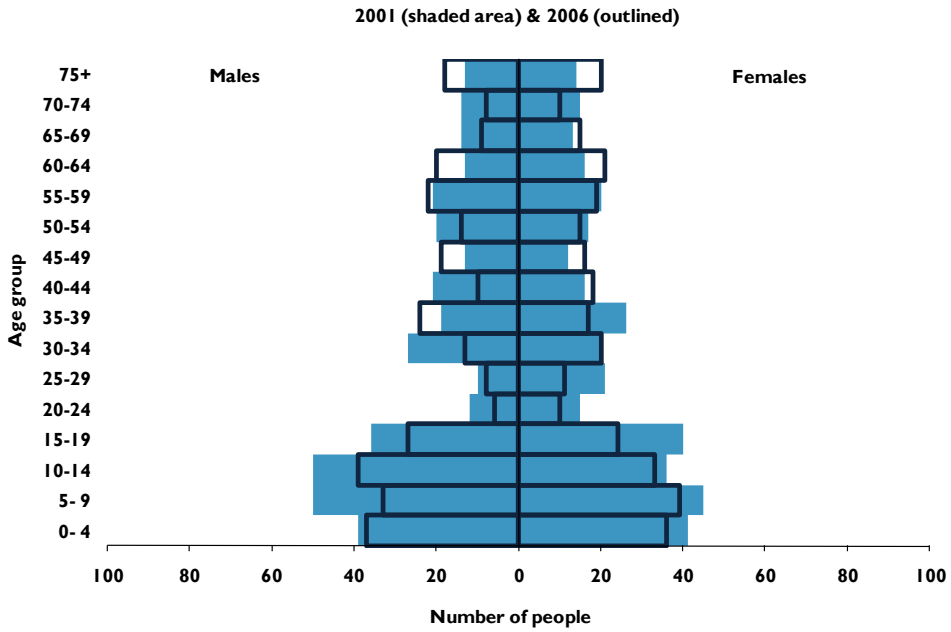
Population growth 2001-2006			
	Males	Females	**Total**
Total difference	97	135	**232**
Average annual change (in numbers)	19	27	**46**
Percentage difference (%)	10.9	15.8	**13.3**
Average annual growth rate (%)	2.1	2.9	**2.5**

MANGAIA

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006



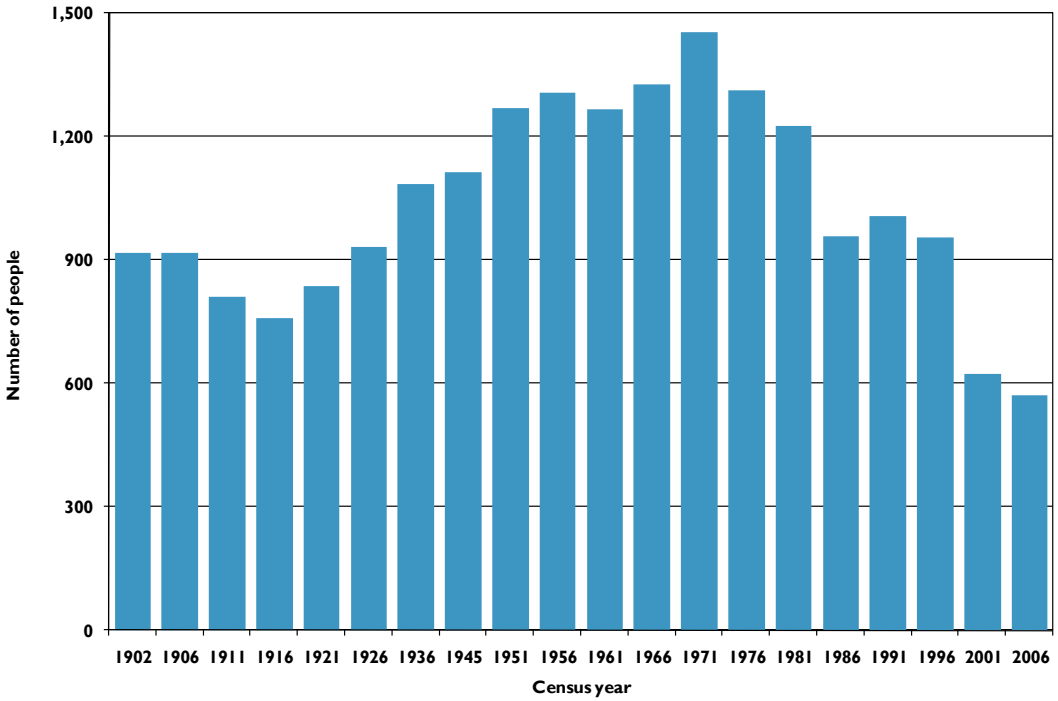
MANGAIA

2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	39	41	80	0-4	37	36	73
5-9	50	45	95	5-9	33	39	72
10-14	50	36	86	10-14	39	33	72
15-19	36	40	76	15-19	27	24	51
20-24	12	15	27	20-24	6	10	16
25-29	10	21	31	25-29	8	11	19
30-34	27	20	47	30-34	13	20	33
35-39	19	26	45	35-39	24	17	41
40-44	21	16	37	40-44	10	18	28
45-49	13	12	25	45-49	19	16	35
50-54	20	17	37	50-54	14	15	29
55-59	21	20	41	55-59	22	19	41
60-64	13	16	29	60-64	20	21	41
65-69	14	13	27	65-69	9	15	24
70-74	14	15	29	70-74	8	10	18
75+	13	14	27	75+	18	20	38
Total	372	367	**739**	Total	307	324	**631**
Population by broad age groups (in numbers)							
0-14	139	122	261	**0-14**	109	108	217
15-24	48	55	103	**15-24**	33	34	67
25-59	131	132	263	**25-59**	110	116	226
25-64	144	148	292	**25-64**	130	137	267
60+	54	58	112	**60+**	55	66	121
65+	41	42	83	**65+**	35	45	80
Population by broad age groups (in percentages)							
0-14	37	33	35	**0-14**	36	33	34
15-24	13	15	14	**15-24**	11	10	11
25-59	35	36	36	**25-59**	36	36	36
25-64	39	40	40	**25-64**	42	42	42
60+	15	16	15	**60+**	18	20	19
65+	11	11	11	**65+**	11	14	13
Age dependency ratio							
15-59			**102**	**15-59**			**115**
15-64			**87**	**15-64**			**89**
Sex ratio (males per 100 females)							
			101				**95**
Median age (years)							
Total	**24.8**	**26.7**	**26.0**	**Total**	**31.5**	**32.4**	**32.0**

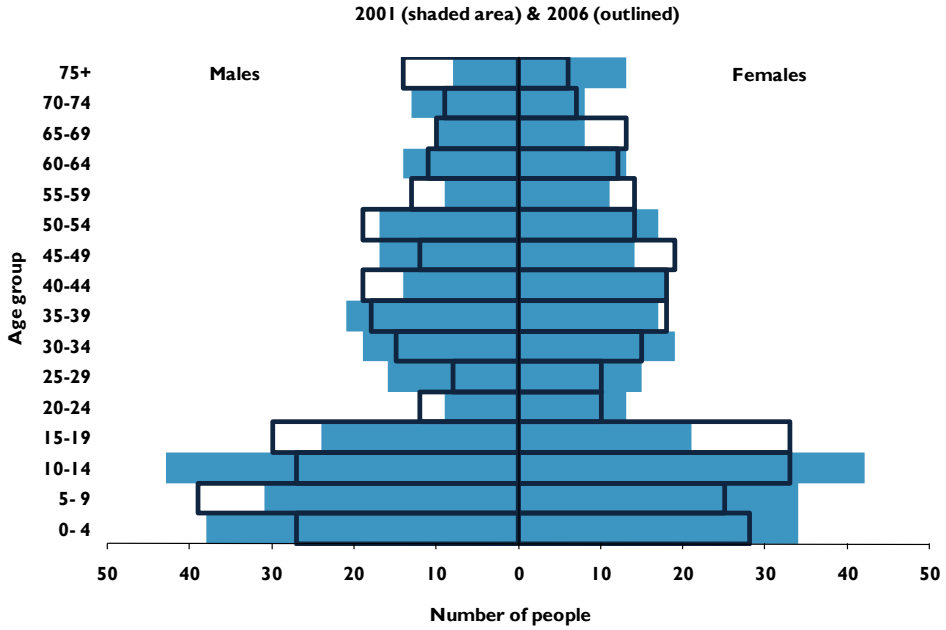
Population growth 2001-2006			
	Males	Females	**Total**
Total difference	-65	-43	**-108**
Average annual change (in numbers)	-13	-9	**-22**
Percentage difference (%)	-17.5	-11.7	**-14.6**
Average annual growth rate (%)	-3.8	-2.5	**-3.2**

ATIU

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

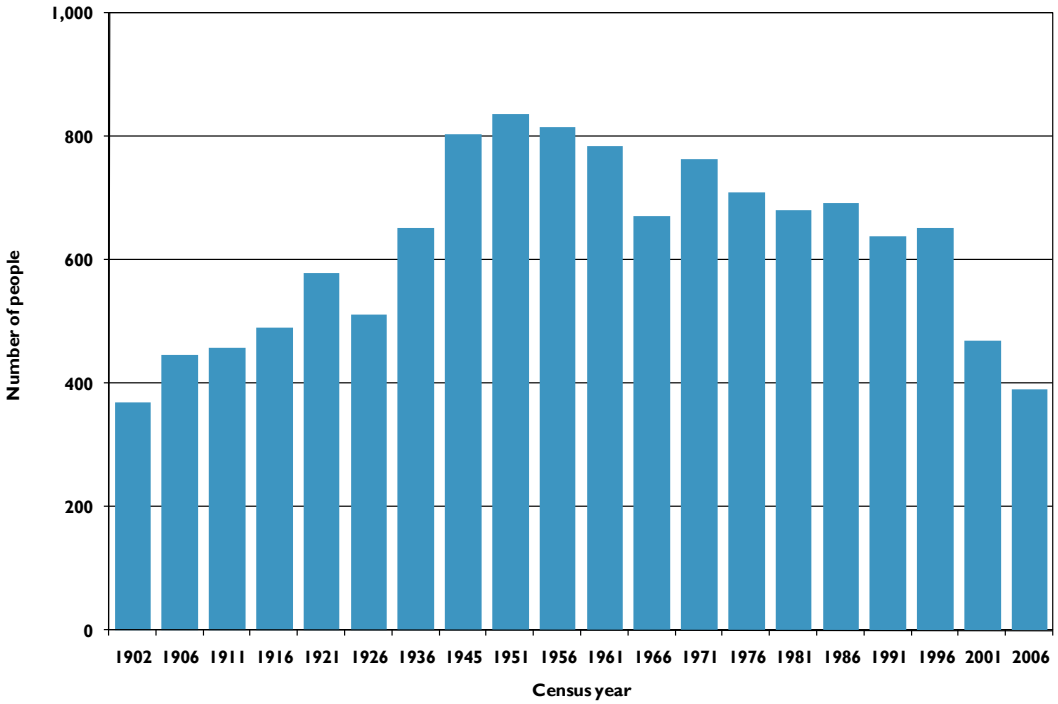


ATIU

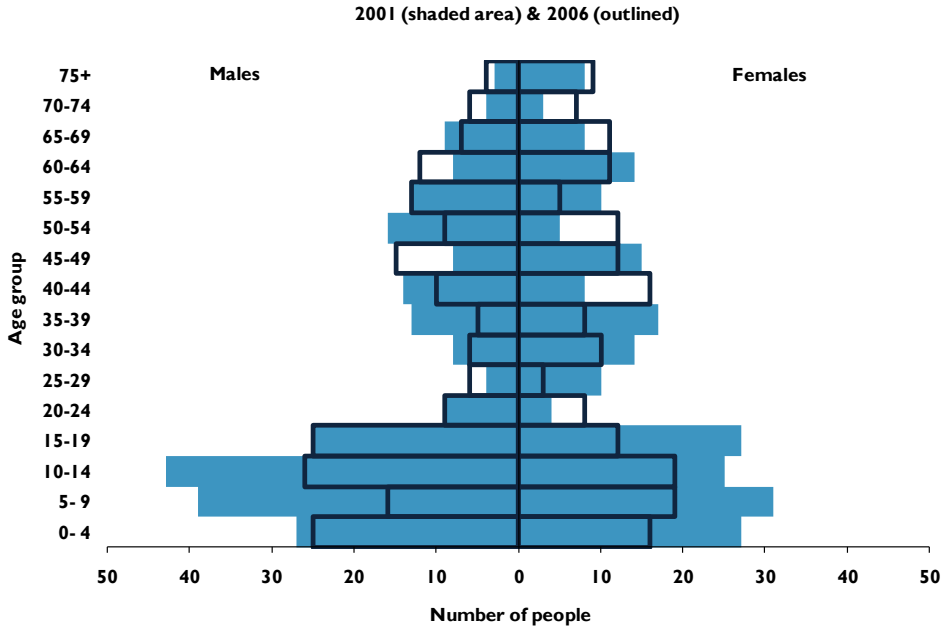
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	38	34	72	0-4	27	28	55
5-9	31	34	65	5-9	39	25	64
10-14	43	42	85	10-14	27	33	60
15-19	24	21	45	15-19	30	33	63
20-24	9	13	22	20-24	12	10	22
25-29	16	15	31	25-29	8	10	18
30-34	19	19	38	30-34	15	15	30
35-39	21	17	38	35-39	18	18	36
40-44	14	18	32	40-44	19	18	37
45-49	17	14	31	45-49	12	19	31
50-54	17	17	34	50-54	19	14	33
55-59	9	11	20	55-59	13	14	27
60-64	14	13	27	60-64	11	12	23
65-69	10	8	18	65-69	10	13	23
70-74	13	8	21	70-74	9	7	16
75+	8	13	21	75+	14	6	20
Total	303	297	**600**	Total	283	275	**558**
Population by broad age groups (in numbers)							
0-14	112	110	222	**0-14**	93	86	179
15-24	33	34	67	**15-24**	42	43	85
25-59	113	111	224	**25-59**	104	108	212
25-64	127	124	251	**25-64**	115	120	235
60+	45	42	87	**60+**	44	38	82
65+	31	29	60	**65+**	33	26	59
Population by broad age groups (in percentages)							
0-14	37	37	37	**0-14**	33	31	32
15-24	11	11	11	**15-24**	15	16	15
25-59	37	37	37	**25-59**	37	39	38
25-64	42	42	42	**25-64**	41	44	42
60+	15	14	15	**60+**	16	14	15
65+	10	10	10	**65+**	12	9	11
Age dependency ratio							
15-59			**106**	**15-59**			**88**
15-64			**89**	**15-64**			**74**
Sex ratio (males per 100 females)							
			102				**103**
Median age (years)							
Total	**27.2**	**26.7**	**26.9**	**Total**	**29.4**	**29.5**	**29.3**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-20	-22	**-42**
Average annual change (in numbers)					-4	-4	**-8**
Percentage difference (%)					-6.6	-7.4	**-7.0**
Average annual growth rate (%)					-1.4	-1.5	**-1.5**

MAUKE

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

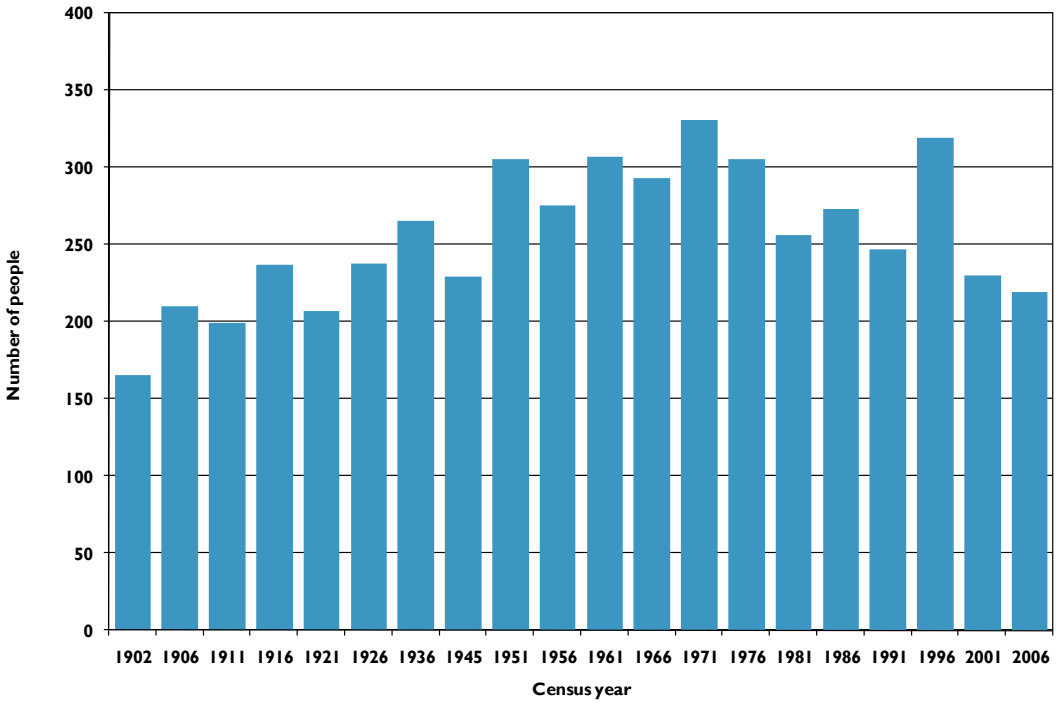


MAUKE

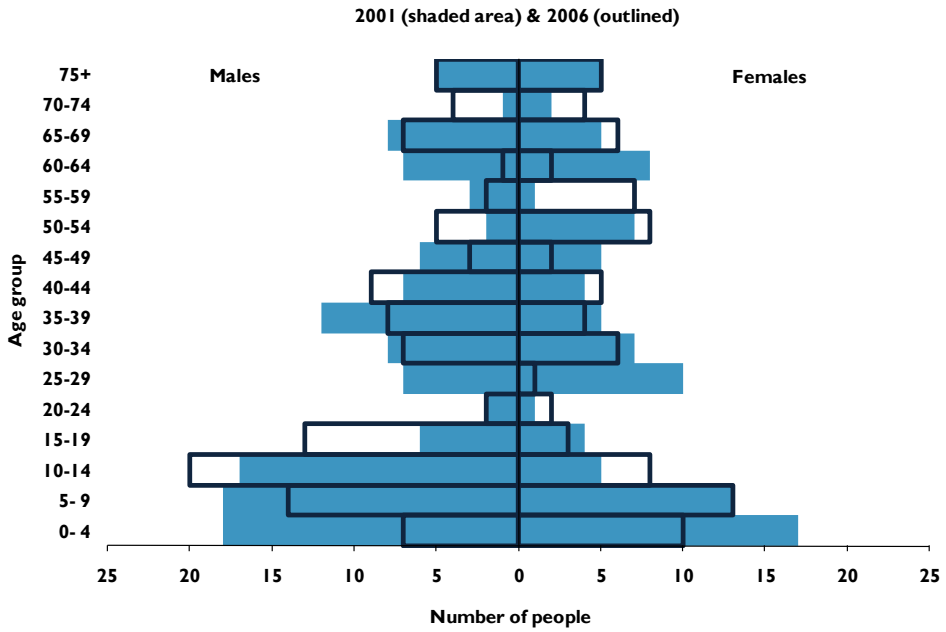
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	27	27	54	0-4	25	16	41
5-9	39	31	70	5-9	16	19	35
10-14	43	25	68	10-14	26	19	45
15-19	25	27	52	15-19	25	12	37
20-24	9	4	13	20-24	9	8	17
25-29	4	10	14	25-29	6	3	9
30-34	8	14	22	30-34	6	10	16
35-39	13	17	30	35-39	5	8	13
40-44	14	8	22	40-44	10	16	26
45-49	8	15	23	45-49	15	12	27
50-54	16	5	21	50-54	9	12	21
55-59	13	10	23	55-59	13	5	18
60-64	8	14	22	60-64	12	11	23
65-69	9	8	17	65-69	7	11	18
70-74	4	3	7	70-74	6	7	13
75+	3	8	11	75+	4	9	13
Total	243	226	**469**	Total	194	178	**372**
Population by broad age groups (in numbers)							
0-14	109	83	192	**0-14**	67	54	121
15-24	34	31	65	**15-24**	34	20	54
25-59	76	79	155	**25-59**	64	66	130
25-64	84	93	177	**25-64**	76	77	153
60+	24	33	57	**60+**	29	38	67
65+	16	19	35	**65+**	17	27	44
Population by broad age groups (in percentages)							
0-14	45	37	41	**0-14**	35	30	33
15-24	14	14	14	**15-24**	18	11	15
25-59	31	35	33	**25-59**	33	37	35
25-64	35	41	38	**25-64**	39	43	41
60+	10	15	12	**60+**	15	21	18
65+	7	8	7	**65+**	9	15	12
Age dependency ratio							
15-59			**113**	**15-59**			**102**
15-64			**94**	**15-64**			**80**
Sex ratio (males per 100 females)							
			108				**109**
Median age (years)							
Total	**17.6**	**24.4**	**19.1**	**Total**	**23.1**	**36.6**	**30.8**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-49	-48	**-97**
Average annual change (in numbers)					-10	-10	**-19**
Percentage difference (%)					-20.2	-21.2	**-20.7**
Average annual growth rate (%)					-4.5	-4.8	**-4.6**

MITIARO

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

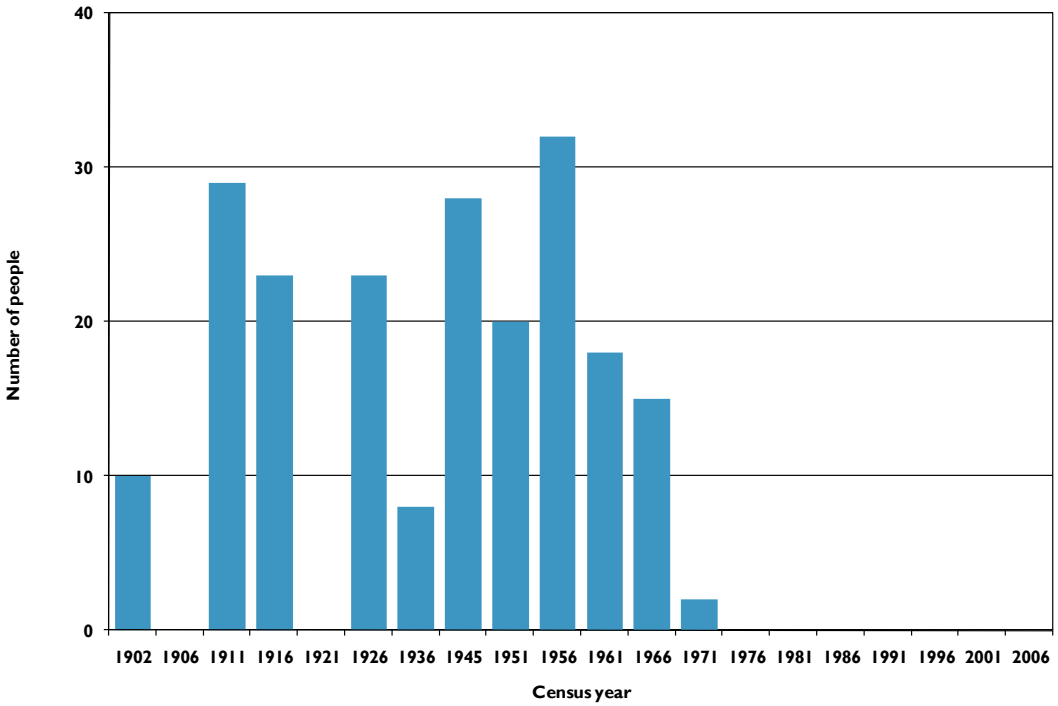


MITIARO

2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	18	17	35	0-4	7	10	17
5-9	18	13	31	5-9	14	13	27
10-14	17	5	22	10-14	20	8	28
15-19	6	4	10	15-19	13	3	16
20-24	2	1	3	20-24	2	2	4
25-29	7	10	17	25-29	0	1	1
30-34	8	7	15	30-34	7	6	13
35-39	12	5	17	35-39	8	4	12
40-44	7	4	11	40-44	9	5	14
45-49	6	5	11	45-49	3	2	5
50-54	2	7	9	50-54	5	8	13
55-59	3	1	4	55-59	2	7	9
60-64	7	8	15	60-64	1	2	3
65-69	8	5	13	65-69	7	6	13
70-74	1	2	3	70-74	4	4	8
75+	5	5	10	75+	5	5	10
Total	127	99	**226**	Total	107	86	**193**
Population by broad age groups (in numbers)							
0-14	53	35	88	**0-14**	41	31	72
15-24	8	5	13	**15-24**	15	5	20
25-59	45	39	84	**25-59**	34	33	67
25-64	52	47	99	**25-64**	35	35	70
60+	21	20	41	**60+**	17	17	34
65+	14	12	26	**65+**	16	15	31
Population by broad age groups (in percentages)							
0-14	42	35	39	**0-14**	38	36	37
15-24	6	5	6	**15-24**	14	6	10
25-59	35	39	37	**25-59**	32	38	35
25-64	41	47	44	**25-64**	33	41	36
60+	17	20	18	**60+**	16	20	18
65+	11	12	12	**65+**	15	17	16
Age dependency ratio							
15-59			**133**	**15-59**			**122**
15-64			**102**	**15-64**			**114**
Sex ratio (males per 100 females)							
			128				**124**
Median age (years)							
Total	**27.1**	**30.0**	**28.7**	**Total**	**20.0**	**35.4**	**31.5**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-20	-13	**-33**
Average annual change (in numbers)					-4	-3	**-7**
Percentage difference (%)					-15.7	-13.1	**-14.6**
Average annual growth rate (%)					-3.4	-2.8	**-3.2**

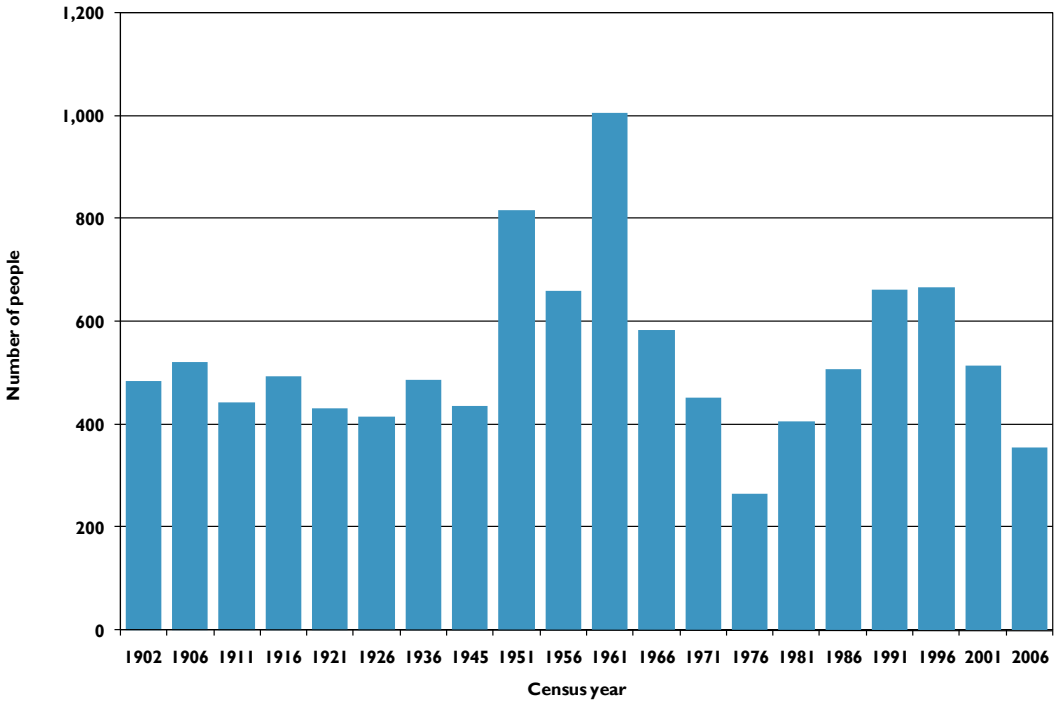
MANUAE

Population trend: 1902–2006

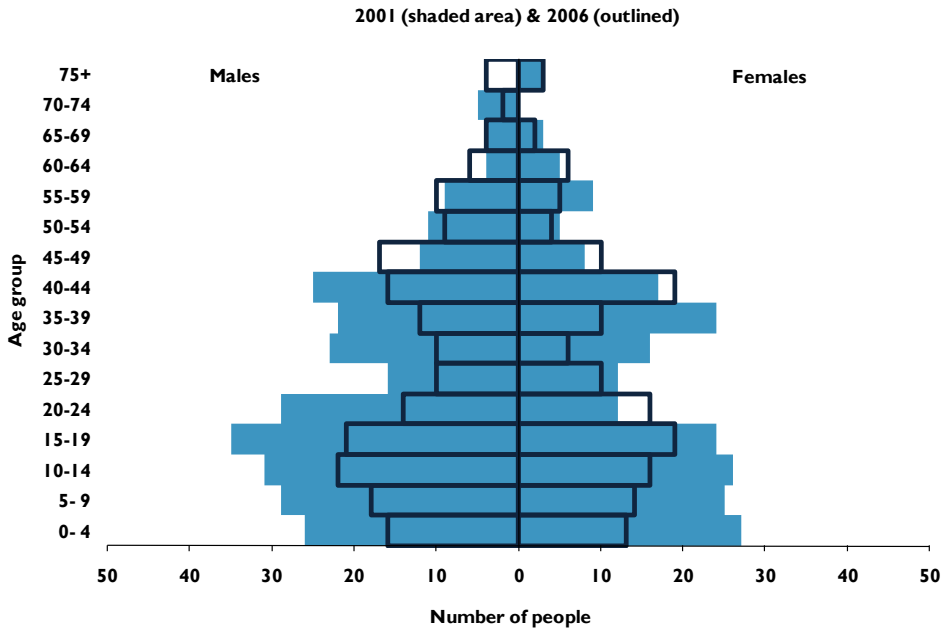


MANIHIKI

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

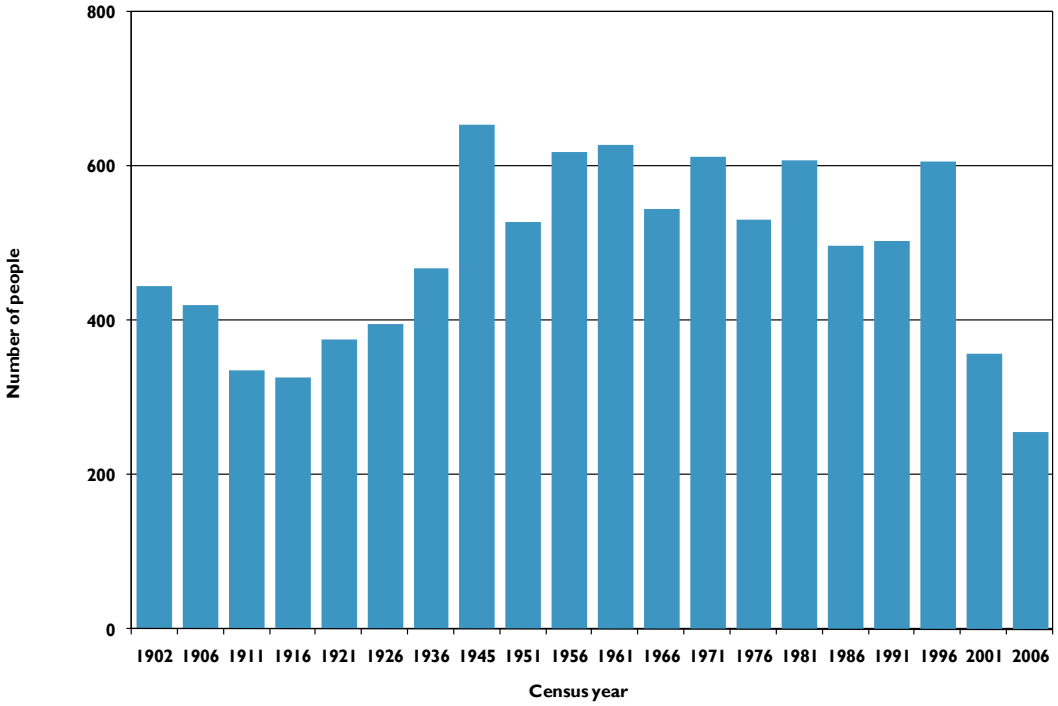


MANIHIKI

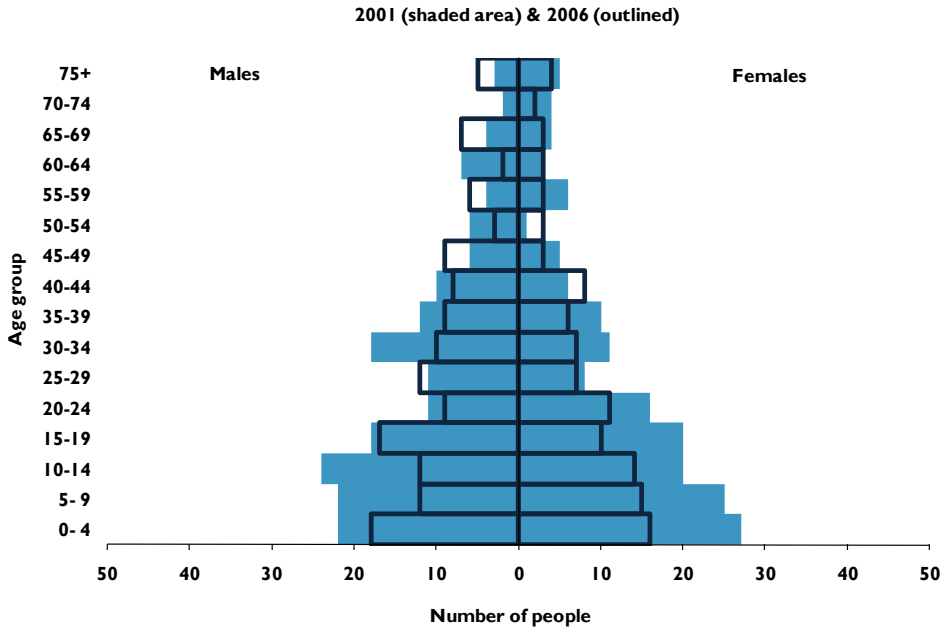
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	26	27	53	0-4	16	13	29
5-9	29	25	54	5-9	18	14	32
10-14	31	26	57	10-14	22	16	38
15-19	35	24	59	15-19	21	19	40
20-24	29	12	41	20-24	14	16	30
25-29	16	12	28	25-29	10	10	20
30-34	23	16	39	30-34	10	6	16
35-39	22	24	46	35-39	12	10	22
40-44	25	17	42	40-44	16	19	35
45-49	12	8	20	45-49	17	10	27
50-54	11	5	16	50-54	9	4	13
55-59	9	9	18	55-59	10	5	15
60-64	4	5	9	60-64	6	6	12
65-69	4	3	7	65-69	4	2	6
70-74	5	0	5	70-74	2	0	2
75+	0	3	3	75+	4	3	7
Total	281	216	**497**	Total	191	153	**344**
Population by broad age groups (in numbers)							
0-14	86	78	164	**0-14**	56	43	99
15-24	64	36	100	**15-24**	35	35	70
25-59	118	91	209	**25-59**	84	64	148
25-64	122	96	218	**25-64**	90	70	160
60+	13	11	24	**60+**	16	11	27
65+	9	6	15	**65+**	10	5	15
Population by broad age groups (in percentages)							
0-14	31	36	33	**0-14**	29	28	29
15-24	23	17	20	**15-24**	18	23	20
25-59	42	42	42	**25-59**	44	42	43
25-64	43	44	44	**25-64**	47	46	47
60+	5	5	5	**60+**	8	7	8
65+	3	3	3	**65+**	5	3	4
Age dependency ratio							
15-59			**61**	**15-59**			**58**
15-64			**56**	**15-64**			**50**
Sex ratio (males per 100 females)							
			130				**125**
Median age (years)							
Total	**23.4**	**22.7**	**23.2**	**Total**	**27.5**	**24.7**	**25.9**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-90	-63	**-153**
Average annual change (in numbers)					-18	-13	**-31**
Percentage difference (%)					-32.0	-29.2	**-30.8**
Average annual growth rate (%)					-7.7	-6.9	**-7.4**

PENRHYN

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

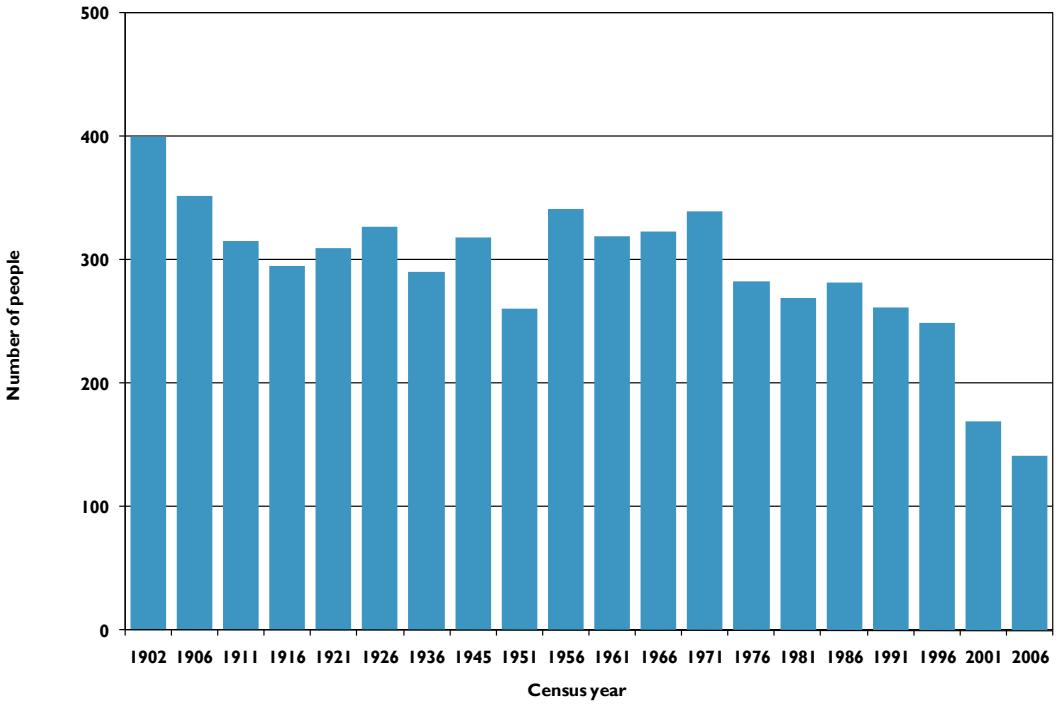


PENRHYN

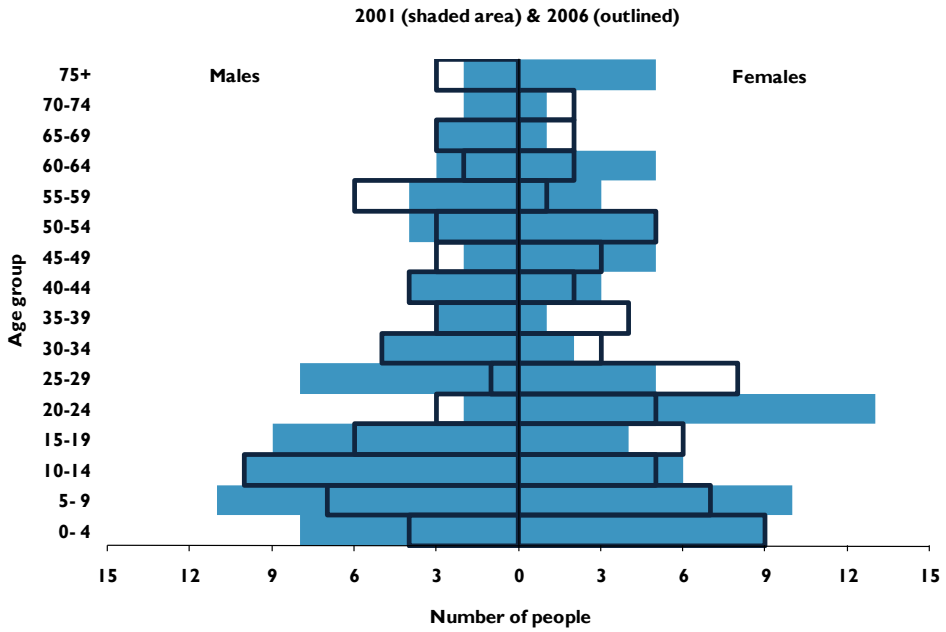
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	22	27	49	0-4	18	16	34
5-9	22	25	47	5-9	12	15	27
10-14	24	20	44	10-14	12	14	26
15-19	18	20	38	15-19	17	10	27
20-24	11	16	27	20-24	9	11	20
25-29	11	8	19	25-29	12	7	19
30-34	18	11	29	30-34	10	7	17
35-39	12	10	22	35-39	9	6	15
40-44	10	6	16	40-44	8	8	16
45-49	6	5	11	45-49	9	3	12
50-54	6	1	7	50-54	3	3	6
55-59	4	6	10	55-59	6	3	9
60-64	7	3	10	60-64	2	3	5
65-69	4	4	8	65-69	7	3	10
70-74	2	4	6	70-74	0	2	2
75+	3	5	8	75+	5	4	9
Total	180	171	**351**	Total	139	115	**254**
Population by broad age groups (in numbers)							
0-14	68	72	140	**0-14**	42	45	87
15-24	29	36	65	**15-24**	26	21	47
25-59	67	47	114	**25-59**	57	37	94
25-64	74	50	124	**25-64**	59	40	99
60+	16	16	32	**60+**	14	12	26
65+	9	13	22	**65+**	12	9	21
Population by broad age groups (in percentages)							
0-14	38	42	40	**0-14**	30	39	34
15-24	16	21	19	**15-24**	19	18	19
25-59	37	27	32	**25-59**	41	32	37
25-64	41	29	35	**25-64**	42	35	39
60+	9	9	9	**60+**	10	10	10
65+	5	8	6	**65+**	9	8	8
Age dependency ratio							
15-59			**96**	**15-59**			**80**
15-64			**86**	**15-64**			**74**
Sex ratio (males per 100 females)							
			105				**121**
Median age (years)							
Total	**22.0**	**18.5**	**19.7**	**Total**	**25.8**	**21.4**	**23.4**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-41	-56	**-97**
Average annual change (in numbers)					-8	-11	**-19**
Percentage difference (%)					-22.8	-32.7	**-27.6**
Average annual growth rate (%)					-5.2	-7.9	**-6.5**

RAKAHANGA

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006



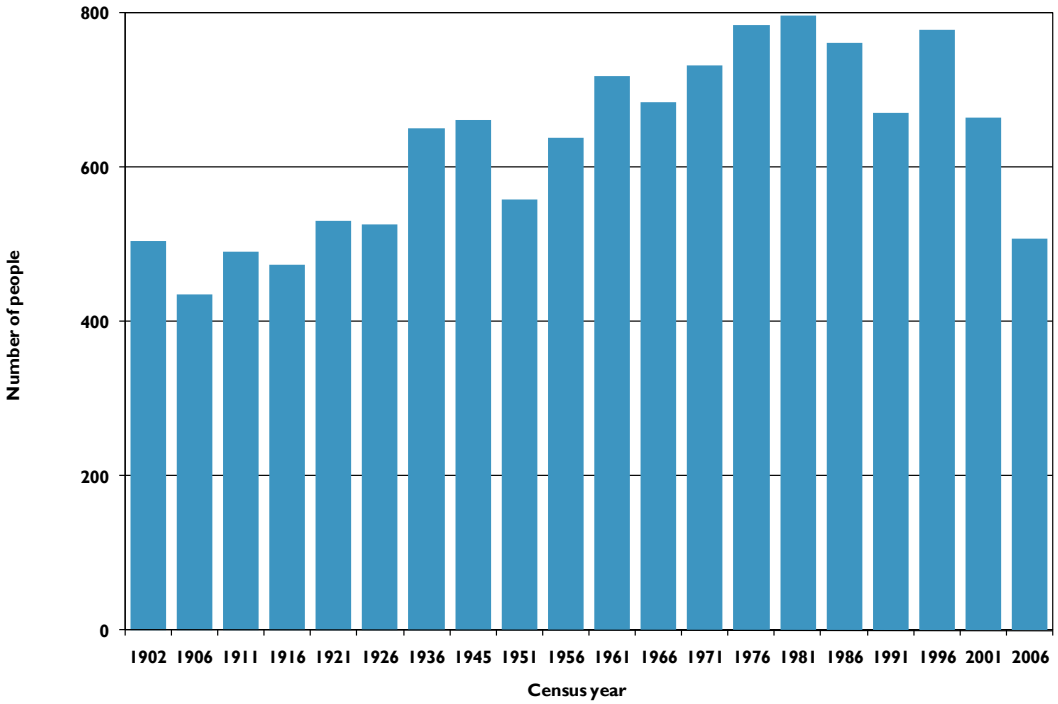
RAKAHANGA

2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	8	9	17	0-4	4	9	13
5-9	11	10	21	5-9	7	7	14
10-14	10	6	16	10-14	10	5	15
15-19	9	4	13	15-19	6	6	12
20-24	2	13	15	20-24	3	5	8
25-29	8	5	13	25-29	1	8	9
30-34	5	2	7	30-34	5	3	8
35-39	3	1	4	35-39	3	4	7
40-44	4	3	7	40-44	4	2	6
45-49	2	5	7	45-49	3	3	6
50-54	4	5	9	50-54	3	5	8
55-59	4	3	7	55-59	6	1	7
60-64	3	5	8	60-64	2	2	4
65-69	3	1	4	65-69	3	2	5
70-74	2	1	3	70-74	0	2	2
75+	2	5	7	75+	3	0	3
Total	80	78	**158**	Total	63	64	**127**
Population by broad age groups (in numbers)							
0-14	29	25	54	**0-14**	21	21	42
15-24	11	17	28	**15-24**	9	11	20
25-59	30	24	54	**25-59**	25	26	51
25-64	33	29	62	**25-64**	27	28	55
60+	10	12	22	**60+**	8	6	14
65+	7	7	14	**65+**	6	4	10
Population by broad age groups (in percentages)							
0-14	36	32	34	**0-14**	33	33	33
15-24	14	22	18	**15-24**	14	17	16
25-59	38	31	34	**25-59**	40	41	40
25-64	41	37	39	**25-64**	43	44	43
60+	13	15	14	**60+**	13	9	11
65+	9	9	9	**65+**	10	6	8
Age dependency ratio							
15-59			**93**	**15-59**			**79**
15-64			**76**	**15-64**			**69**
Sex ratio (males per 100 females)							
			103				**98**
Median age (years)							
Total	**26.3**	**24.0**	**24.2**	**Total**	**31.0**	**25.5**	**26.1**

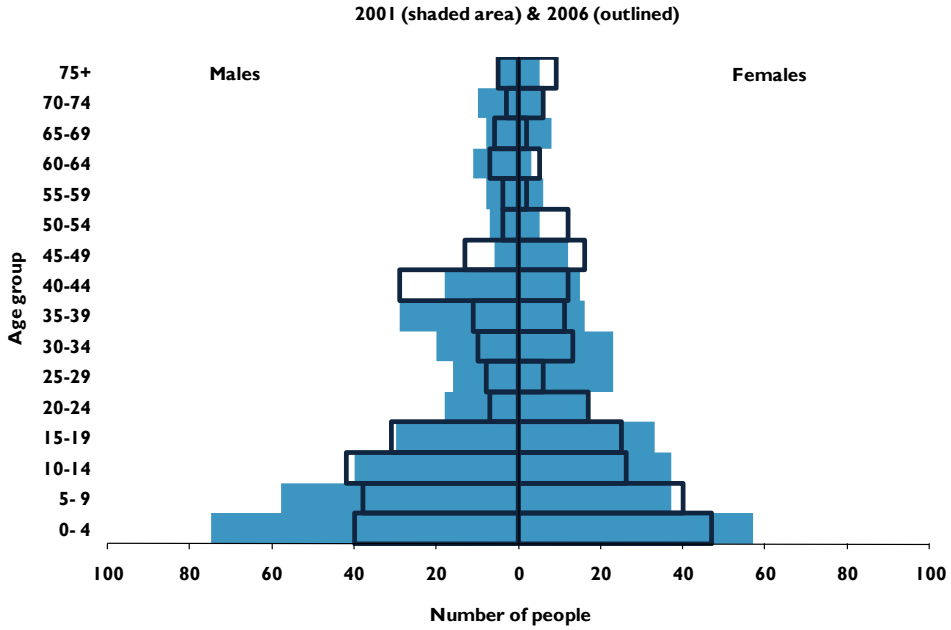
Population growth 2001-2006			
	Males	Females	**Total**
Total difference	-17	-14	**-31**
Average annual change (in numbers)	-3	-3	**-6**
Percentage difference (%)	-21.3	-17.9	**-19.6**
Average annual growth rate (%)	-4.8	-4.0	**-4.4**

PUKAPUKA

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

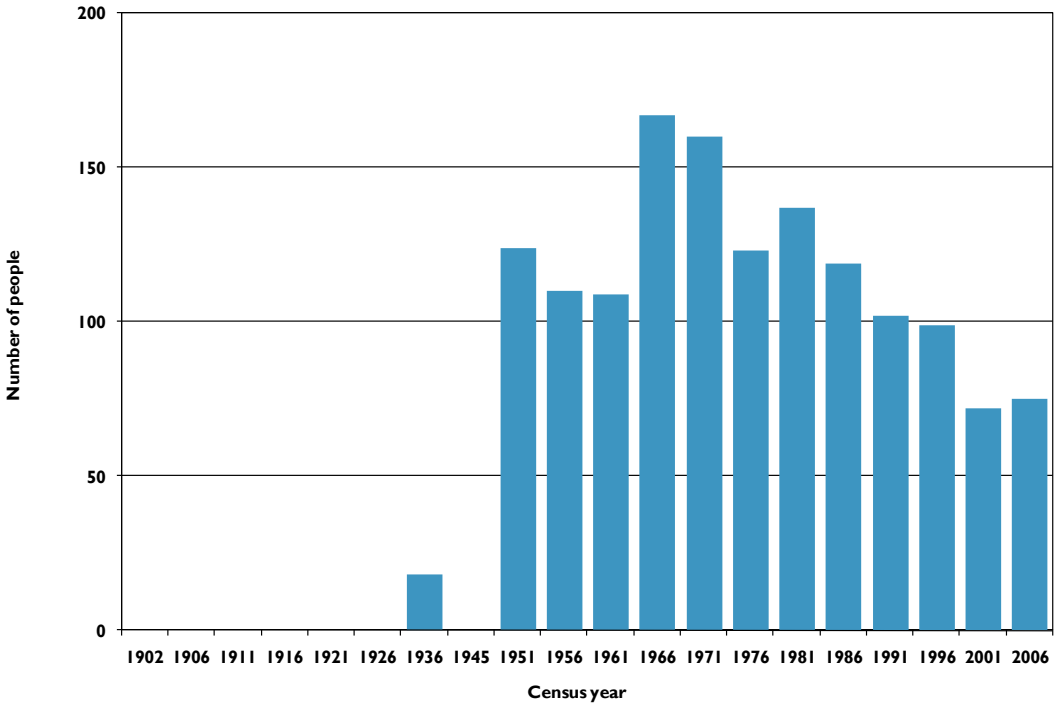


PUKAPUKA

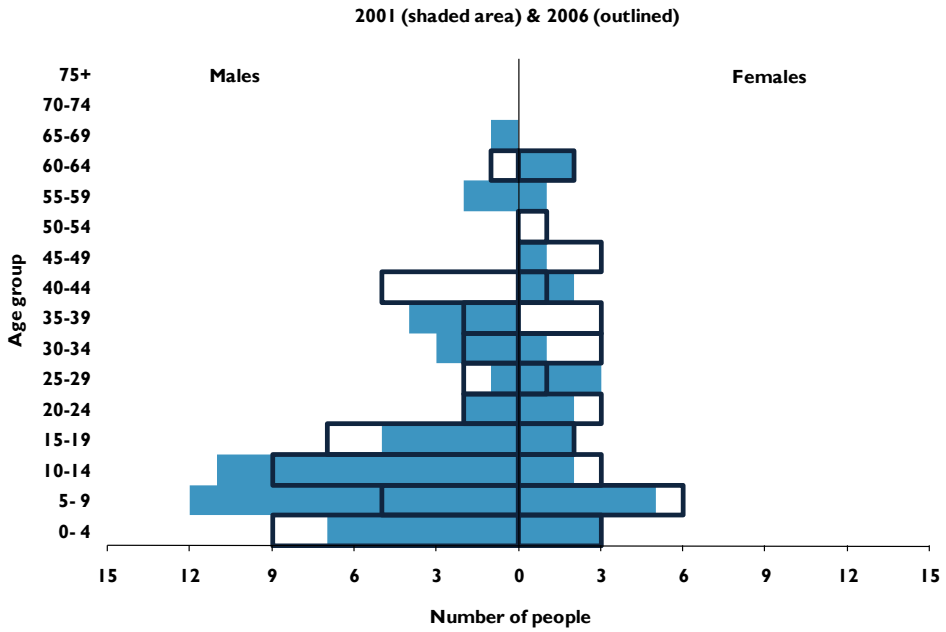
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	75	57	132	0-4	40	47	87
5-9	58	37	95	5-9	38	40	78
10-14	40	37	77	10-14	42	26	68
15-19	30	33	63	15-19	31	25	56
20-24	18	17	35	20-24	7	17	24
25-29	16	23	39	25-29	8	6	14
30-34	20	23	43	30-34	10	13	23
35-39	29	16	45	35-39	11	11	22
40-44	18	15	33	40-44	29	12	41
45-49	6	12	18	45-49	13	16	29
50-54	7	5	12	50-54	4	12	16
55-59	8	6	14	55-59	4	2	6
60-64	11	3	14	60-64	7	5	12
65-69	8	8	16	65-69	6	2	8
70-74	10	6	16	70-74	3	6	9
75+	5	5	10	75+	5	9	14
Total	359	303	**662**	Total	258	249	**507**
Population by broad age groups (in numbers)							
0-14	173	131	304	**0-14**	120	113	233
15-24	48	50	98	**15-24**	38	42	80
25-59	104	100	204	**25-59**	79	72	151
25-64	115	103	218	**25-64**	86	77	163
60+	34	22	56	**60+**	21	22	43
65+	23	19	42	**65+**	14	17	31
Population by broad age groups (in percentages)							
0-14	48	43	46	**0-14**	47	45	46
15-24	13	17	15	**15-24**	15	17	16
25-59	29	33	31	**25-59**	31	29	30
25-64	32	34	33	**25-64**	33	31	32
60+	9	7	8	**60+**	8	9	8
65+	6	6	6	**65+**	5	7	6
Age dependency ratio							
15-59			**119**	**15-59**			**119**
15-64			**109**	**15-64**			**109**
Sex ratio (males per 100 females)							
			118				**104**
Median age (years)							
Total	**16.2**	**18.2**	**17.2**	**Total**	**16.5**	**17.4**	**16.9**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-101	-54	**-155**
Average annual change (in numbers)					-20	-11	**-31**
Percentage difference (%)					-28.1	-17.8	**-23.4**
Average annual growth rate (%)					-6.6	-3.9	**-5.3**

NASSAU

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006

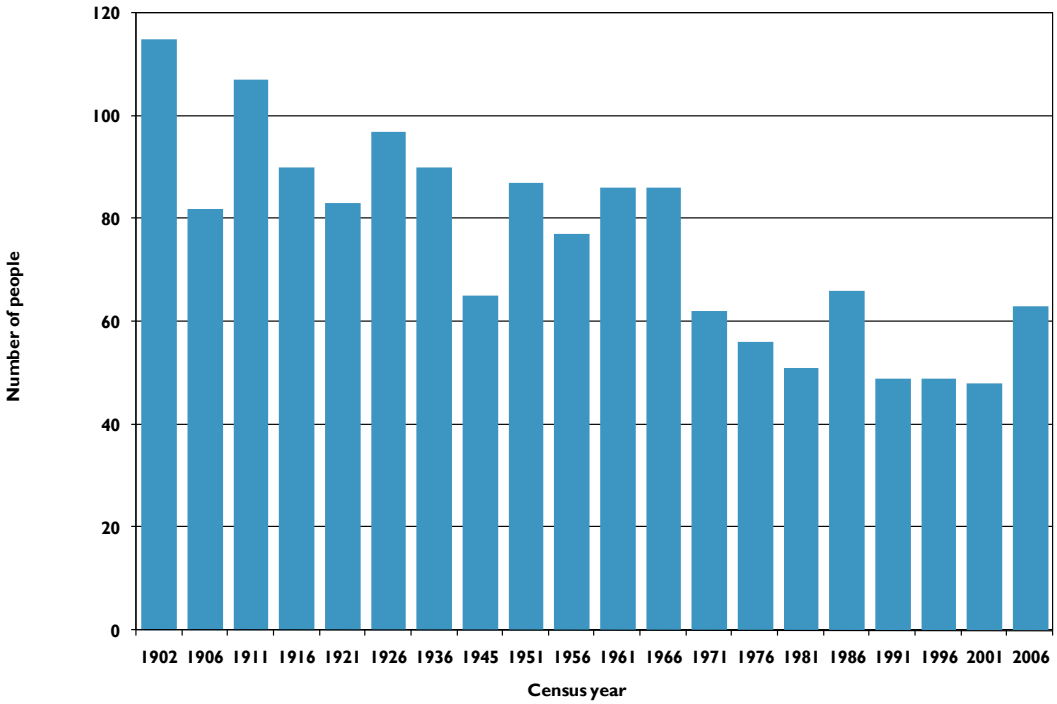


NASSAU

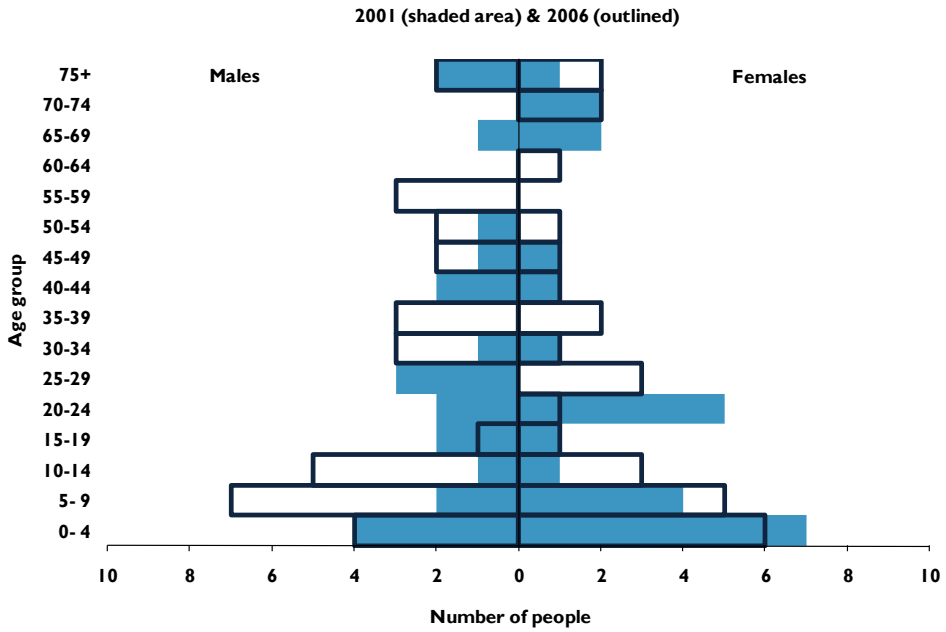
2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	7	3	10	0-4	9	3	12
5-9	12	5	17	5-9	5	6	11
10-14	11	2	13	10-14	9	3	12
15-19	5	2	7	15-19	7	2	9
20-24	2	2	4	20-24	2	3	5
25-29	1	3	4	25-29	2	1	3
30-34	3	1	4	30-34	2	3	5
35-39	4	0	4	35-39	2	3	5
40-44	0	2	2	40-44	5	1	6
45-49	0	1	1	45-49	0	3	3
50-54	0	0	0	50-54	0	1	1
55-59	2	1	3	55-59	0	0	0
60-64	0	2	2	60-64	1	2	3
65-69	1	0	1	65-69	0	0	0
70-74	0	0	0	70-74	0	0	0
75+	0	0	0	75+	0	0	0
Total	48	24	**72**	Total	44	31	**75**
Population by broad age groups (in numbers)							
0-14	30	10	40	**0-14**	23	12	35
15-24	7	4	11	**15-24**	9	5	14
25-59	10	8	18	**25-59**	11	12	23
25-64	10	10	20	**25-64**	12	14	26
60+	1	2	3	**60+**	1	2	3
65+	1	0	1	**65+**	0	0	0
Population by broad age groups (in percentages)							
0-14	63	42	56	**0-14**	52	39	47
15-24	15	17	15	**15-24**	20	16	19
25-59	21	33	25	**25-59**	25	39	31
25-64	21	42	28	**25-64**	27	45	35
60+	2	8	4	**60+**	2	6	4
65+	2	0	1	**65+**	0	0	0
Age dependency ratio							
15-59			**148**	**15-59**			**103**
15-64			**132**	**15-64**			**88**
Sex ratio (males per 100 females)							
			200				**142**
Median age (years)							
Total	**12.5**	**21.3**	**13.7**	**Total**	**14.7**	**23.3**	**16.7**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					-4	7	**3**
Average annual change (in numbers)					-1	1	**1**
Percentage difference (%)					-8.3	29.2	**4.2**
Average annual growth rate (%)					-1.7	5.1	**0.8**

PALMERSTON

Population trend: 1902–2006



Population pyramid by five-year age group and sex, 2001 and 2006



PALMERSTON

2001				2006			
Age	**Males**	**Females**	**Total**	**Age**	**Males**	**Females**	**Total**
Population by 5-year age groups and sex							
0-4	4	7	11	0-4	4	6	10
5-9	2	4	6	5-9	7	5	12
10-14	1	1	2	10-14	5	3	8
15-19	2	1	3	15-19	1	1	2
20-24	2	5	7	20-24	0	1	1
25-29	3	0	3	25-29	0	3	3
30-34	1	1	2	30-34	3	1	4
35-39	0	0	0	35-39	3	2	5
40-44	2	1	3	40-44	0	1	1
45-49	1	1	2	45-49	2	1	3
50-54	1	0	1	50-54	2	1	3
55-59	0	0	0	55-59	3	0	3
60-64	0	0	0	60-64	0	1	1
65-69	1	2	3	65-69	0	0	0
70-74	0	2	2	70-74	0	2	2
75+	2	1	3	75+	2	2	4
Total	22	26	**48**	Total	32	30	**62**
Population by broad age groups (in numbers)							
0-14	7	12	19	**0-14**	16	14	30
15-24	4	6	10	**15-24**	1	2	3
25-59	8	3	11	**25-59**	13	9	22
25-64	8	3	11	**25-64**	13	10	23
60+	3	5	8	**60+**	2	5	7
65+	3	5	8	**65+**	2	4	6
Population by broad age groups (in percentages)							
0-14	32	46	40	**0-14**	50	47	48
15-24	18	23	21	**15-24**	3	7	5
25-59	36	12	23	**25-59**	41	30	35
25-64	36	12	23	**25-64**	41	33	37
60+	14	19	17	**60+**	6	17	11
65+	14	19	17	**65+**	6	13	10
Age dependency ratio							
15-59			**129**	**15-59**			**148**
15-64			**129**	**15-64**			**138**
Sex ratio (males per 100 females)							
			85				**107**
Median age (years)							
Total	**26.3**	**22.5**	**21.8**	**Total**	**15.5**	**22.5**	**18.8**
Population growth 2001-2006							
					Males	Females	**Total**
Total difference					10	4	**14**
Average annual change (in numbers)					2	1	**3**
Percentage difference (%)					45.5	15.4	**29.2**
Average annual growth rate (%)					7.5	2.9	**5.1**