NAURU 2021 POPULATION AND HOUSING CENSUS -
ANALYTICAL REPORT

NAURU 2021 POPULATION AND HOUSING CENSUS - ANALYTICAL REPORT

Pacific Community
Communauté du Pacifique

CONTENTS

TABLES

FIGURES

ABBREVIATIONS

ADB	Asian Development Bank
ASDR	Age-specific death rates
ASFR	Age-specific fertility rate
BPC	British Phosphate Commission
CBR	Crude birth rate
CDR	Crude death rate
CEB	Children Ever Born
EPR	Employment-population ratio
FIES	Food Insecurity Experience Scale
GFR	General Fertility Rate
HIES	Household income and expenditure survey
IMR	Infant mortality rate
LFPR	Labour force participation rate
NPRT	Nauru Phosphate Royalties Trust
NBS	Nauru Bureau of Statistics
NUC	Nauru Utilities Corporation
PIFS	Pacific Islands Forum Secretariat
RONH	Republic of Nauru Hospital
SMAM	Singulate mean age at marriage
TFR	Total Fertility Rate
WHO	World Health Organization

ACKNOWLEDGMENTS

On behalf of the Nauru Bureau of Statistics (NBS) and the Government of Nauru, I wish to express my gratitude to the general public and the people of Nauru for their continued support and participation in the 2021 Nauru Population & Housing Census. It is invaluable that we continue to have the cooperation and support of the people through this endeavor to ensure the information collected through the census is a representation of the people as a whole. The most important driver behind the success of this census is to ensure any person in a position of care about someone or some people makes informed decisions for the common good of the people. I hope this analysis and any thematic and future studies on these results will serve the interest of the people of Nauru now and into the future.

I also wish to thank the Australian Government through the Australian High Commission in Nauru and the Government of Nauru for their steadfast generosity in providing funding support for this census. Without this ready support, the census would likely have not taken place. I would also like to extend my appreciation to our main development and technical partner the Pacific Community (SPC) through the Statistics for Development Division (SDD) for their in-kind support through leadership, expert guidance and advice throughout the planning, implementation and analysis phases of the project. I would also like to acknowledge the government line departments for their in-kind support, especially the Department of Finance through the Planning & Aid Division (PAD) for providing printing services and the Police Department for providing the venue for training.

I wish to make special mention of the former SPC-SDD Director Mr. Epeli Waqavonovono and the former Manager of Statistics Collection Mr. Michael Sharp for their valuable and important role in mobilising SPC-SDD resources to support the census. I am very thankful to the main training facilitators and fieldwork operations experts Mr. Scott Pontifex and Mr. Toga Raikoti. Mr. Pontifex the Collection Statistics Adviser provided inputs to all activities pertaining to census planning and data collection fieldwork monitoring, while Mr. Raikoti the Census and Survey Data Processing Specialist provided technical assistance for questionnaire design, training, field monitoring and quality assurance, data editing and tabulation. Their valuable assistance provided during the training of fieldworkers and their expert guidance and support throughout the survey implementation is duly acknowledged. I would also like to welcome and recognise the new Director of SPC-SDD Mr. Peter Ellis for the continued support in ensuring the main census analytical report undergoes professional editing and comes to fruition. I am also very thankful to Mr. Ralph Hakkert, the Demographer and principal author and narrator of this census report for conducting a detailed and in-depth analysis of the final numbers. Finaly, I would like to thank Mrs. Gaelle Le Gall-Queguineur the Information and Communication Officer who supported the design and publishing of this report.

In conclusion, I wish to thank the census staff for their dedication, teamwork and perseverance throughout the census undertaking, without this, the outcome of the census would have been different. Lastly, I would like to express my utmost appreciation and congratulations to my staff at the NBS led by Mr. Lindsay Thoma (Census Coordinator), Mrs Joan Duburiya (Asst. Coordinator), Mrs. Trixi Thoma (Administration/Accounts), Mrs Vada Tamakin (HQ support), Mrs Arrora Deiye (HQ Support) and Mrs Sharalyn Agigo (Transport Supervisor) who were instrumental from start to end and have overcome adversity and endured personal hardship to achieve the census objectives and with that, I am truly humbled.

I hope the readers and users of the 2021 Nauru Population & Housing Census are enlightened about the findings of the report and if there is any further information required, we at the NBS are more than happy to assist further.

Ramrakha Detenamo
Acting Government Statistician, Nauru Bureau of Statistics, Ministry of Finance

MESSAGE FROM THE MINISTER

Ekamowir omo!

I am pleased to present the 2021 Nauru Population & Housing Census -Analytical Report to the people of Nauru.

The 2021 Round of Population and Housing Census in Nauru is launched under the motto 'Building our Future Together with Every Count'. This theme is a plea to restore and improve our livelihoods and build resilience in Nauru, starting with our people, our households, and our respective district communities. The Census undertaking commenced just as the nation was recovering and easing covid restrictions. I commend the lead implementing agency, the Nauru Bureau of Statistics, and their technical partner, the Statistics for Development Division from the Pacific Community, for their perseverance and dedication in completing this vital exercise through such challenging times.

My fellow Nauruans, in the past years, we have endured great hardships and prolonged periods of uncertainty brought on by the COVID-19 pandemic and, more recently, the UXO bomb threat. I am confident that in times of crisis, the Census will aid us with critical statistical data on population demographics as well as determining our vulnerable living in the community. I am pleased that the Census was undertaken using advanced digital systems, which made for greater efficiencies in data collection and dissemination, showing how Nauru is utilizing innovative approaches to curb the challenge of scarce resources.

The last census was conducted in 2011. Since then Nauru has experienced paramount changes in its social, economic, and environmental landscape in the post-COVID-19 world, coupled with the rising impacts of climate change. Micro-states like Nauru must be equipped with up-to-date data that will enable us to assess the magnitude of such occurrences and to be able to administer timely, accurate and effective nation-led responses. The Census will also inform progress of our Sustainable Development Goals benchmarks as set out by the United Nations and continue strengthening the monitoring and evaluation process towards our national roadmap, the Nauru Sustainable Development Strategy 2019-2030.

Our development challenges ahead are complex and pose a threat to the livelihood of future Nauruan generations to come. The forecasted population growth will continue to pose challenges to already limited land space and resources. The Government must remain diligent and deliver bold and well-informed policies to combat such challenges, but it cannot meet these challenges alone. We will need the help of our donor partners to help us assess this data and apply it to build a future that counts for every Nauruan.

I want to extend my deepest appreciation to all Nauruans that participated in the Census, notably our 'Young at Heart' population that gave their time and effort to be counted.

God Bless Nauru and her people.

Hon. Martin Hunt, MP

Miister for Finance and Sustainable Development

1. INTRODUCTION

1.1 Report: purpose and structure

This report is based on data collected during the population census enumeration: 30 October 2021 was the census day. The main purposes of this report are to:

- provide a general overview of the 2021 census enumerations;
- generate interest, curiosity, and a desire for more detailed information that can be used for specific analysis and the generation of topical census monographs;
- advocate for the use of census data as a key source of statistical information for evidence-based policy making; and
- enhance the decision-making process of policy-makers.

This volume focuses on making the enormous wealth of information incorporated in the Basic Tables accessible to users. This is done by providing summaries, figures and commonly used indicators (see *Summary of main indicators*), and by making population projections and analysing trends, especially trends with policy implications.

More information is available at the Nauru Bureau of Statistics.

1.2 Country profile

Nauru is a coral island located in the central Pacific, 60 km south of the equator. It belongs to the region of Micronesia and its nearest neighbour is Banaba (Ocean Island) in the Republic of Kiribati, 330 km to the east. Nauru is bordered to the south-west by Solomon Islands and to the north and north-west by Marshall Islands and Federated States of Micronesia. Its total land area is 21.1 km². Nauru is six kilometres (km) in length (from the north-east to the south-west) and four km in width (from the north-west to the south-east); and its circumference measures 19 km.

Nauru's population and environment are largely, if not entirely, affected by its phosphate deposits. The country consists of one main island, divided into 14 small districts of various sizes and populations. Due to phosphate mining, at least three-quarters of the island is deemed uninhabitable and unsuitable for any kind of livelihood. In general, the distribution of the population is linked to the location of businesses and commerce. Most people are distributed along the southern part of the island because of its closeness to shopping centres and employment. The two main employers are situated here: the Nauru Phosphate Corporation and the public service sector. The Nauru Phosphate Corporation's main office is in the district of Aiwo, which explains the Location settlement being in Denigomodu, the neighbouring district of Aiwo.

1.3 Maps of Nauru

NAURU

District boundaries
Roads
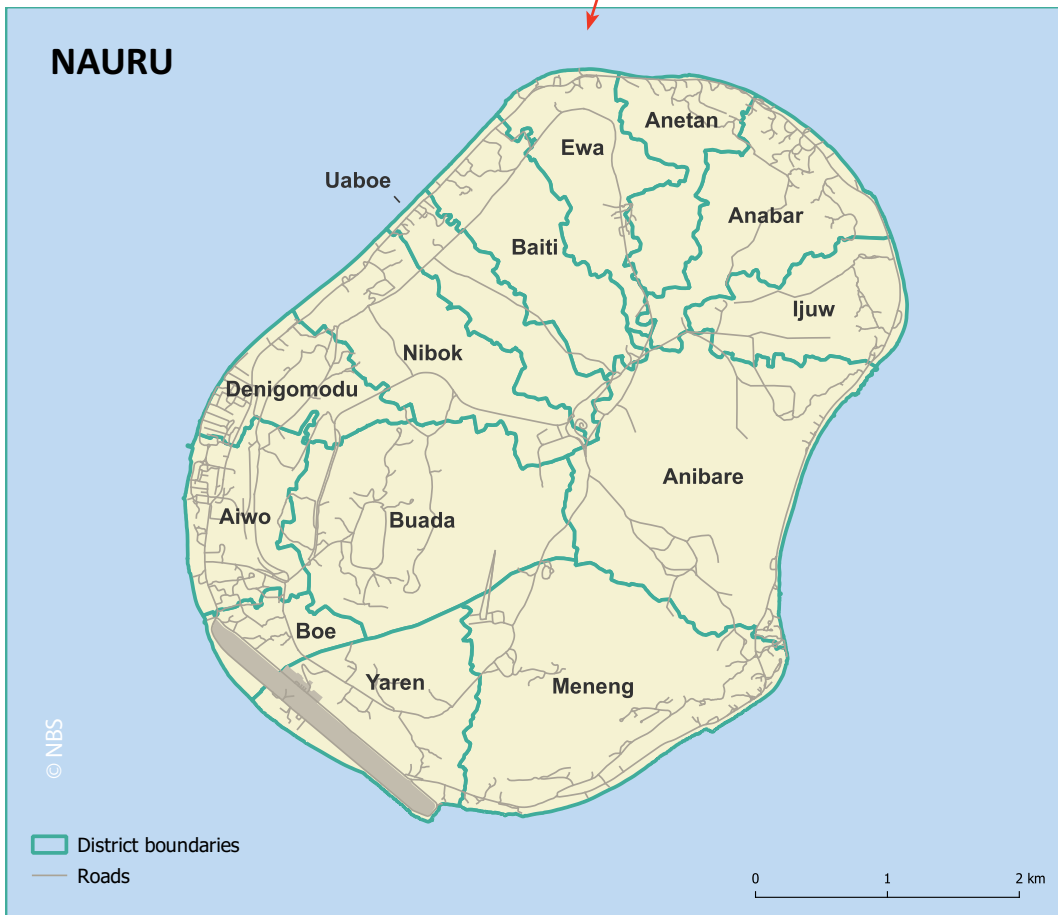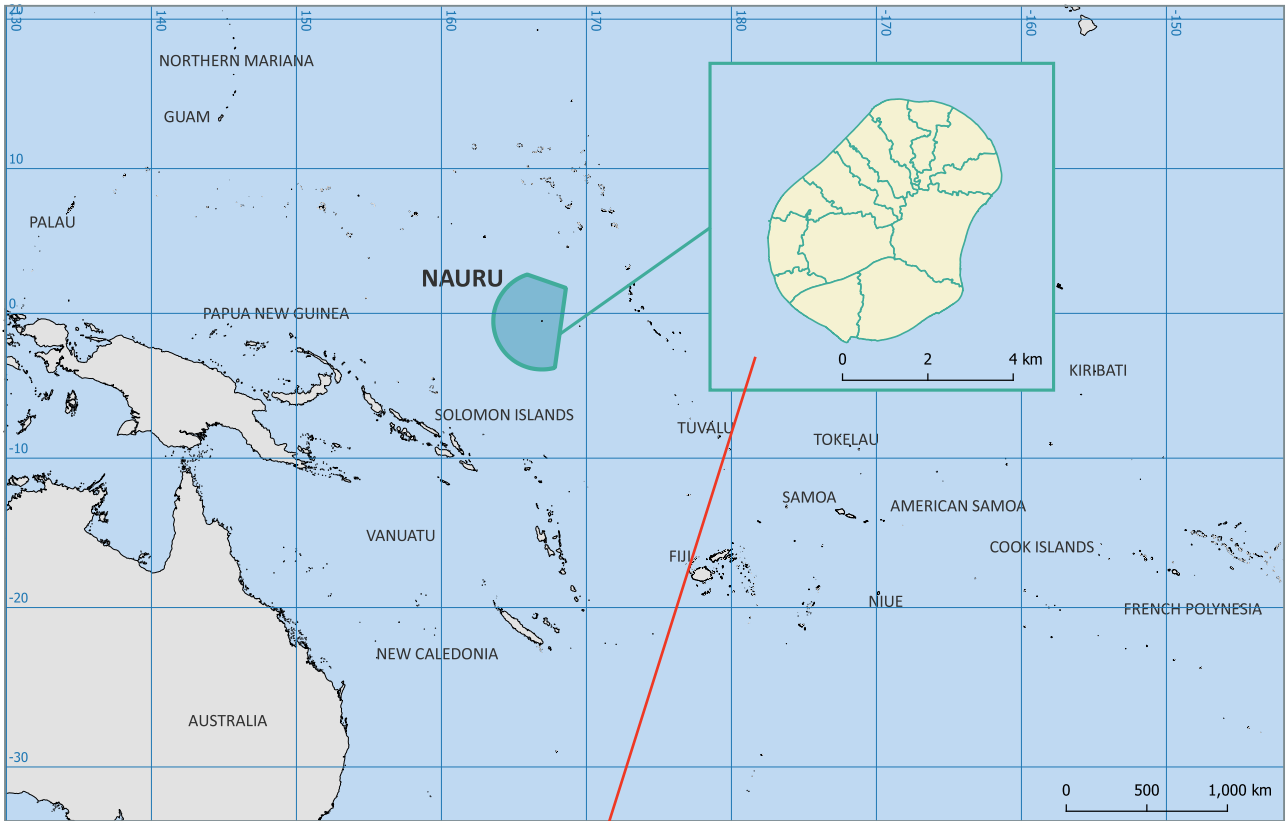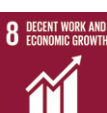
1.4   Summary of main indicators

Indicator	Total	Males	Females
Total population	11,680	5,893	5,787
Average annual population increase, 2011–2021 (in numbers)	160	79	81
Average annual population growth rate, 2011–2021 (%)	1.5	1.4	1.5
Population density (number of people per km²)	554		
Population structure			
Number of children (<15 years)	4,493	2,309	2,184
Youth population (15–24)	2,008	1,022	986
Population aged 25–59	4,682	2,368	2,314
Older population (60+ years)	497	194	303
Median age (in years)	21.6	21.1	22.1
Dependency ratio (15–59)	74.6		
Sex ratio	101.8		
Households			
Number of private households headed by males/females	2,021	1,198	823
Average household size (number of people per household)	5.8	2.9	2.9
Percentage with wages as a main source of income	89.2		
Percentage receiving remittances	1.1		
Percentage with improved drinking water sources	97.6		
Percentage with improved sanitation facilities	93.3		
Percentage connected to electricity grid	99.5		
Percentage with a TV	72.6		
Percentage with a (mobile) phone	98.4		
Percentage with internet connection	80.7		
Mean age at first marriage (SMAM)		26.0	24.3
Percentage ever married at age 15–19 years		4.6	10.6
Labour force (population 15+ years)	4,812	2,724	2,088
Employed population	4,570	2,590	1,980
Contributing family workers	71	34	37
Unemployed	242	134	108
Labour force participation rate (%)	67.0	76.0	58.0
Employment–population ratio (%)	63.6	72.3	55.0
Unemployment rate (%)	5.0	4.9	5.2
Number of people with at least one severe disability	224	115	109
Education			
School attendance rates of 7–12 year olds (%)	81.1	79.6	82.6
School attendance rates of 13–18 year olds (%)	59.5	57.0	62.2
Percentage of the population over age 15 with:			
Primary education	4.2	5.6	2.9

Secondary education	89.2	88.3	90.0
Tertiary education	4.2	3.6	4.8
Adult literacy rate of the population over age 15 (%)	89.6	86.5	92.6
Youth literacy rate of the population aged 15–24	87.2	82.8	91.8
Percentage of the population over age 5 that speak:			
Nauruan	93.7	94.7	94.2
English (was not asked)			
Other language (now includes English)	28.3	30.1	29.2
Fertility			
Total Fertility Rate (TFR), 2020–2021	3.51		
Total Fertility Rate (TFR), 2020–2021 (CRVS)	3.31		
Teenage Fertility Rate (per 1,000), 2020–2021	66		
Teenage Fertility Rate (per 1,000), 2019–2021 (CRVS)	75		
Average Children Ever Born (CEB) to women aged 45–49	3.5	1.9	1.7
General Fertility Rate (GFR) (per 1,000 women)	112.2		
General Fertility Rate (GFR), 2019–2021 (CRVS)	107.2		
Mean age at childbearing (in years)	28.3		
Mean age at childbearing (in years), 2019–2021 (CRVS)	27.0		
Average annual number of births, 2017–2021 (CRVS)	319.8		
Crude Birth Rate (CBR), 2017–2021 (CRVS)	28.1		
Sex ratio at birth	105		
Mortality			
Live–born children still alive (%)	96.7	96.2	97.1
Population over age 60 widowed (%)	36.4	22.7	45.2
Orphaned population (%):			
Father dead	52.4		
Mother dead	38.6		
Infant Mortality Rate (IMR) (per 1,000), 2021	33.1	36.3	29.8
Child Mortality Rate (per 1,000), 2021	3.8	4.1	3.4
Under–five mortality (per 1,000), 2021	36.8	40.3	33.1
Life expectancy at birth (e0) in years, 2021	63.9	60.9	67.1
Average annual number of deaths, 2017–2021	84.6	48.4	36.2
Crude Death Rate (CDR), 2021	6.9	7.6	6.2
Natural growth			
Average annual number	271	133	138
Natural growth rate (%)	2.5	2.4	2.6
International migration (Period 2011–2021)			
Total number of migrants	-1,118	-546	-572
Average annual number of migrants	-112	-55	-57
Migration rate (%)	-1.0	-1.0	-1.1

1.5 Summary of SDG indicators

SDG indicator	National	Male	Female
1.4.1 Proportion of population living in households with access to basic services			
- Improved drinking water	97.6%		
- Improved sanitation	93.1%		
- Household rubbish collected	86.3%		
- Individual ownership of a mobile phone	53.6%		
3.2.1 Under five mortality rate (per 1,000)	36.8	40.3	33.1
- Infant mortality rate (per 1,000)	33.1	36.3	29.8
3.7.2 Adolescent birth rate (per 1,000)	66		
5.5.2 Proportion of women in managerial positions	57.6%		
5.b.1 Proportion of individuals who own a mobile telephone	53.6%	53.0%	52.2%
- Proportion of individuals (aged 15–49)	78.8%	79.1%	78.5%
6.2.1 Proportion of population practicing open defecation	0.6%		
7.1.1 Proportion of population with electricity	98.9%		
8.3.1 Proportion of informal employment in total employment	47.8%	49.8%	45.4%
8.5.2 Unemployment rate			
- Youth unemployment rate	12.0%	10.6%	14.4%
- Unemployment rate, persons without disability	5.0%	4.9%	5.2%
8.6.1 Youth Not in Employment, Education or Training	40.1%	33.4%	48.9%
9.2.2 Manufacturing employment as a proportion of total employment	4.5%	6.1%	2.4%
17.8.1 Proportion of individuals using the Internet (aged 10+)	77.9%	77.7%	78.1%
17.19.2 Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100% birth registration and 80% death registration	a) Yes b) Yes		

2. POPULATION PROFILE AND CHANGE

2.1 Introduction

This chapter discusses the basic demographic characteristics of Nauru's population as reported in the 2021 census and it also addresses changes over time. In doing so, it focuses on the situation in October 2021 and on the 2006–2011 and 2011–2021 intercensal periods, but extends its time frame when possible.

The chapter starts with a brief description of the historical demographic development of Nauru as a general background to the present situation. In addition, the chapter focuses on the series of population counts and censuses that recorded population change over time, and describes the general population distribution across the country's districts.

Apart from absolute numbers of people and their geographic distribution, information on age and sex is the most important result of a census. Such information constitutes a basic input element for successful development planning, which often targets specific groups as needs vary with sex and age. Planning in the areas of education, health services, housing, employment and food supply all depend on reliable details on the age and sex of the population. This information is also essential for fertility and mortality analysis, programme impact assessment and population projections.

Historical background

Nauru was settled by Micronesians around 3,000 years ago, and there is evidence of possible Polynesian influence. Little is known of Nauru prior to European discovery, although tradition teaches that its early history was one of inter-tribal warfare. There were traditionally 12 clans or tribes on Nauru, which are represented in the 12-pointed star in the nation's flag.

The first Europeans to encounter the island were on the British whaling ship *Hunter*, in 1798. Captain John Fearn gave it the name Pleasant Island. There was little contact after Fearn's visit until the 1830s when Nauru became an important source of food and water for the ships frequenting the area. Commander T. Beckford Simpson, Master of the *Giraffe* wrote in his diary in 1843: 'This island and many others in the Pacific, are infested by Europeans who are either runaway convicts, expirees, or deserters from whalers, and for the most part men of the very worst description…' With them, these early Europeans brought diseases, and a taste for alcohol and firearms. The combination of these factors brought about and fuelled the resulting warfare also known as the Ten Years Wars (1878–88) (Taylor and Thoma 1983)[1]. This war resulted in a reduction of the population from 1,400 (1843) to around 900 (1888).

After this period, Nauru was administered by numerous countries. The Anglo-German Convention divided the western Pacific into spheres of influence and in 1888, the German gunboat *Eber* landed at Nauru and proclaimed the island a German Territory, later incorporated into Germany's New Guinea Protectorate. During the German annexation, alcohol and firearms were banned and Christian missionaries from the Gilbert Islands began their evangelising work. The Germans called the island Nawodo or Onawero. Robert Rasch, a German trader who married a native woman, was the first administrator, appointed in 1888.

In 1900, phosphate was discovered and mining began in 1906 under the auspices of the Pacific Phosphate Company. Nauruans, however, played a very small role in mining because workers were imported from China and Nauru's neighbouring islands.

---

1   Richard J. Taylor and Kiki Thoma (1983). Nauruan mortality 1976–1981 and a review of previous mortality data. Noumea, SPC.

Later, under the treaty of Versailles in 1914, Nauru's sovereignty was vested in the British Crown but, following the outbreak of World War I, Nauru was captured by Australian troops, and later was jointly administered by Australia, New Zealand and Great Britain. These countries signed the Nauru Island Agreement in 1919, creating a board known as the British Phosphate Commission (BPC) which took over the rights to phosphate mining.

In 1920, modernisation of Nauru began in earnest and the subsequent availability of purchasable commodities increased demands on monetary wealth, which was closely linked with phosphate royalties. In 1921 an influenza epidemic reportedly caused the deaths of 230 islanders. In 1923, the League of Nations gave Australia a trustee mandate over Nauru, with the United Kingdom and New Zealand as co-trustees. From the 1920s to 1930s, phosphate mining continued and royalties on mined land slowly increased, although expatriates continued to form the core of the labour force.

Japanese troops occupied Nauru on 26 August 1942. They built two airfields on Nauru which were bombed on 25 March 1943, preventing food supplies from being flown to Nauru. During the Japanese occupation, 1,201 Nauruans were sent to Truk (now Chuuk in the Federated States of Micronesia) where they suffered hardship, with over 40% dying. It was reported that at the beginning of the war, the Nauruan population was 1,848 but, by the end, it was 1,278, a reduction of approximately 30%. Nauru was finally liberated from the Japanese on 13 September 1945 and arrangements were made to repatriate the 745 Nauruans who had survived Japanese captivity on Chuuk.

In 1947, an agreement was signed by Australia, New Zealand and the United Kingdom under the United Nations trusteeship system. Under the trusteeship, the mining and export of phosphate resumed, continuing for over 20 years until independence in 1968. Nauru became self-governing in January 1966. In June 1967 it was agreed that assets belonging to the British Phosphate Commission on the island would be sold to Nauru for 21 million Australian dollars. Nauru was granted unconditional independence on 31 January 1968, thus becoming an independent sovereign nation with a president elected by members of parliament.

Since independence, the phenomenal profits gained from phosphate mining resulted in a boom period in the economy. Money gained from the exploitation of phosphate was put into the Nauru Phosphate Royalties Trust and gave Nauruans the second highest GDP per capita (second only to the United Arab Emirates) and one of the highest standards of living in the Third World. The profits were used to run national and local governments, provide social services, and purchase overseas investments in various enterprises. Profits were also invested in the Nauru Phosphate Royalties Trust (NPRT). All of these were designed to sustain the flow of income after the exhaustion of phosphate. Royalty interests from the sale of phosphate were duly distributed to shareholders on a financial year basis until the late 1990s, when the economy collapsed.

In 1989, Nauru took legal action against Australia in the International Court of Justice over Australia's actions during its administration of Nauru, in particular Australia's failure to remedy the environmental damage caused by phosphate mining. In 1993, Australia offered Nauru an out-of-court settlement of AUD 2.5 million annually for 20 years. New Zealand and the UK additionally agreed to pay a one-time settlement of AUD 12 million each. As Nauru's phosphate stores began to run out (by 2006, its reserves were exhausted), the island was reduced to an environmental wasteland.

Although much emphasis was placed on individual incomes from phosphate, in reality the wealth was not uniformly distributed. Distribution was determined according to ownership of land.

A legacy of the phosphate mining and subsequent abundance of money resulted in a heavy reliance on imported goods. Many kinds of consumables were imported, including food, drinks, cigarettes, vehicles and entertainment systems. Unfortunately, this trend continues, despite the economic collapse and gloomy economic and financial forecasts.

The composition of Nauru's population is largely the result of the mining industry. Almost a century ago, workers were imported from various parts of the world to work the mines. Early accounts reveal that, in 1939, the foreign population was equal to the indigenous population of Nauruans. In 1977, the proportions were 60% foreigners and 40% indigenous Nauruans. These proportions increased in 1992 to 70% foreigners, 30% indigenous Nauruans. In 2006, the proportion of foreigners dwindled to only 6% as a result of a mass outflow of migrant workers and their families due to the collapse of the phosphate mining industry, although small-scale mining is still conducted by RONPhos, formerly known as the Nauru Phosphate Corporation.

The phosphate industry continues to drive Nauru's economy, trade and foreign relations, and will likely continue to have a clear and direct impact on the country's population in the future. Nauru has yet to develop a plan to remove the innumerable coral pinnacles created by mining and make those lands suitable for human habitation.

The government is also challenged by the need to pay off salary arrears of civil servants and to continue funding the welfare state built up in the heyday of phosphate mining, which is difficult because Nauruans pay no taxes.

Following parliamentary elections in 2013, Baron Waqa was elected president. He was a strong supporter of the Pacific solution, whereby Australia kept refugees in a refugee camp on Nauru. In a break with these practices, the parliament, in August 2019, elected former human rights lawyer Lionel Aingimea as the new President of Nauru. In October 2020, the United States agreed to resettle over 1,100 asylum seekers who were in the Nauru and Papua New Guinea processing centres by early 2021. The agreement would leave 80 asylum seekers in the two countries.

Historical calendar

1878 – Captain John Fearn of British whaler *Hunter* discovers Nauru while sailing from New Zealand to the China Seas. He did not land but noted it was extremely populous with many houses and named it Pleasant Island.

1881 – The Anglo-German convention allocated Nauru to a German sphere of influence.

1888 – The first German administrator arrived, alcohol was banned and arms were confiscated, putting an end to inter-tribal warfare.

1899 – The first missionaries arrived and Christianity and a western style of education was introduced.

1900 – Albert Ellis discovered the phosphate mineral.

1914 – Nov. – Australian Expeditionary Forces accepted the surrender of the German Administration.

1919 – Germany renounced its claim to the Nauru League of Nations Mandate that was granted to Australia, New Zealand and Great Britain and under the tri-partite agreement Australia administered Nauru. The British Phosphate Commission was established to run the phosphate industry.

1940 – German Naval Forces bombarded the country and Japan subsequently occupied the island and established a garrison.

1942 – 1,200 Nauruans were deported to Truk in the Caroline group, leaving fewer than 600 Nauruans on Nauru.

1946 – 700 survivors returned from Truk.

1947 – December – First elections to the advisory Nauru Local Government Council were held and discussions about the economic and political future of Nauru began.

1966 – Legislative and executive councils were established, giving large measures of internal self-government.

1967 – June – The British Phosphate Commissioners agreed to sell assets of the phosphate industry to Nauru at a cost of about AUD 20 million over a three-year period.

1968 – 31 January – The Trusteeship Agreement was terminated and Nauru became an independent republic.

1970 – 1 July – The Nauru Phosphate Corporation took over the phosphate industry.

1977 – 22 January – The first census after independence was held.

1982 – October – Visit by Her Majesty, Queen Elizabeth II.

1983 – May – The second census after independence was held.

1986 – The University of South Pacific established an Extension Centre in Nauru.

1988 – Government offices burnt down.

1989 – President Bernard Dowiyogo was elected to office.

1990 – The first gold medal at the Commonwealth Games was won by the Nauruan athlete, Marcus Stephen.

1991 – Nauru Television (NTV) was commissioned.

1992 – April – Third census.

1999 – Nauru joins the United Nations.

2001 – First 'Pacific solution' (the Government of Australia's policy of transporting asylum seekers to island nations in the Pacific region) detention centres were established.

2002 – September – Fourth census.

2005 – The Government of Nauru published the National Sustainable Development Strategy 2005–2030.

2006 – October – A census listing head count and household income and expenditure survey (HIES) was carried out.

2007 – A demographic and health survey was carried out.

2011 – October – Fifth census.

2012 – Second 'Pacific solution' and HIES carried out.

2014 – Income tax was imposed for the first time, with a flat rate of 10% for high income earners.

2016 – April – Nauru joined the International Monetary Fund as the 189th member.

2018 – January – Nauru celebrated its 50th anniversary of independence.

2018 – September – The 49th Pacific Islands Forum meeting was hosted in Nauru and the leaders endorsed the regional security declaration, known as the Boe Declaration.

2019 – President Lionel Aingimea was elected to office and in August, Aroeni Day was declared.

2019 – A mini census was conducted.

2020 – April – Nauru declared a national emergency due to the global pandemic of the corona virus (COVID-19).

2020 – The Government of Nauru released the National Sustainable Development Strategy 2019–2030.

2021 – Australia signed a deal with Nauru to keep the processing centre for asylum seekers open.

2021 – October – The sixth census was held.

2.2   Population size and trend

In 2021, the total enumerated population of Nauru stood at 11,680. This is an increase of 1,596 persons compared to the 2011 census. Figure 1 shows the population trend from 1921 to 2021. With the exception of a contraction between 2002 and 2006, the population has continuously increased during these years. Table 1 shows the population size and growth rate by district in the years 2002, 2011 and 2021.

After the 2002–2006 contraction, the population growth rate during the period 2011–2021 maintained the positive growth registered between 2006 and 2011, with a slight decline from 1.8% to 1.5%. In absolute terms, an average of 160 persons were added to the population every year between 2011 and 2021 (Figure 3).
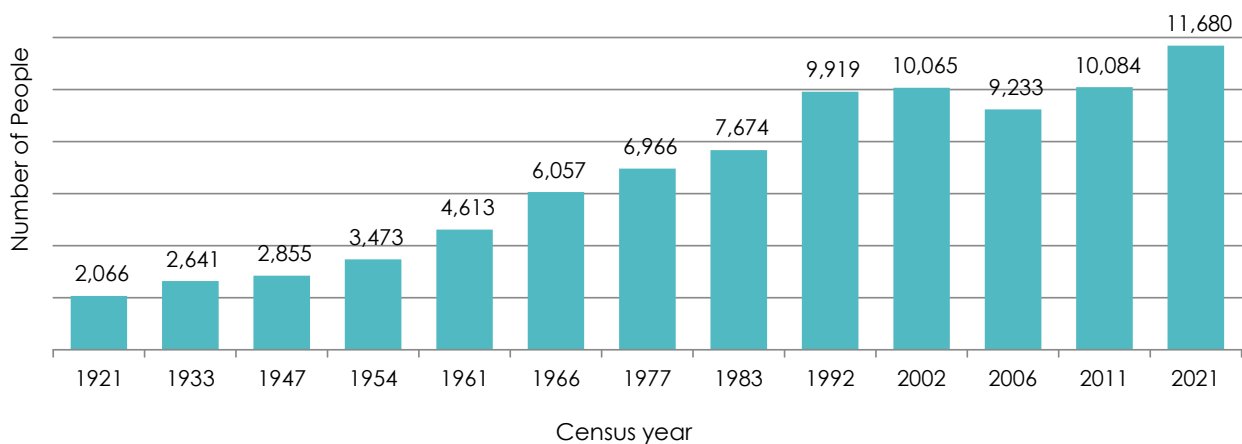
Figure 1. *Total population size, Nauru: 1921–2021*

Table 1. *Population size and growth rate by district, Nauru: 2002, 2011 and 2021*

District	Total population size			Population change					
				(in numbers)		(in %)		Average annual growth rate	
	2002	2011*	2021	2002–2011	2011–2021	2002–2011	2011–2021	2002–2011	2011–2021
Yaren	632	747	803	115	56	18.2	7.5	1.8	0.7
Boe	731	851	845	120	-6	16.4	-0.7	1.7	-0.1
Aiwo	1,051	1,220	1,258	169	38	16.1	3.1	1.6	0.3
Buada	673	739	969	66	230	9.8	31.1	1.0	2.7
Denigomodu	292	307	348	15	41	5.1	13.4	0.6	1.3
Nibok	479	484	724	5	240	1.0	49.6	0.1	4.1
Uaboe	386	318	341	-68	23	-17.6	7.2	-2.1	0.7
Baitsi	443	513	523	70	10	15.8	1.9	1.6	0.2
Ewa	397	446	537	49	91	12.3	20.4	1.3	1.9
Anetan	498	587	795	89	208	17.9	35.4	1.8	3.1
Anabar	378	452	565	74	113	19.6	25.0	2.0	2.3
Ijuw	169	178	276	9	98	5.3	55.1	0.6	4.5
Anibare	232	226	373	-6	147	-2.6	65.0	-0.3	5.1
Meneng	1,323	1,380	1,797	57	417	4.3	30.2	0.5	2.7
Location	2,381	1,497	1,526	-884	29	-37.1	1.9	-5.1	0.2
Total	**10,065**	**9,945**	**11,680**	**-120**	**1,735**	**-1.2**	**17.4**	**-0.1**	**1.6**

* The 2011 population does not include people in institutions
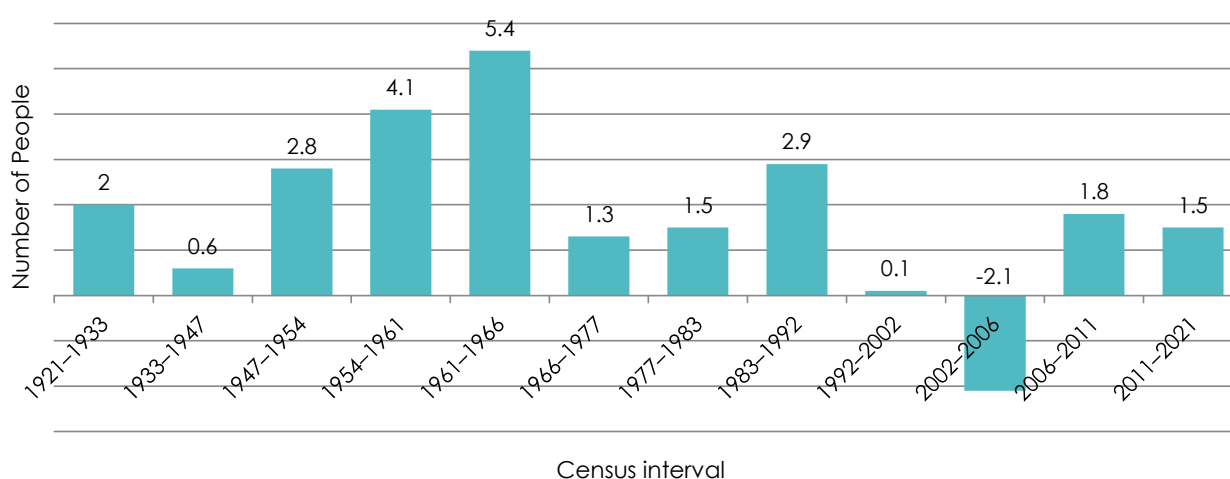
Figure 2. *Average annual population growth rate (%), Nauru: 1921–2021*
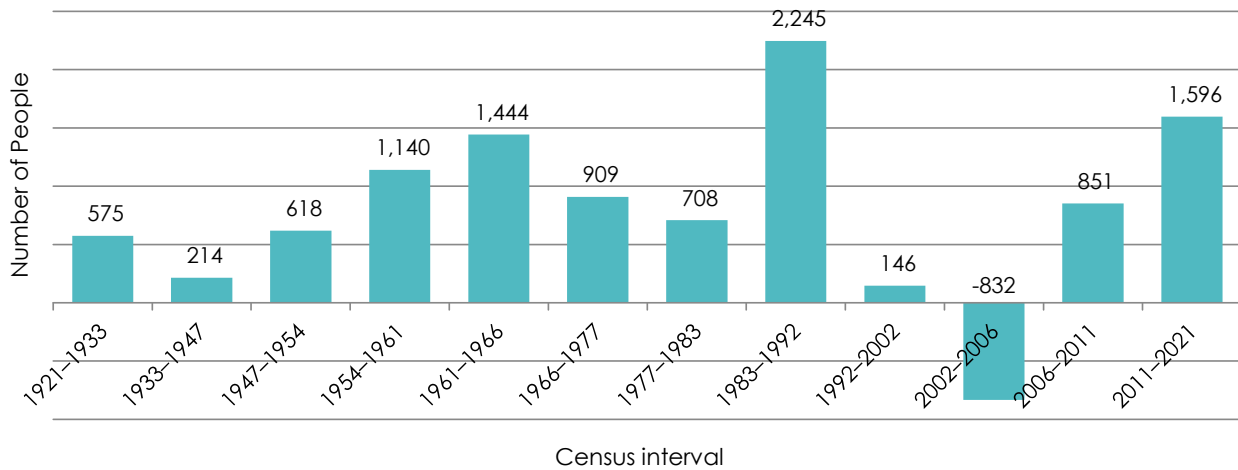
Figure 3. *Population change, average annual increase in numbers, Nauru: 1921–2021*

2.3   Population distribution

The ranked population size of the districts is displayed in Figure 4. Meneng surpassed Location as the most populous district, with 1,797 inhabitants, which accounts for 15.4% of the total Nauru population. Location came in second (1,526) and Aiwo third (1,258). The districts of Ijuw (276) and Uaboe (341) were the smallest, followed by Denigomodu (348) and Anibare (373), each representing less than 3.2% of the total population.

The district of Location lost a lot of people because of the repatriation of the I-Kiribati and Tuvaluan workers who used to live there. The districts with the strongest population growth were the districts of Anibare and Ijuw, both of which grew by more than 50% after 2011 (Figure 6).
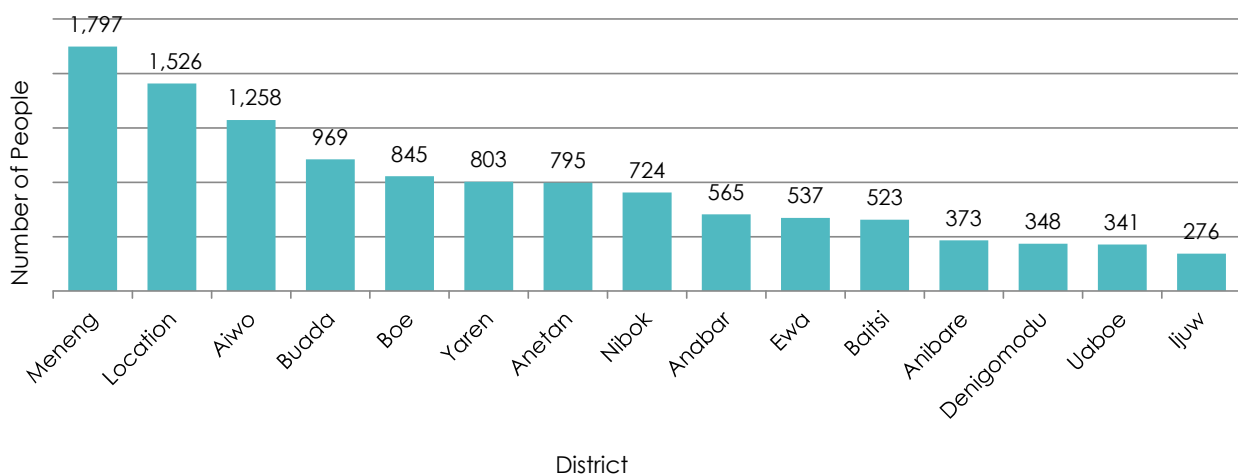
Figure 4. *Population size by district, Nauru: 2021*
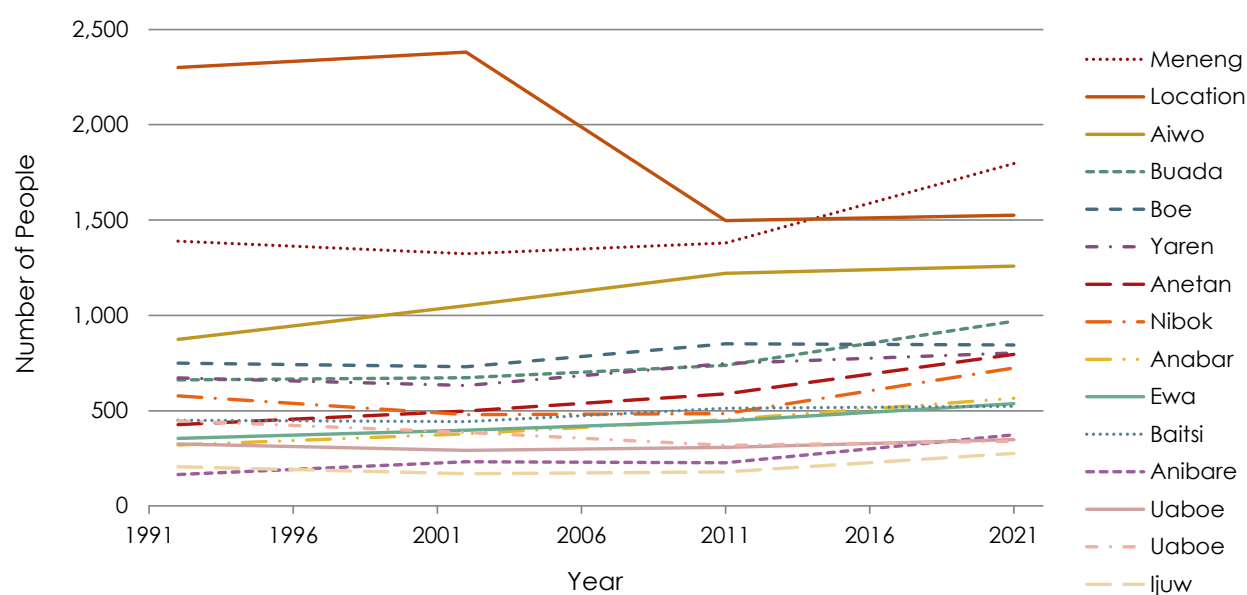
Figure 5. *Population trend of districts, Nauru: 1992–2021*

2.4   Population density

With a total land area of 21.1 km², Nauru's average population density, according to the 2021 census, was 554 people/km² compared to 478 people/km² in the 2011 census. This is a very high population density compared to most other countries in the Pacific region or even worldwide. Compare Nauru's density of 554 people/km² with those of Tuvalu (373), the second most densely populated country in the region, Marshall Islands (234), American Samoa (225), Kiribati (178), Fiji (51), Papua New Guinea (22), New Zealand (19) and Australia (3).

2.5   Population structure

The enumerated 2021 resident population consisted of 5,897 males and 5,793 females. Males outnumbered females by 104, resulting in a sex ratio of 101.8, which means that there were 101.8 males per 100 females (Table 2 and Figure 8). The sex ratio has declined continuously since 1992, when there were 105 males per 100 females.

Table 2. *Population distribution by broad age group, dependency ratio, median age, and sex ratio, Nauru: 2002, 2011 and 2021*

Year	Population by broad age group (%)				Age dependency ratio (15–59)	Median age (years)	Sex ratio (males per 100 females)
	0–14	15–24	25–59	60+			
2002	39	20	39	3	70	20.7	104
2011	38	19	40	3	69	21.5	103
2021	38	17	40	4	75	21.6	102

A sex ratio of 100 means that there are equal numbers of males and females, while a sex ratio lower than 100 means there are more females than males and a sex ratio higher than 100 means more males than females. The fact that the overall sex ratio in Nauru is still larger than 100 requires some explanation. Because women live longer than men, in most countries the total number of women in the population exceeds the number of men. The fact that this is not the case in Nauru could be due to any of the following reasons:

- an unusually low life expectancy of women, compared to men;

- an unusually high sex ratio at birth (which does not seem to be the case);
- higher levels of emigration of women, compared to men; or
- differential under-enumeration of women.

2.5.1 Sex ratio at birth

The sex ratio of birth is the number of male births per 100 female births. Available data from Nauru's vital statistics records on the number of male and female births for the period 2011–2021 point to a sex ratio at birth of 1.05, which is in agreement with values found in other countries. The sex ratio for children of age 0 in the census, which is an approximation for the sex ratio at birth, is 1.10 which is probably also too high, given that the sex ratio for the 0–4 year age group is 0.99. Differences in age declaration errors for boys and girls may play a role here.

2.5.2 Population age pyramid

A population's age structure may be considered as a map of its demographic history. Persons of the same age constitute a cohort of people who were born during the same year (or period); they have been exposed to similar historical events and conditions. The age structure of the whole population at a given moment may be viewed as an aggregation of cohorts born in different years. A graphic representation of the age structure of the population, such as an age pyramid, shows the different surviving cohorts of people of each sex in Nauru.

A population pyramid shows the number of males and females in single years (Figure 6) or five year age groups (Figure 7) 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 centre.

For the most part, Nauru's population pyramid (Figure 6) 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, it should be noted that the youngest ages (under age 10) are beginning to show signs of the narrowing of the base as a result of declining fertility. Also, the indentation of the pyramid around age 20, particularly in the case of males should be noted. This was because people in these age groups were overseas during the time of the census to attend further education or training, or in search of employment.
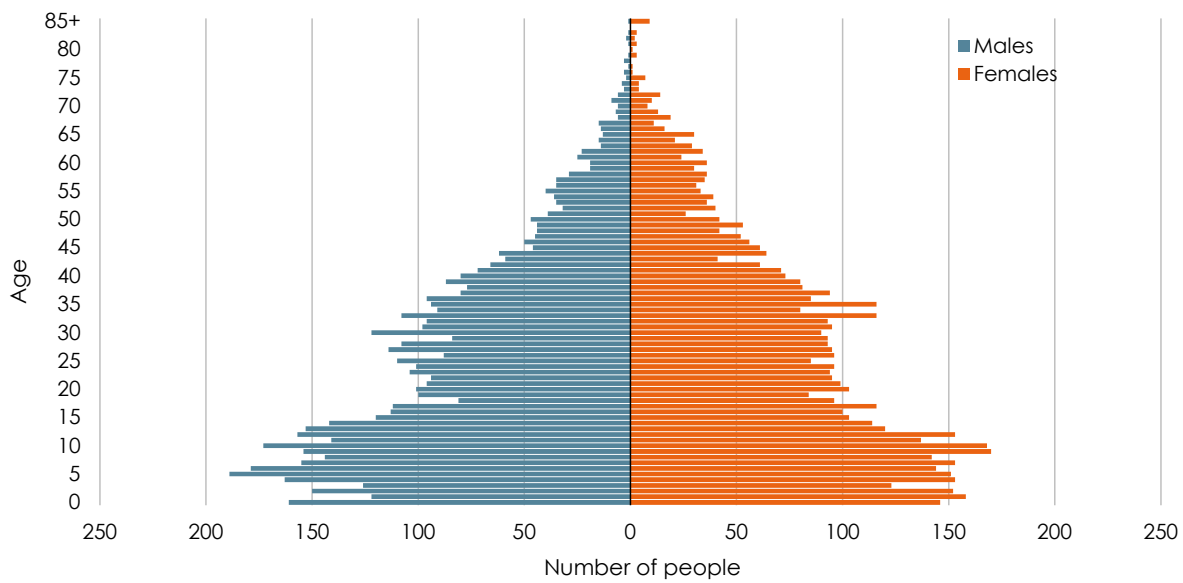
Figure 6. *Population pyramid by single years, Nauru: 2021*
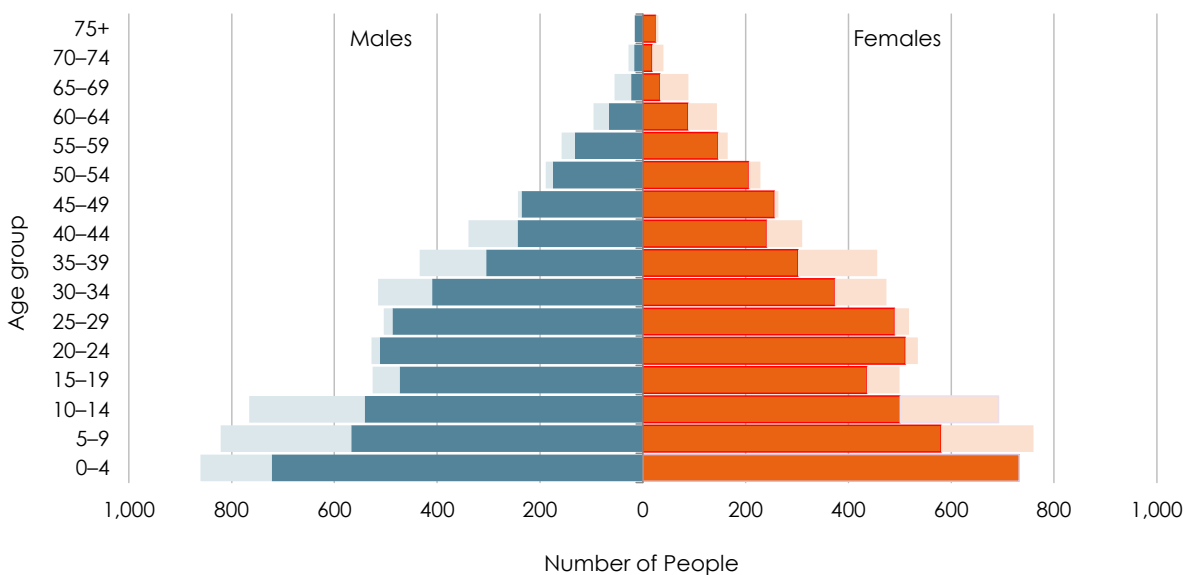
Figure 7. *Population pyramid by five year age groups, Nauru: 2011 (bright colours) and 2021 (faded colours)*

The brightly shaded areas in Figure 7 show the population count of the 2011 census, while the faded shaded areas show the population count of the 2021 census.

It is important to note that the population aged 0–4 in 2021 was smaller than in 2011, indicating a drop in the fertility rate. There was also a sharp drop in the population size between the first and second age group (in 2011) and between the third and fourth age group (in 2021). This is the result of the drop in fertility in the middle of the first decade of this century and its subsequent recovery.

Nauru's population in 2021, has a relatively young age structure, with 38% of the population younger than 15 years of age; 57% were in the so-called working age groups 15–59, and only 4% were older than 60 years.

The age structure is also illustrated by the median age of 21.6 years in 2021, meaning that half of Nauru's population was younger and the other half older than 21.6 years in that year. The median

ages in 2002 and 2011 were 20.7 and 21.5 years respectively, indicating that the population structure was older in 2021 than in earlier censuses.

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).

In 2021, Nauru had a dependency ratio of 74.6, meaning that for every 100 people of working age, 74.6 people were in the age dependent category (younger than 15 or older than 60). The higher the dependency ratio, the higher the number of people that need to be cared for by the working age population. The dependency ratio has increased since the 2002 and 2011 censuses when it was 70 and 69 respectively.

© ADB

3. DEMOGRAPHIC COMPONENTS

3.1 Fertility

3.1.1 Census data

In order to determine the level and pattern of fertility in Nauru, women 15 years of age and older were asked:

- whether she had ever given birth;
- how many of her children had been born alive[2]; and
- when was her last child born.

Based on the question whether a woman had ever given birth, it was found that, out of 3,603 women aged 15+, 2,456 had given birth at least once, and 1,147 women had not (yet) given birth (Table 3 and Figure 8). As expected, the percentage of women who had given birth increased with age. While 88.8% of adolescent women aged 15–19 had not yet given birth, the percentage for women aged 35–49 was much lower – 16.7%. Slightly under 15% of women remained childless at the end of their reproductive years (women aged 50+).

It is noteworthy that this percentage starts to increase again after age 60. This is probably due to the fact that older women may omit some of their deceased children.

Table 3. *Female population aged 15+, whether ever given birth, and proportion childless, Nauru: 2021*

Age of women	Total	Yes	No	Percentage childless
15–19	499	56	443	88.8
20–24	487	254	233	47.8
25–29	462	330	132	28.6
30–34	474	404	70	14.8
35–39	456	360	96	21.1
40–44	310	268	42	13.5
45–49	264	230	34	12.9
50–54	183	158	25	13.7
55–59	165	144	21	12.7
60–64	144	123	21	14.6
65–69	89	76	13	14.6
70+	70	53	17	24.3
Total	**3,603**	**2,456**	**1,147**	**31.8**

---

2   A live birth is defined by the World Health Organization to be the complete expulsion or extraction from the mother of a baby, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of the voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born.
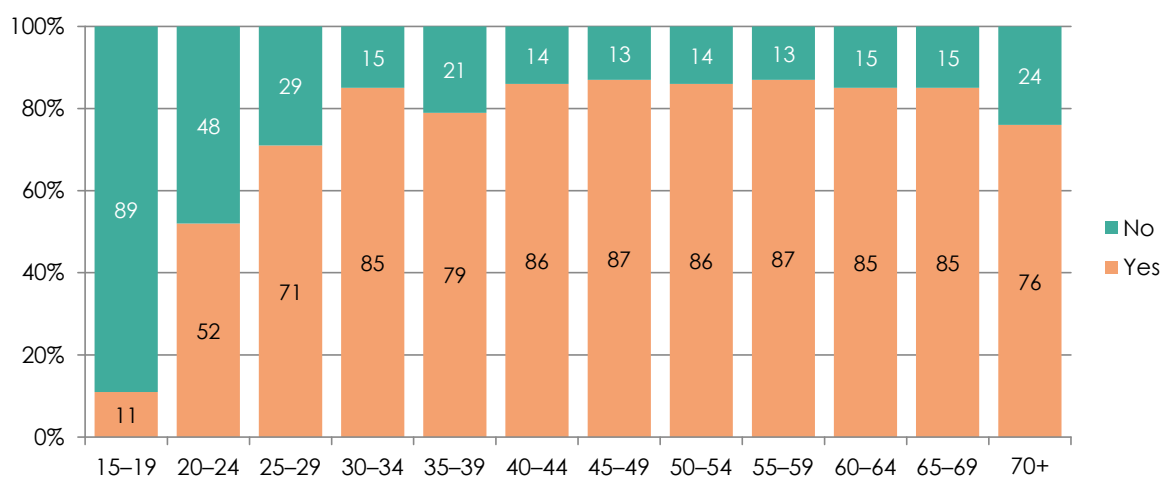
Figure 8. *Female population by age and whether given birth, Nauru: 2021*

The total number of live births to 3,603 women aged 15+ was 8,394: 4,327 boys and 4,067 girls (Table 4). The average number of live births (average parity) to all women was 2.3 children per woman.

Table 4. *Female population aged 15+ by number of live births, Nauru: 2021*

Age of women	Number of women	Number of live births			Average number of live births		
		Total	**Males**	**Females**	**Total**	**Males**	**Females**
15–19	499	69	35	34	0.1	0.1	0.1
20–24	487	436	213	223	0.9	0.4	0.5
25–29	462	752	405	347	1.6	0.9	0.8
30–34	474	1,250	649	601	2.6	1.4	1.3
35–39	456	1,321	656	665	2.9	1.4	1.5
40–44	310	1,053	547	506	3.4	1.8	1.6
45–49	264	933	491	442	3.5	1.9	1.7
50–54	183	611	299	312	3.3	1.6	1.7
55–59	165	689	364	325	4.2	2.2	2.0
60–64	144	632	338	294	4.4	2.3	2.0
65–69	89	337	160	177	3.8	1.8	2.0
70+	70	311	170	141	4.4	2.4	2.0
Total	**3,603**	**8,394**	**4,327**	**4,067**	**2.3**	**1.2**	**1.1**

As expected, average parity increases with the age of women. While women aged 15–19 had only very few children, women aged 45–49 had on average 3.5 children, and women older than 70 years had on average 4.4 children, including those that died. The average parity 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 9 shows a comparison of the reported average number of live births of the last three censuses. A fertility decline is apparent as the average number of live births per woman, especially for women aged 30+, declined from one census to the next. While the average number of live births per women aged 45–49 was 5.2 in 1992, it declined to 4.6 and 4.0 in 2002 and 2011 and to 3.5 in 2021.
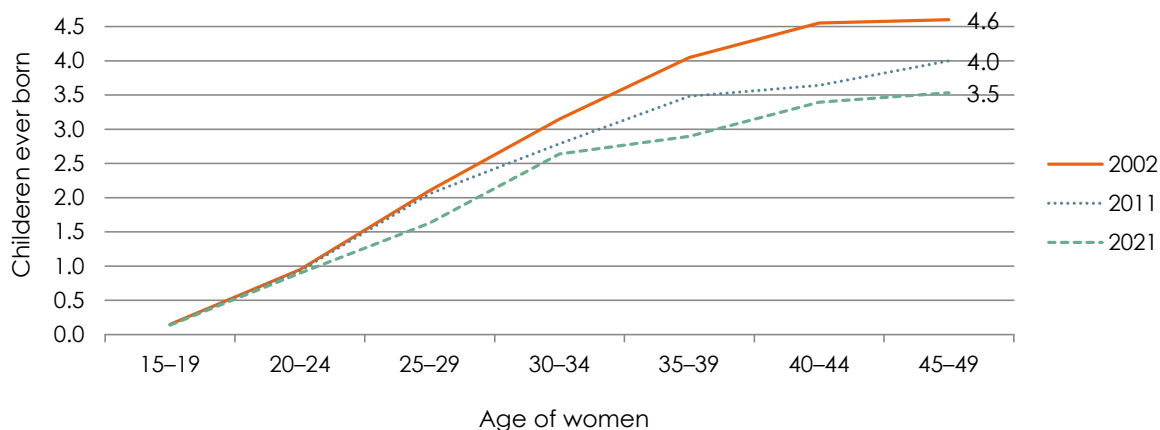
Figure 9. *Female population aged 15–49 by average number of live-births, Nauru: 2002, 2011, and 2021*

The census also included questions on whether a mother's children lived in her household, elsewhere in Nauru or overseas, and whether they had died. The proportion of children living in their mother's household decreased with the age of the mother, because as children grow older they leave their parents' home and form their own households (Figure 10).
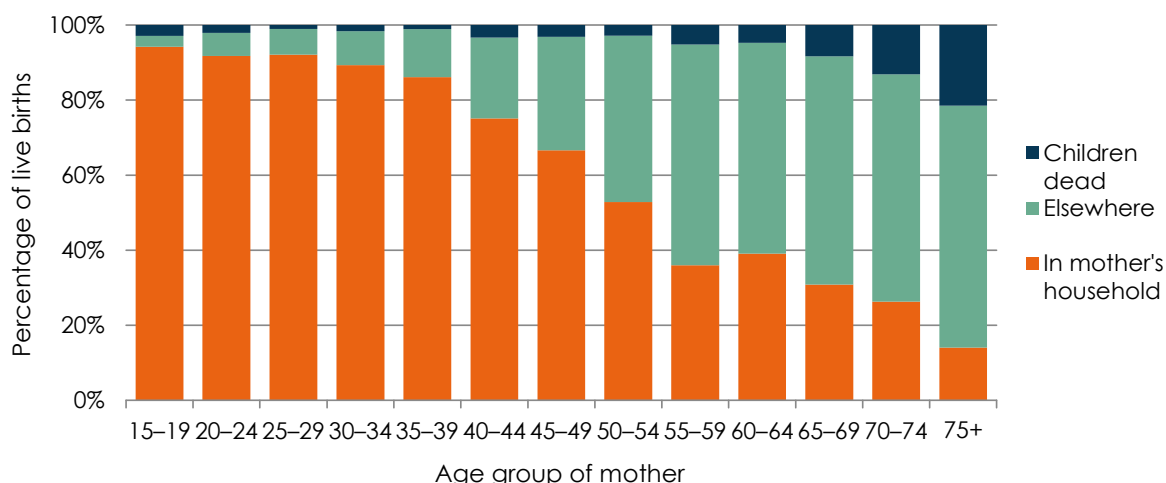
Figure 10. *Proportion of live births by age of mother and whether living in the same household as their mother, Nauru: 2021*

From the question on date of birth of the last-born child, the reported[3] number of births per year or period can be calculated (Table 5). Responses from women aged 15–49 at the time of the 2011 census indicated that 280 children were born during the one-year period prior to the census – between 31 October 2020 and 30 October 2021. These numbers are, however, affected by the so-called time reference problem, e.g. because some women may have understood that only children born in the calendar year 2021 were to be included.

---

3   It should be emphasised that the reported number of births does not necessarily correspond to the actual number, due to time reference errors, i.e. errors in the declaration of the date of the last birth, resulting in the inclusion of children that were born before the one-year interval or exclusion of children that were born within it.

Table 5. *Reported number of births during the one-year period before the census (31 October 2020 to 30 October 2021) by age group of women, Nauru: 2021*

Age group of women	Number of women	Number of children			ASFR
		Total	Boys	Girls	
15–19	499	28	13	15	0.056
20–24	487	81	46	35	0.166
25–29	462	67	37	30	0.145
30–34	474	60	31	29	0.127
35–39	456	34	19	15	0.075
40–44	310	9	5	4	0.029
45–49	264	1	0	1	0.004
Total	**2,952**	**280**	**151**	**129**	**TFR = 3.01**

ASFR = Age-specific fertility rate (as reported)

TFR = Total fertility rate (as reported)

The reported number of births during the year before the census (280) compares reasonably well with the number of enumerated children younger than one year of age (307), and it is not too distant from the number of registered births by the health authorities for 2020 (331) and 2021 (359). However, it is somewhat lower than both these numbers, due to the fact that time reference errors were not corrected.

Figure 11 shows a comparison of data on the reported number of children born during the one-year period before the last three censuses. It shows that the reported fertility level of women aged 25–49 increased significantly between 2002 and 2011,[4] but returned to roughly its 2002 level in 2021. The reported level of adolescent fertility, which was essentially the same in 2002 and 2011, declined from 75 per 1,000 in 2011 to 56 in 2021.
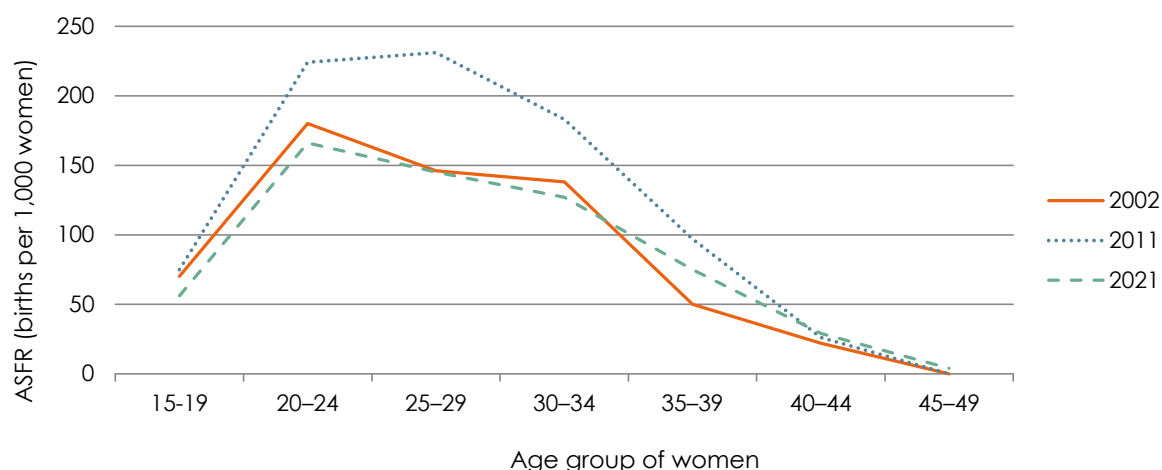
Figure 11. *Reported age-specific fertility rates (ASFR), Nauru: 2002, 2011 and 2021*

As noted above, the numbers in Table 5 and Figure 11 are affected by the time reference problem. As a way to check the consistency of the census information on children ever born and children born during the past 12 months and correct the time reference problem, the Relational Gompertz

---

4   Actually, fertility in 2002 was anomalously low, due to the economic problems that the country was experiencing at the time. In 2005 it started to increase again, returning to previous levels (see section 3.1.3).

method was applied, as explained in Chapter 7 of Moultrie et al. (2013).[5] The method combines information on children ever born and children born in the last year before the census to derive a consistent age pattern of fertility and, based on that, estimates a correction factor for the fertility level in the last year before the census. This yields a correction factor for the ASFRs in Table 5, but maintains the same age pattern, in which fertility is highest in the 20–24 year age group. The correction factor found was 1.168. Correcting the last column of Table 5 by this factor yields a TFR of 3.51, rather than 3.01.

3.1.2 Fertility estimates based on vital statistics

Table 6 displays the latest available birth registration data, updated to December 2022, as provided by the Registry of Births, Deaths and Marriages for the purposes of this report. As will be shown later in this section, the coverage of the birth registration system appears to have improved with respect to the 2002–2011 period, when it was found to be understated. Nevertheless, problems remain, mostly associated with late registration.

Table 6. *Registered number of births by year of occurrence and age of mother, Nauru: 2011–2021*

Age of mother	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
15–19	40	36	38	44	40	66	48	39	30	35	48
20–24	141	110	110	108	111	98	91	82	76	101	100
25–29	130	126	114	107	121	108	111	101	73	87	71
30–34	73	64	61	57	63	82	86	69	74	76	62
35–39	35	32	23	27	29	28	35	18	28	26	37
40–44	8	10	6	7	6	12	9	7	1	2	4
45–49	0	0	1	0	1	1	0	1	1	0	0
Total	427	378	353	350	371	395	380	317	283	327	332

Source: Data provided by the Registry of Births, Deaths and Marriages

The female population aged 15–49 by five year age groups for each year of the period 2011–2021 was calculated by means of interpolation by cohort between the same age groups of the female populations as recorded in the 2011 and 2021 censuses. Results are shown in Table 7.

Table 7. *Estimated mid-year numbers of females aged 15–49 by five year age groups, Nauru: 2011–2021*

Age of mother	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
15–19	439	455	465	471	477	493	485	490	507	504	497
20–24	515	499	461	450	456	451	461	467	469	471	488
25–29	494	498	514	513	504	491	490	462	461	465	463
30–34	374	385	429	443	449	470	470	494	491	496	470
35–39	302	312	306	310	333	339	349	386	407	415	450
40–44	240	239	251	252	269	282	290	284	290	302	307
45–49	258	244	219	226	208	209	214	220	225	249	264
Total	2,622	2,632	2,645	2,665	2,696	2,735	2,759	2,803	2,850	2,902	2,939

---

5   Moultrie, Tom; Dorrington, Rob; Hill, Allan; Hill, Kenneth; Timaeus Ian and Zaba Basia. 2013. Tools for demographic estimation. Paris, IUSSP. Also available at https://demographicestimation.iussp.org/content/tools-demographic-estimation.

Subsequently, the number of births by the age of the mother is divided by the estimated female population of the same age groups, in order to calculate the age-specific fertility rates (ASFR) for each year of the period 2011–2021. The sum of the ASFR multiplied by five (to account for the number of years per age group) yields the total fertility rate (TFR) for each year (Table 8 and Figure 12). This measure is an indication of the average number of children a woman gives birth to during her reproductive life (between the ages of 15 and 50).

Table 8. *Age-specific fertility rates (ASFR) and total fertility rates (TFR) derived from civil registration data, Nauru: 2011–2021*

Age of mother	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
15–19	0.091	0.079	0.082	0.093	0.084	0.134	0.099	0.080	0.059	0.069	0.097
20–24	0.274	0.220	0.239	0.240	0.243	0.217	0.197	0.176	0.162	0.214	0.205
25–29	0.263	0.253	0.222	0.209	0.240	0.220	0.227	0.219	0.158	0.187	0.153
30–34	0.195	0.166	0.142	0.129	0.140	0.174	0.183	0.140	0.151	0.153	0.132
35–39	0.116	0.103	0.075	0.087	0.087	0.083	0.100	0.047	0.069	0.063	0.082
40–44	0.033	0.042	0.024	0.028	0.022	0.043	0.031	0.025	0.003	0.007	0.013
45–49	0.000	0.000	0.005	0.000	0.005	0.005	0.000	0.005	0.004	0.000	0.000
Total	**4.86**	**4.32**	**3.94**	**3.93**	**4.11**	**4.38**	**4.19**	**3.45**	**3.03**	**3.47**	**3.41**

The data of the calculated TFR shows a decline from 4.86 in 2011 to 3.03 in 2019, followed by a slight increase to 3.47 in 2020 and 3.41 in 2021. For the purposes of the analysis that follows, the numbers used are the weighted averages for the years 2019–2021. This results in an estimated TFR of 3.31, which is only slightly below the value found by using the Relational Gompertz method in section 3.1.1. The fertility level by age group of mother – the age-specific fertility rates – of the three-year period 2019–2021 is shown in Figure 13.

Women aged 20–24 produced the most children: 277 or 194 per 1,000 women. This was followed by women aged 25–29 with 231 children or 166 per 1,000 women and 212 or 146 per 1,000 for women aged 30–34.
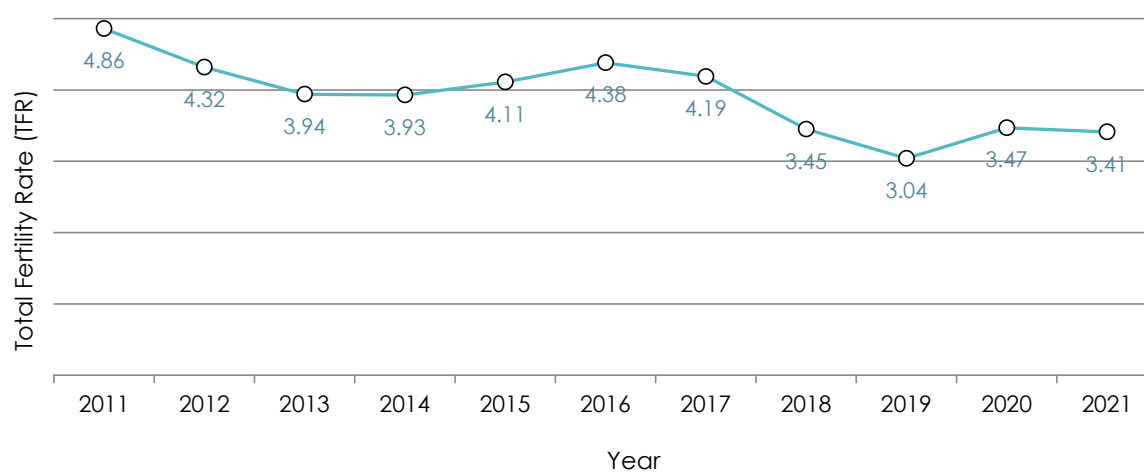
Figure 12. *Evolution of the TFR based on vital statistics, Nauru: 2011–2021*
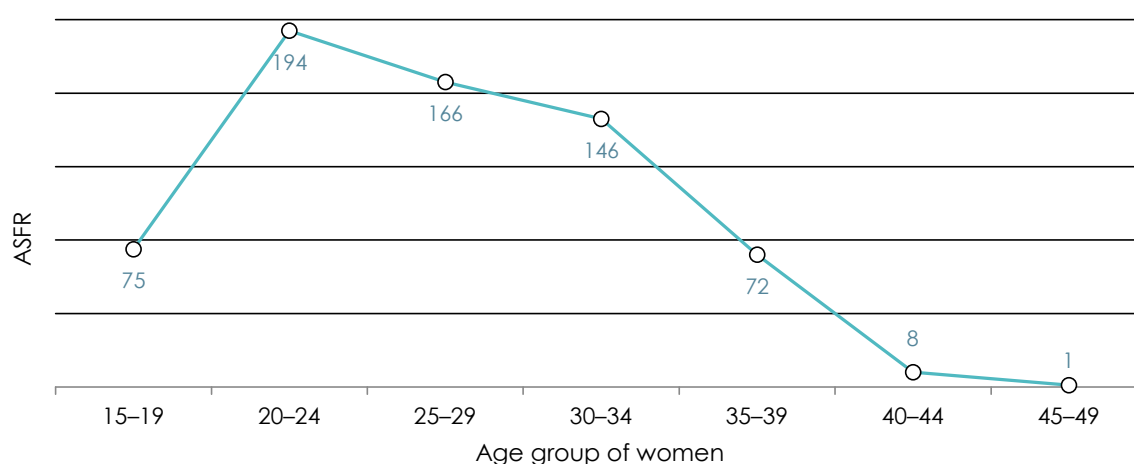
Figure 13. *Age-specific fertility rate (ASFR) based on registered births, Nauru: 2019–2021*

3.1.3 The Own Children method

The Own Children method is a procedure for deriving ASFRs for a 10 or 15-year period, based on the idea that today's children of age x are the survivors of those born x years ago. In order to reverse survive children and mothers to their likely number at the time of birth of the children, a Far-Eastern model life table was used with a life expectancy of 59 years for males and 64 years for females.[6] The variant of the Own Children method used here, as described in Chapter 9 of Moultrie et al., attributes a fertility pattern, rather than matching children to their mothers directly, as in the classical application of the method. For this purpose, the average pattern of 2011–2021 from the vital statistics records was used.

Fertility estimates, derived using the Own Children method based on the 2011 and 2021 censuses and smoothed by three-year moving averages, show that fertility levels have more or less steadily declined from 1998 to 2002 when the TFR reached its lowest point of 3.4. From then onwards it increased quite rapidly to 4.3 in 2010, after which it started a gradual decline, reaching 3.2 in 2019 and 3.3 in 2020 (Figure 14).

On the whole, the patterns for 2005–2011 observed in 2021 are quite consistent with those found in 2011, although the level of the 2021 estimates is slightly lower. The Own Children method is not particularly sensitive to the choice of a specific life table, so it seems unlikely that the difference can be explained by the possibility of underestimated mortality. A more likely explanation for the difference between the 2011 and 2021 estimates is the interference of migration, which can distort the results, as one of the assumptions of the method is that the population should be closed to migration or at least have zero net migration, something that is clearly not the case in Nauru. The alternative explanation would be the under-enumeration of children in the 2021 census.

---

6   The Far-Eastern model is the one that best fits the Nauru mortality pattern (see section 3.2.2) and takes into account that past life expectancies were a bit lower than the 60.9 years for males and 67.1 for women that were found for 2019–2021.
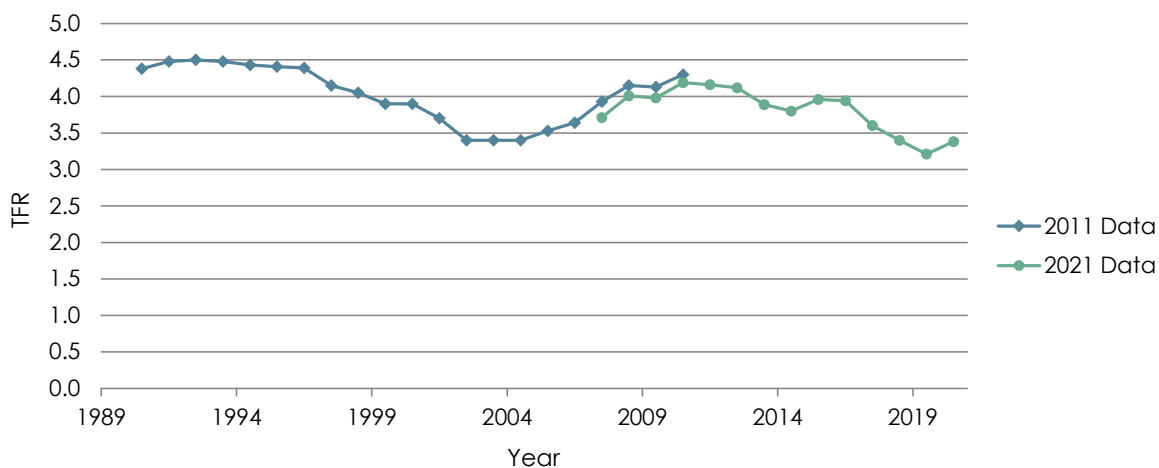
Figure 14. *Estimates of TFR based on the Own Children method (3-year moving average), Nauru: 1998–2021*

As was noted in the 2011 report, the dip of the TFR during the period 2002–2004 coincides with Nauru's economic depression of its phosphate-driven economy. Couples/women might have found it difficult to opt to have children during this period, and eventually postponed childbearing. After 2004, Nauru's economy recovered, people had more money to spend, and having children became affordable again. However, since 2011 fertility has slowly started falling again, with an acceleration since 2016. The reasons for this decline are probably not the same as in the early years of the century.

3.1.4 Teenage fertility rate

The teenage fertility rate (TFR) is the age-specific fertility rate for the 15–19 age group. This rate has special significance because it is associated with what is generally considered premature childbearing, which can have a variety of negative health and social consequences.

According to vital statistics, the TFR for 2019–2021 was 75 per thousand. The estimate from the census data on children born during the past 12 months was lower, namely 66 per thousand. Given that it was 81 per thousand in 2011, both vital statistics and the census suggest some improvement. However, even if the lower census estimate is accepted as correct, this is still the highest TFR in the Pacific region. Vanuatu (64), Solomon Islands (60) and Marshall Islands (58) are the only other countries with comparable rates. In New Caledonia it is only 22, 27 in Fiji, 33 in Tuvalu, 41 in Kiribati and 44 in Samoa.

3.1.5 Conclusions and recommendations

Compared with 2011, when the census report found significant under-registration of births, the vital statistics on births in recent years seem to have improved. This may be related to the fact that total government expenditure on social welfare support for childbirth has increased since 2011, which may have stimulated claims through the registration system. The TFR for 2019–2021, derived by means of the Relational Gompertz method or the Own Children method and estimated through vital statistics, yields very similar results. As shown in Figure 15, the estimates obtained from vital registration and the Relational Gompertz method are almost identical up to age 35. After that, the vital registration estimates fall below those obtained through the Relational Gompertz method, suggesting that the problem of delayed registration applies more to older women than to younger women (Figure 15).

Figure 16 compares the number of registered births in the years from 2012 to 2021 with the number of children aged 0–9. For the most part, the number of registered births is more than the number of children with the corresponding ages. To some extent, this is due to children that died. Therefore, the third line of Figure 16 corrects the number of surviving children for mortality, reverse surviving them to the expected numbers at the time when they were born. Nevertheless, for seven out of 10 years, the number of births exceeds the number of reverse survived children. This suggests that, unlike what was observed in 2011, the birth registration system is now reasonably complete, but that the births for 2019–2021 may still be understated to some extent.
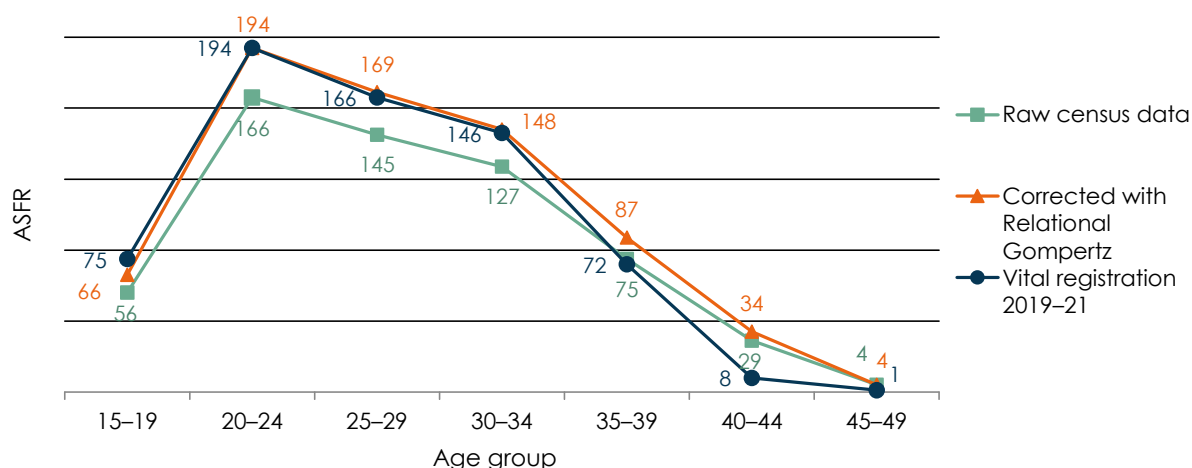
Figure 15. *Comparison of the estimated number of registered births with birth history information of women from the census, Nauru: 2021*
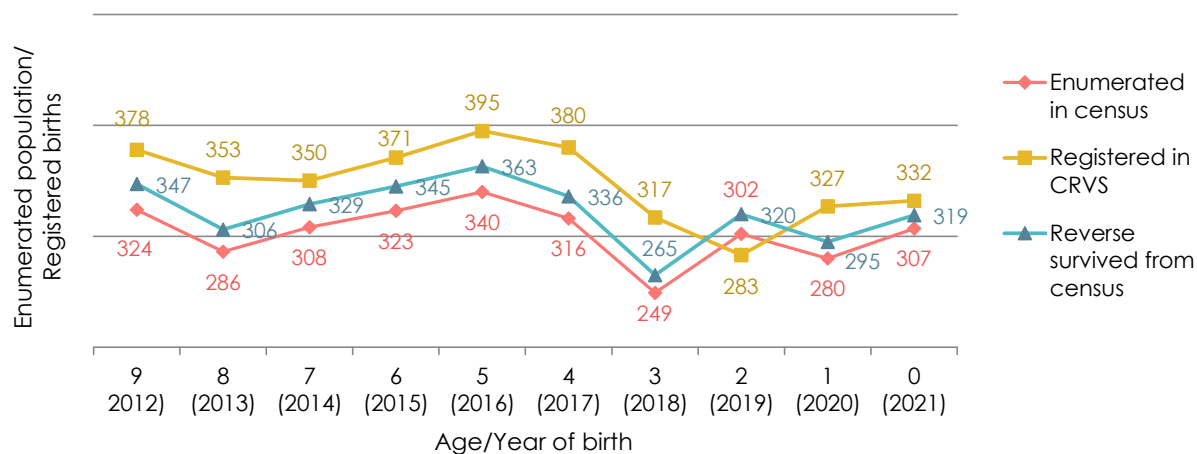
Figure 16. *Comparison of the estimated number of registered enumerated 2021 census population aged 0–9, Nauru: 2012–2021*

Given that the Own Children method appears to yield estimates that are slightly too low, the choice of fertility estimates is between vital statistics and the census figures about children born during the past 12 months, adjusted by means of the Relational Gompertz method. For the purposes of the population projections in Chapter 6, it was decided to use the latter. This was done for two reasons.

- As this is a report on the census, it is preferable to use census data, whenever they seem reliable.
- Recent fertility data from the vital statistics system appear to be somewhat understated, particularly for women over age 35 years.

3.2 Mortality

The questions relating to mortality in the 2021 census asked:

- about the number of live births a woman had ever had, and how many of those born were still alive (living in the same household or elsewhere) and/or had died;
- whether a respondent's mother and father was still alive (orphanhood);
- whether a respondent's marital status was "widowed" (widowhood); and
- whether any residents of the household had died during the three years prior to the census, as part of a broader question about whether the household had members in the last three years who, for whatever reasons, were no longer living there.

3.2.1 Household deaths

Based on the reported number of deaths by age and sex derived from the household question on number of deaths of household residents who had died during the three years before the census, 55 deaths were recorded; 27 males, and 28 females (Table 9). Of these 55 individuals, 15 died in 2018, 19 in 2019, 7 in 2020 and 14 in 2021.

Comparing the reported number of household deaths from the census with the number of deaths registered by the civil registration system points to a severe under-reporting of deaths in the census. The latter recorded 271 deaths during 2019–2021, i.e. almost five times the number obtained from the census. The number is also about three times smaller than the number reported in the 2011 census, which itself was considered understated. While small or moderate understatements of deaths in the household can sometimes be corrected by means of the General Growth Balance method, a difference of this magnitude makes it impossible to use the information on deaths in the household, particularly in a small country like Nauru, which is also greatly affected by international migration. The likely reason of this understatement is that the mortality question was not asked specifically, but as part of a broader item on former household members no longer living there, for whatever reason.

Table 9. *Number of deaths of household residents by age and sex during the three years before the census, Nauru: 2009–2011 and 2019–2021*

Age group	2009–2011			2019–2021		
	Total	Males	Females	Total	Males	Females
0	20	10	10	5	0	5
1–4	2	2	0	3	1	2
5–9	4	2	2	0	0	0
10–14	5	4	1	0	0	0
15–19	2	1	1	0	0	0
20–24	1	1	0	3	1	2
25–29	7	4	3	2	2	0
30–34	2	2	0	2	0	2
35–39	5	3	2	4	3	1
40–44	7	3	4	5	3	2
45–49	15	9	6	1	1	0
50–54	28	13	15	6	4	2
55–59	19	8	11	3	1	2

60–64	11	8	3	4	1	3
65–69	13	9	4	13	6	7
70–74	7	3	4	2	2	0
75+	10	7	3	2	2	0
NS	6	3	3	0	0	0
Total	**164**	**92**	**72**	**55**	**27**	**28**

Given that the information provided by civil registration authorities appears to be much more complete than that found in the census, a better strategy is to base the mortality estimates on the former. The vital registration data, however, also exhibit some unexpected behaviours, such as the following:

- the year 2019 was characterised by an atypically high (1.67 standard deviations above average) number of deaths (106) which, if used to estimate recent mortality, may cause an upward bias;
- in several years (2011, 2016, 2017, 2020, 2021) the number of deaths under age one was higher for girls than for boys, which is unusual; and
- no female deaths were registered in the 5–9 age category during the entire period between 2011 and 2021; unusual, even though mortality in this age group is typically low.

Table 10. Number of registered deaths by age and sex, Nauru: 2019–2021

Age group	2019–2021			2021		
	Total	Males	Females	Total	Males	Females
0	33	16	17	15	7	8
1–4	3	2	1	2	1	1
5–9	0	0	0	0	0	0
10–14	2	1	1	1	0	1
15–19	7	5	2	2	2	0
20–24	2	1	1	0	0	0
25–29	7	5	2	1	0	1
30–34	6	3	3	0	0	0
35–39	14	7	7	3	3	0
40–44	22	13	9	6	5	1
45–49	25	18	7	6	5	1
50–54	34	17	17	7	5	2
55–59	30	18	12	9	5	4
60–64	26	19	7	5	4	1
65–69	30	15	15	6	4	2
70–74	23	12	11	11	7	4
Total	**264**	**152**	**112**	**74**	**48**	**26**

Source: Estimated from data from the Nauru Civil Registration Office

3.2.2 Model life table

The data on reported household deaths by age and sex were used to determine which of the different Coale-Demeny and/or United Nations model life tables compared best to the empirical

Nauru mortality pattern. The assumption was made that possible under-registration of deaths is not age-specific and therefore does not affect the overall pattern of mortality.

In 2011 it was found that the Far-Eastern pattern of the United Nations model life tables most closely resembled the empirical mortality pattern of the male and female Nauru population. This finding was confirmed with the mortality data from civil registration for 2011–2021, both for males and females. However, due to the severe under-counting of deaths by age, evident in Table 9, it could not be entirely confirmed for the 2021 census data. In the case of female deaths, the Far-Eastern pattern was still slightly better than the alternatives, but in the case of male mortality, the West model provided a better fit. However, this was not considered sufficient reason to deviate from the previous practice of estimating mortality based on the Far-Eastern pattern.

3.2.3 Census data on child mortality

Infant and child survivorship can be estimated indirectly by examining answers of women aged between 15 and 50 years regarding the number of live-births and the number of deceased children.

From all children that were born to women aged 15+ (8,394), 96.7% (8,114) were still alive and 280 children had died (Table 11). The proportion of surviving females was higher than that of males (Table 12). While 97.1% of all female live births were still alive, only 96.2% of all male children had survived.

The proportion of surviving children normally decreases with the age of mothers (Figure 17). While 98.9% of all live births of women now aged 25–29 were still alive, only 96.9% of children born to women now aged 45–49 were still alive, and less than 90% of children born to women now aged 70+ 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.

A comparison of data on the number of live births and the proportion of children still alive from the 2011 and 2021 censuses show an improvement in the survival of children of women of all age groups, except the 40–44-year-old women and those over age 70. The latter are children born well before 2011, so overall the data point to a general improvement in the (child) mortality levels in Nauru during the last decade (Figure 18).

Table 11. *Female population aged 15+ by number of live births, number of children dead, and number of children still alive, Nauru: 2021*

Age of women	Total number of women	Total number of live births			Total number of children dead			Total number of children still alive		
		Total	Males	Females	Total	Males	Females	Total	Males	Females
15–19	499	69	35	34	2	1	1	67	34	33
20–24	487	436	213	223	9	4	5	427	209	218
25–29	462	752	405	347	8	5	3	744	400	344
30–34	474	1,250	649	601	20	9	11	1,230	640	590
35–39	456	1,321	656	665	15	9	6	1,306	647	659
40–44	310	1,053	547	506	35	21	14	1,018	526	492
45–49	264	933	491	442	29	14	15	904	477	427
50–54	183	611	299	312	17	6	11	594	293	301
55–59	165	689	364	325	36	25	11	653	339	314
60–64	144	632	338	294	30	16	14	602	322	280

65–69	89	337	160	177	28	16	12	309	144	165
70–74	40	190	101	89	25	17	8	165	84	81
75+	30	121	69	52	26	21	5	95	48	47
Total	**3,603**	**8,394**	**4,327**	**4,067**	**280**	**164**	**116**	**8,114**	**4,163**	**3,951**

Table 12. *Female population aged 15+ by proportion of live births still alive and proportion now dead, Nauru: 2021*

Age of women	Total number of women	Percentage of live births still alive			Percentage of live births now dead		
		Total	Males	Females	Total	Males	Females
15–19	499	97.1	97.1	97.1	2.9	2.9	2.9
20–24	487	97.9	98.1	97.8	2.1	1.9	2.2
25–29	462	98.9	98.8	99.1	1.1	1.2	0.9
30–34	474	98.4	98.6	98.2	1.6	1.4	1.8
35–39	456	98.9	98.6	99.1	1.1	1.4	0.9
40–44	310	96.7	96.2	97.2	3.3	3.8	2.8
45–49	264	96.9	97.1	96.6	3.1	2.9	3.4
50–54	183	97.2	98.0	96.5	2.8	2.0	3.5
55–59	165	94.8	93.1	96.6	5.2	6.9	3.4
60–64	144	95.3	95.3	95.2	4.7	4.7	4.8
65–69	89	91.7	90.0	93.2	8.3	10.0	6.8
70–74	40	86.8	83.2	91.0	13.2	16.8	9.0
75+	30	78.5	69.6	90.4	21.5	30.4	9.6
Total	3,603	96.7	96.2	97.1	3.3	3.8	2.9

Using the census data on the number of live births and proportions of children still living (by age group of the mother), the following mortality indices have been obtained, based on the assumption that the United Nations Far-Eastern model life tables resemble most closely the empirical mortality pattern of Nauru's population (see section 3.2.2). The methodology used for this purpose was the one described in Chapter 16 of Moultrie et al. (2013). This methodology, when applied in combination with the United Nations model life tables, requires an estimate of the mean age at childbearing, for which 2019–2021 civil registration data were used, which yield a value of 27.0 years. The corresponding mean age based on census data would be 28.3 years.
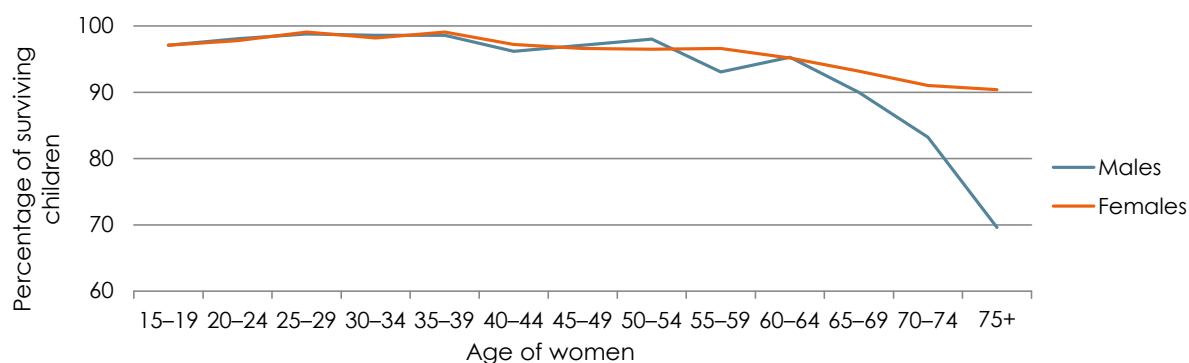
Figure 17. *Percentage of children ever born and still alive by sex and by age of mother, Nauru: 2021*
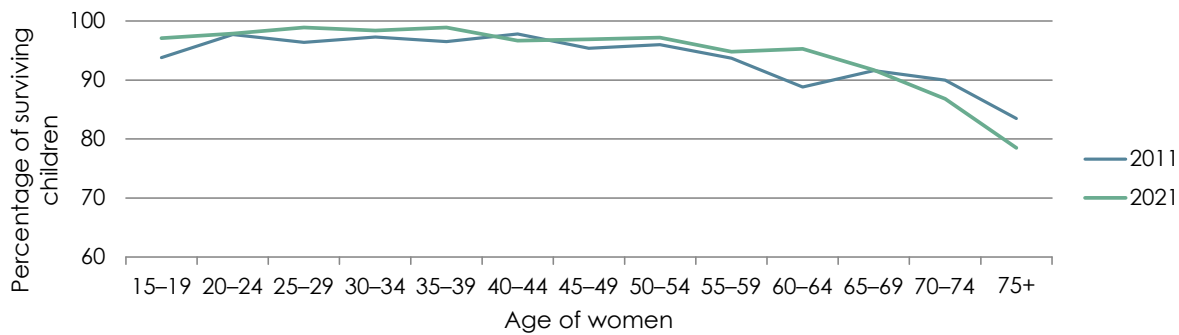
Figure 18. *Percentage of children ever born and still alive by age of mother, Nauru: 2011 and 2021*

Applying this method for the age groups from 20–24[7] to 45–49 yields estimates of mortality between birth and ages 2, 3, 5, 10, 15 and 20, which imply life expectancies ranging from 71 to 81 years for both sexes combined, depending on the particular age interval used. These values seem implausibly high, given that the mortality data from the civil registry indicate a life expectancy of around 64 years for 2021 (see below). Using the mean age at childbearing according to the census (28.3 years) only reduces the mortality estimates further. Therefore, it must be concluded that the census data on children ever born and surviving do not provide a realistic picture of child mortality levels in Nauru.

3.2.4 Census data on adult mortality

Adult mortality levels can be estimated from responses to questions relating to:
- whether a respondent's mother or father was still alive (orphanhood); and
- whether a respondent's marital status was widowed (widowhood).

Orphanhood

The answers of persons in the age range 15–54 years to the question about the survival of their mothers and fathers can yield indirect estimates of adult mortality. From the total population over age 15 (7,187), 44.0% responded that their father was still alive (3,163 people). This compares to 4,315 people or 60.0% who responded that their mother was still alive (Table 13 and Figure 19).

The number and proportion of respondent's mother still alive is higher than that of fathers at any age of respondent. There are two explanations for this.
- Females (mothers) usually live longer than males (fathers).
- Fathers are usually older than mothers because of their age difference at marriage. In section 4.1 it is calculated that the average age at marriage (SMAM) was 26.0 and 24.3 years for males and females respectively: an average age difference of 1.7 years between spouses.[8]

---

7   The 15–19 year age group is typically not used because it tends to be selective in terms of the characteristics of the mothers of that age, thereby causing an upward bias in the corresponding mortality estimate.

8   Computing the SMAM in small populations such as that of Nauru is difficult because the percentage of never married individuals fluctuates greatly by age. This is particularly relevant with respect to the level of final celibacy, i.e. the percentage of persons still single by age 50, which is an important component of the SMAM. In order to minimise the fluctuations of the latter, it was computed in relation to the 45–54 year age group.

Table 13. *Population by five year age groups and whether the biological father or mother is still alive, Nauru: 2021*

Age group	Number of respondents	Father still alive			Mother still alive		
		Yes	No	NS	Yes	No	NS
5–9	1,581	1,427	96	58	1,567	11	3
10–14	1,458	1,289	128	41	1,403	47	8
15–19	1,025	859	137	29	958	59	8
20–24	983	717	219	47	867	95	21
25–29	966	588	334	44	760	190	16
30–34	989	467	477	45	679	286	24
35–39	890	344	503	43	509	360	21
40–44	649	167	442	40	290	332	27
45–49	493	74	395	24	127	354	12
50–54	372	32	322	18	64	293	15
55–59	323	24	290	9	40	274	9
60–64	240	4	233	3	16	221	3
65–69	144	2	139	3	3	138	3
70–74	68	0	68	0	2	66	0
75+	45	0	45	0	0	44	1
Total	**7,187**	**3,163**	**3,473**	**555**	**4,315**	**2,712**	**160**
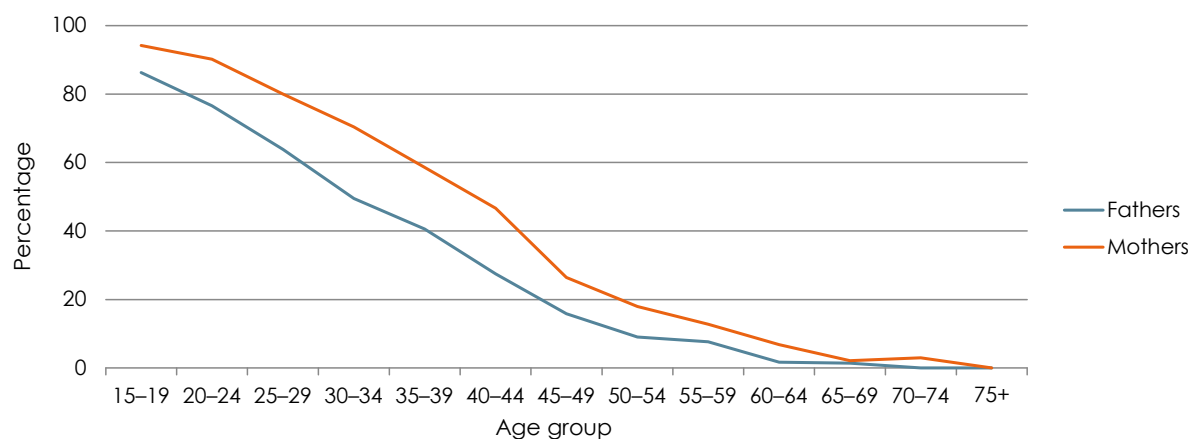
Figure 19. *Percentage of respondent's father or mother still alive, Nauru: 2021*

Note: Percentage excludes fathers and mothers with unknown survival status

The data on orphanhood were used to calculate adult mortality rates, specifically the life expectancy at age 20 (Table 14). As was the case with the estimation of infant and child mortality, the mean age at childbearing, a required data input for both methods, was calculated as 27.0 years, based on the number of registered births for the years 2019–2021. The mean age at childbearing for males (which cannot be computed directly) was obtained from the female value by adding the age difference of the calculated average age at marriage for males and females (SMAM) which was 1.7 years (26.0 years for males minus 24.3 years for females).

Table 14 shows the results of the application of the orphanhood method. The specific variant of the methodology used for this purpose was the one described in Moultrie et al. Chapter 22. The percentage of surviving fathers and mothers (excluding those whose survival status is unknown) in different age groups of respondents yields probabilities of death between different ages. The probabilities of females (based on survival of mothers) refer to death or survival from age 25 and those of males (based on the survival of fathers) from age 35. In addition, these estimates refer to different time periods. In order to be used in a life table, therefore, the first step is to convert the disparate probabilities of death to one common indicator, using the Far-Eastern model life table system to make the conversion. The indicator chosen was the standard indicator for adult mortality, which is the probability of death between ages 15 and 60 ($_{45}q_{15}$). This yields a series of values that share a common definition, but they still refer to different time periods.

Table 14. *Different adult mortality indicators based on the orphanhood method using the Far-Eastern pattern, Nauru: 2021*

Age of respondent	Fathers/Males				Mothers/Females			
	Probability estimated	Value	Time reference	Corresponding value $_{45}q_{15}$	Probability estimated	Value	Time reference	Corresponding value $_{45}q_{15}$
5–9	$_{10}q_{35}$	0.105	2016.7	0.460	$_{10}q_{25}$	0.009	2018.3	0.114
10–14	$_{15}q_{35}$	0.121	2014.6	0.344	$_{15}q_{25}$	0.036	2016.1	0.201
15–19	$_{20}q_{35}$	0.203	2012.5	0.347	$_{20}q_{25}$	0.060	2014.1	0.209
20–24	$_{25}q_{35}$	0.358	2010.3	0.411	$_{25}q_{25}$	0.098	2012.3	0.221
25–29	$_{30}q_{35}$	0.537	2008.1	0.455	$_{30}q_{25}$	0.196	2010.4	0.290
30–34	$_{35}q_{35}$	0.681	2006.1	0.450	$_{35}q_{25}$	0.288	2008.8	0.307
35–39	$_{40}q_{35}$	0.843	2004.3	0.505	$_{40}q_{25}$	0.406	2007.4	0.324
40–44	-	-	-	-	$_{45}q_{25}$	0.533	2006.6	0.328
45–49	-	-	-	-	$_{50}q_{25}$	0.766	2005.3	0.451

As a final step, therefore, two logistic[9] regression lines were fitted (one for males and one for females) that allow estimating the values of $_{45}q_{15}$ on 1 July 2021 (Figure 20). For this purpose, the first observations, based on the 5–9 year age group, were omitted for being outliers. In the case of females, the last observation, based on the 45–49 year age group, was also omitted, for the same reason. Based on this regression, the estimated values of $_{45}q_{15}$ on 1 July 2021 would be 0.243 for males and 0.132 for females. Under the hypothesis of a Far-Eastern mortality pattern, this corresponds to a life expectancy of 65.0 years for males and 73.0 years for females. As will be seen in the next section, this is 4–6 years higher than the estimates based on vital statistics.

---

9   The reason for using a logistic, rather than a linear regression is that the logistic regression levels off when it approaches 0, rather than assuming negative values, as would be the case with linear regression.
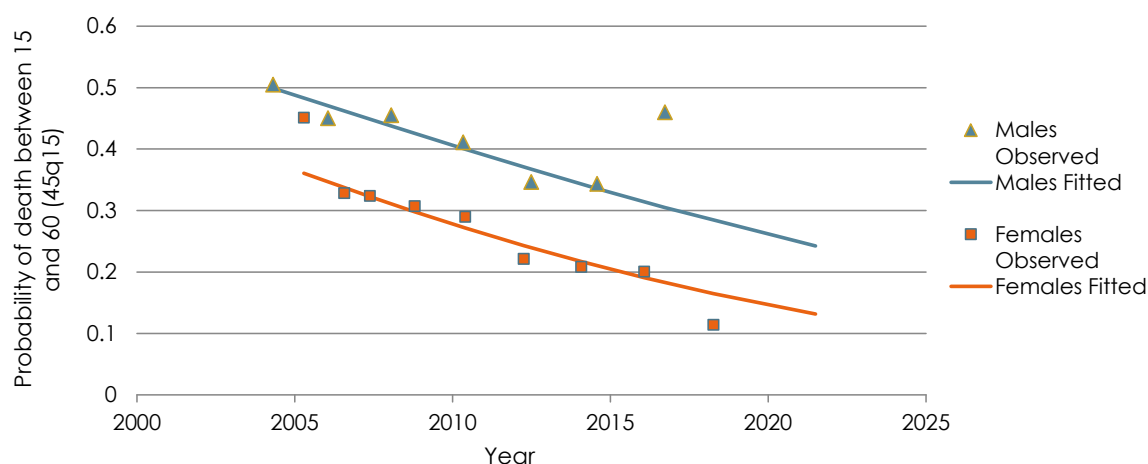
Figure 20. *Logistic regression of the values of $_{45}q_{15}$ estimated by the orphanhood method by sex, Nauru: 2021*

Widowhood

Although the widowhood method has been part of the demographic toolbox for over 40 years and is part of the UN Population Division's MORTPAK software, it has largely been abandoned by demographers[10] because it tends to underestimate mortality due to the understatement of widowhood. This is particularly the case for the estimation of female mortality based on the widowhood of men, as it is more common for men than for women to remarry after widowhood, thereby erasing their earlier widowhood from the census record. Nevertheless, for completeness' sake, the method – as implemented in MORTPAK – will be applied here.

The number and proportion of females widowed is higher than that of males (Table 15 and Figure 21). There are three explanations for this difference.

- Females usually live longer than males (their spouses);
- Males are usually older than females, because of their age difference at marriage (section 4.1).
- Widowers are more likely to remarry than widows.

Table 15. *Population aged 15+ by sex and widowhood, Nauru: 2021*

Age group	Total population			Widowed population		
	Total	Males	Females	Total	Males	Females
15–19	1,025	526	499	0	0	0
20–24	983	496	487	1	1	0
25–29	966	504	462	2	0	2
30–34	989	515	474	5	1	4
35–39	890	434	456	8	4	4
40–44	649	339	310	25	6	19
45–49	493	229	264	25	4	21
50–54	372	189	183	42	15	27

---

10 Moultrie et al. (2013: 193) state: "Other methods for estimating adult mortality indirectly from data on the survival of relatives have been proposed, such as asking about the survival of respondents' first husbands and first wives. Experimentation with these questions has shown that respondents often fail to report that they have been widowed. Thus, the method commonly produces severe underestimates of adult mortality. The widowhood method and further methods based on other questions about the survival of relatives that have proved to be unsuccessful are not described in this manual."

55–59	323	158	165	54	14	40
60–64	240	96	144	71	18	53
65–69	144	55	89	53	13	40
70+	113	43	70	57	13	44
Total	**7,187**	**3,584**	**3,603**	**343**	**89**	**254**

An attempt was made to use the data on widowhood to calculate adult mortality rates, specifically the life expectancy at age 20, by applying the software package MORTPAK, procedure WIDOW. Unfortunately, the data do not allow the calculation of female values, because the proportion of male widowers is too small to calculate any plausible indicators. Apart from the reasons stated above, this may also be due to males misstating their marital status. The life table values for males, based on the widowhood status of their spouses, are more reasonable and yield estimates for 1 July 2021 (e_0 = 62.3 and $_{45}q_{15}$ = 0.285) that are not too different from the ones of the orphanhood method (e_0 = 65.0 and $_{45}q_{15}$ = 0.243) derived above (Table 16).

Table 16. Different adult mortality indicators based on the widowhood method according to MORTPAK using the Far-Eastern pattern, Nauru: 2021

Age of respondent	Widows/Males			Widows/Females		
	Value e_0	Time reference	Corresponding value $_{45}q_{15}$	Value e_0	Time reference	Corresponding value $_{45}q_{15}$
20–24	62.3	2021.8	0.285	62.3	2018.3	0.285
25–29	62.0	2020.5	0.290	>80	2016.1	Out of range
30–34	64.0	2018.1	0.259	>80	2014.1	Out of range
35–39	67.4	2015.9	0.206	>80	2012.3	Out of range
40–44	62.0	2013.8	0.293	79.0	2010.4	0.069
45–49	64.6	2012.2	0.250	>80	2008.8	Out of range
50–54	64.0	2010.5	0.259	71.1	2007.4	0.155
55–59	<20	2009.2	Out of range	75.2	2006.6	0.107

3.2.5 Mortality levels based on vital registration data

3.2.5.1 Infant mortality

The infant mortality rate can be directly calculated from the registered numbers of births and infant deaths, whereas the number of infant deaths is divided by the number of births by sex and year. A slightly more accurate estimate is obtained by using a denominator consisting of the 0.825 times the births of the present year plus 0.175 times the births of the previous year, to account for infant deaths of children that were born in the previous year. The calculated indicator, according to the latter procedure, represents the number of infant deaths per 1,000 births (Table 17 and Figure 21).

The numbers in Table 17 and their graphic representation in Figure 21 should be interpreted with caution because of the intrinsic volatility of statistics based on small numbers of events.[11]

---

11 In a population with an average of 14 infant deaths per year, the relative standard deviation of this number is 1/√14 or 26.7%. Even when accumulated over a 10-year period, the relative standard deviation is still 1/√140 or 8.5%.

Table 17. *Registered number of births and infant deaths, and infant mortality rate (IMR), Nauru: 2011–2021*

Year	Number of births			Number of infant deaths			Infant mortality rate per 1,000		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
2011	427	223	204	9	3	6	22	14	31
2012	378	190	188	12	8	4	31	41	21
2013	353	178	175	10	8	2	28	44	11
2014	350	173	177	12	6	6	34	35	34
2015	371	204	167	13	10	3	35	50	18
2016	395	194	201	14	4	10	36	20	51
2017	380	200	180	13	6	7	34	30	38
2018	317	171	146	12	9	3	37	51	20
2019	283	142	141	11	6	5	38	41	35
2020	327	150	177	7	3	4	22	20	23
2021	332	173	149	15	7	8	45	41	52
2011–2021	3,913	1,998	1,905	128	70	58	33	35	30

Source: Data provided by registry of births, deaths and marriages
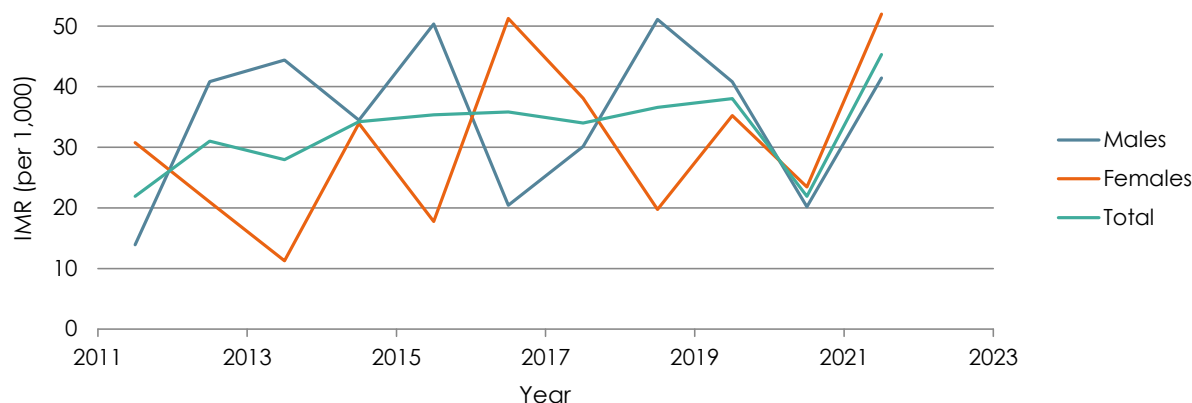
Figure 21. *Infant Mortality Rate (IMR), Nauru: 2011–2021*

Source: Calculated from data provided by the Registry of Births, Deaths and Marriages

Figure 21 does not show a clear trend in infant mortality rates. Rather, due to the small numbers of children born, the rates fluctuate erratically from one year to the next. If anything, there appears to be a slight increase in infant mortality until 2019, followed by a sharp decrease in 2020 and an equally sharp increase in 2021. The latter may be due to the fact that, due to late registration, not all births of 2021 had been registered. Similar problems were present in the estimation of infant mortality in 2011, when the number of registered births had been most likely underreported, which resulted in inflated IMRs, which afterwards had to be adjusted. The report then concluded that, without being certain about the reliability of Nauru's vital statistics system, it was impossible to provide an accurate estimate of the current child mortality levels in Nauru. Even though there have been improvements in birth registration, this conclusion still applies to some extent to the 2019–2021 period.

Therefore, for the purposes of this report, the infant mortality estimate for 2019–2021 was corrected by 3.31/3.51, i.e. the ratio between fertility estimated from vital registration and from corrected census data. This yields an overall mortality rate of 33.1 per 1,000. However, it also yields higher

female than male mortality, which is unlikely. Therefore, the overall estimate was broken down by sex according to the ratio between male and female infant mortality for the entire 2011–2021 period. This yields a male infant mortality rate of 36.3 per 1,000 and a female infant mortality rate of 29.8 per 1,000.

3.2.5.2 Deaths by age and sex

As was noted in section 3.2.1, despite its possible under-registration of births and deaths, the civil registration system is probably the best available source for mortality estimation. The number of deaths enumerated in the census for the period 2019–2021 is lower by a factor of almost five. Indirect methods to estimate child and adult mortality, such as the method based on the proportion of surviving children by age of the mother and the widowhood method, also yield implausible results. Only the orphanhood method yields results comparable to those of the vital registration system, although even this method seems to underestimate adult mortality in comparison to estimates obtained from vital statistics. Consequently, the discussion that follows will mostly be based on vital registration data, with some adjustments. Census data will be used primarily in order to estimate the appropriate denominators, which may be different from those used in earlier analyses of vital registration data.

Section 3.2.1 already applied some simplifying assumptions in order to fill in the gaps of the information available from the vital registration system. However, further assumptions are necessary in order to regularise the behaviour of the vital statistics and eliminate some of their most implausible characteristics. The three most salient problems already mentioned in section 3.2.1 are the following:

- the atypically high number of deaths (107) in 2019 which, if used in the mortality estimates, causes an upward bias; and
- the absence of female deaths in the 5–9 year age category during the entire inter-census interval, from 2011 to 2021.

It is important to note that the correction of these problems is only a minimum adjustment. The life tables that will be produced are still somewhat erratic and contain some unusual features that could be smoothed out. As always, the challenge is to maintain as much as possible of the original data, while correcting its most glaring inconsistencies. The following discussion will focus on the two problems noted above, with the understanding that further smoothing could have been applied to further regularise the data structure.

The step taken was to define a mortality trend. More specifically, a weighted regression line was fitted to the data points, with weights of 1/(n+1) for data points n years before 1 July 2021, excluding the two most deviant values (atypically low mortality in 2011 and atypically high in 2019). Based on this regression line, the mortality level on 1 July 2021 was then estimated. The result is an upward correction of about 10% to the original data, given that the original data point for 2021 (74 deaths) falls below the trend line (76.9).

To this total of 76.9 deaths the procedure applied the age pattern of mortality by age and sex for the entire period 2011–2021, in order to minimise the volatility of the age-specific rates that would have resulted from applying the 2021 age structure directly.

In addition, the 2021 population was moved back from November to 1 July 2021, in order to align the census population with the timing of the vital statistics. For the years between 2011 and 2021, population estimates by age and sex were based on the assumption of exponential change by cohorts. This is a slightly more accurate method than the more common exponential interpolation by age groups.

Age-specific death rates (ASDRs) were derived by dividing the number of deaths in 2021, as estimated in Table 19, by the corresponding population figures in the first three columns of the same table.

Table 18. *Estimated mid-period population by age and sex, and average number of deaths by age and sex, Nauru: 2011–2021*

Age group	Mid-year population 2021			Deaths 2021		
	Total	Males	Females	Total	Males	Females
0	309	162	147	10.6	5.8	4.8
1–4	1,149	564	585	1.1	0.6	0.5
5–9	1,564	811	753	0.2	0.2	0.0
10–14	1,442	757	685	0.8	0.4	0.4
15–19	1,021	524	497	1.6	1.2	0.4
20–24	985	497	488	1.8	1.1	0.7
25–29	966	503	463	2.3	1.4	0.9
30–34	981	511	470	2.8	2.0	0.8
35–39	879	429	450	4.6	2.3	2.2
40–44	642	335	307	5.6	3.8	1.8
45–49	493	229	264	6.7	4.5	2.2
50–54	372	188	184	10.1	5.0	5.1
55–59	321	157	164	7.7	3.8	3.9
60–64	237	95	142	6.9	3.8	3.1
65–69	138	53	85	7.2	3.5	3.7
70+	111	42	69	6.8	3.5	3.3
Total	**11,610**	**5,857**	**5,753**	**76.9**	**42.9**	**34.1**

Table 19. Age-specific death rates (number of deaths by age and sex per 1000 population), Nauru: 2021

Age group	Number of deaths per 1,000		
	Total	Males	Females
0	34.4	37.4	30.6
1–4	0.9	1.0	0.9
5–9	0.2	0.2	0.0
10–14	0.5	0.5	0.6
15–19	1.5	2.2	0.8
20–24	1.9	2.2	1.5
25–29	2.4	2.8	2.0
30–34	2.9	3.9	1.8
35–39	5.2	5.4	5.0
40–44	8.8	11.4	6.0
45–49	13.6	19.6	8.5
50–54	27.0	26.5	27.5
55–59	24.1	24.3	23.8
60–64	29.1	40.2	21.6
65–69	52.4	65.8	44.0
70+	61.4	83.1	48.2
Total	**6.9**	**7.6**	6.2

The ASDRs show a typical pattern with relatively high levels at age 0, the infant deaths, and very low levels for the population aged 1–4 to about age 19, when levels slowly increase. From age 55, mortality levels rapidly increase as the probability of dying increases with age.

3.2.5.3 Life table and life expectancy at birth

The registered number of deaths by age and sex and the calculated mid-period populations (Table 18), as well as the derived infant mortality rates (section 3.2.5.1) were used to compute life tables for males and females for 2021.

Table 20. Abridged male life tables based on vital registration data, Nauru: 2021

Age	$_n m_x *1000$	$_n q_x *1000$	ℓ_x	$_n d_x$	$_n L_x$	$_n S_x$	T_x	e_x
0	37.4	36.3	100,000	3,630	97,005	0.9634	6,093,077	60.9
1	1.0	4.1	96,370	397	384,687	0.9957	5,996,072	62.2
5	0.2	1.0	95,973	98	479,621	0.9981	5,611,385	58.5
10	0.5	2.7	95,875	263	478,719	0.9931	5,131,764	53.5
15	2.2	11.0	95,612	1,055	475,424	0.9891	4,653,045	48.7
20	2.2	10.8	94,557	1,022	470,231	0.9876	4,177,621	44.2
25	2.8	13.9	93,535	1,304	464,416	0.9834	3,707,391	39.6
30	3.9	19.3	92,231	1,782	456,701	0.9770	3,242,974	35.2
35	5.4	26.7	90,449	2,419	446,198	0.9519	2,786,273	30.8
40	11.4	55.5	88,030	4,882	427,944	0.9261	2,340,075	26.6
45	19.6	93.4	83,148	7,764	396,329	0.8919	1,912,131	23.0

50	26.5	124.3	75,384	9,373	353,487	0.8802	1,515,803	20.1
55	24.3	114.7	66,011	7,573	311,122	0.8533	1,162,316	17.6
60	40.2	182.8	58,438	10,680	265,489	0.7723	851,194	14.6
65	65.8	282.7	47,758	13,499	205,045	0.7055	585,704	12.3
70	73.7	311.1	34,259	10,658	144,650	-	380,663	11.1
75	100.0	1000.0	23,601	23,601	236,013	-	236,013	10.0

Table 21. *Abridged female life tables based on vital registration data, Nauru: 2021*

Age	$_nm_x*1000$	$_nq_x*1000$	ℓ_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x
0	30.6	29.8	100,000	2,980	97,542	0.9699	6,705,451	67.1
1	0.9	3.4	97,020	330	387,420	0.9966	6,607,910	68.1
5	0.1	0.7	96,690	64	483,289	0.9985	6,220,490	64.3
10	0.5	2.3	96,626	222	482,573	0.9968	5,737,201	59.4
15	0.8	4.2	96,404	402	481,012	0.9941	5,254,628	54.5
20	1.5	7.6	96,001	733	478,176	0.9913	4,773,616	49.7
25	2.0	9.8	95,269	936	474,005	0.9907	4,295,440	45.1
30	1.8	8.8	94,333	830	469,591	0.9833	3,821,435	40.5
35	5.0	24.6	93,503	2,302	461,761	0.9731	3,351,844	35.8
40	6.0	29.3	91,201	2,675	449,320	0.9646	2,890,082	31.7
45	8.5	41.6	88,526	3,683	433,425	0.9157	2,440,763	27.6
50	27.5	128.8	84,444	10,931	396,890	0.8788	2,007,337	23.7
55	23.8	112.4	73,912	8,305	348,800	0.8922	1,610,447	21.8
60	21.6	102.7	65,608	6,737	311,197	0.8522	1,261,647	19.2
65	44.0	198.1	58,871	11,664	265,196	0.8015	950,449	16.1
70	44.2	198.9	47,207	9,391	212,557	-	685,253	14.5
75	53.3	1000.0	37,816	37,816	472,696	-	472,696	12.5

In the process, two adjustments had to be made in order to correct problems in the original data, resulting from the small numbers of events.

- 0.1 female deaths were redistributed from the 10–14 to the 5–9 year age group, to resolve the problem of 0 deaths in this age group.
- A common way of estimating the life expectancy at age 75 is as 1/m75+. However, due to the small number of persons and deaths in the 75+ year age category, this quantity is quite unstable. In the case of males, it results in a life expectancy of 10.0 years, which is higher than expected, but not impossible. However, in the case of females, the result is a life expectancy of 18.75 years, which was considered implausible. In order to bring it more in line with the male life expectancy, a value of 12.5 years was assumed instead.

The resulting life tables for males and females are shown in Tables 20 and 21.

The following text box provides a brief explanation of the meaning of each of the life table functions shown in Tables 20 and 21.

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)" represents the infant mortality rate (IMR).
The second value in column "q(x,n)" represents the child mortality rate.

m(x,n) (also written $_nm_x$) = the age-specific death rate (ASDR)
q(x,n) (also written $_nq_x$) = the probability of dying between the exact ages x and x+n
l(x) (also written l_x) = the number of survivors at the exact age x
d(x,n) (also written $_nd_x$) = the number of deaths between the exact ages x and x+n
L(x,n) (also written $_nL_x$) = 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) (also written $_nS_x$) = the probability of surviving from one age interval to the next
T(x) (also written T_x) = the 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) (also written e_x) = life expectancy from age x

Probably the most important indicator that can be derived from the life table is the life expectancy at birth (e_0). In 2011, the estimated values of the life expectancy at birth were 57.5 years for males and 63.2 years for females, for the 2007–2011 period. The census report of that year noted that these estimates should be regarded as high variants, as it was possible that the number of deaths the calculations are based on could be underreported. As shown in Tables 20 and 21, the values computed for 2021 are 60.9 and 67.1 years respectively. This indicates a significant increase, in the order of 3.5 years. To the extent that indirect estimation methods can be relied on, given their inherent biases, both the orphanhood and the widowhood method (for male mortality) confirm that there has been a significant improvement in adult survival probabilities. Nevertheless, given the quality of the data and the small numbers on which they are based, the results are subject to significant uncertainty and should be interpreted with caution. The same qualifications that applied in 2011 must also be made here.

Life expectancies for males and females in Nauru compare with 78.8 and 82.7 years for males and females respectively in New Zealand, and in Australia it is 79.3 and 83.9 years. Therefore, an

average person in New Zealand or Australia lives about 20 years longer than a Nauruan. Nauru's life expectancy is one of the lowest of all Pacific Island countries and territories.

3.3   International migration

3.3.1 Introduction

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 a migrant – he or she is 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, business 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 be established only after a certain period of time, usual at least six months, in order to establish whether the arriving and departing person qualifies as a visitor or migrant.

3.3.2 Administrative data

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 period of time.

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

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

Unfortunately, data on arrivals and departures from passengers' arrivals and departure cards collected by the Customs and Immigration Office are not available, at least not in an electronic form. It is, therefore, currently not possible to obtain an accurate picture of the magnitude of migration flows to and from Nauru based on immigration statistics.

3.3.3 Census data

The 2021 census included four questions that provide an indication of the level of immigration. It asked questions about a respondent's:

- country of birth;
- citizenship;
- residence one year before the census; and
- residence five years before the census.

In addition, the 2021 census contains a question on former members who left the household during the past three years. This question is primarily useful for measuring mortality, but it also allows the identification of former members absent because of migration.

Regarding place of birth, 7.9% (925 people) of respondents answered that they were born overseas (Table 27 and Figure 44); 369 of these people held Nauruan citizenship and 127 held dual citizenship.

Regarding citizenship, 5.7% (668 people) of the population answered that they were citizens other than Nauruan (Table 27 and Figure 46).

With respect to people's residence one year before the census, 10,685 people answered that they were living in the same place as at census date, 611 were living elsewhere in Nauru, and 77 were overseas. The numbers with respect to residence five years before the census were 8,817, 1,178 and 231, respectively. Note that the number of people not living at their present residence five years before the census is only about twice, rather than five times, the number living elsewhere one year ago. This is a fairly normal finding in censuses, which has to do with return migration and with the fact that some individuals are more mobile than others. It does not necessarily indicate a recent increase in migration.

However, questions 1–4 above only give an indication of long-term immigration. Information on emigration is not available from a de facto census as people that left the country cannot be enumerated and/or interviewed.

3.3.4 Balancing equation

The only reliable method to arrive at a crude indication of the level of net migration in Nauru is by applying the balancing equation to the intercensal 2011–2021 population growth:

- Balancing equation:
  Population growth = Births minus deaths plus net migration

- Net migration can be estimated as:
  Net migration = Population growth minus births plus deaths

From the total population count of the 2011 census (10,084) and the 2021 census (11,680) the overall population growth of the intercensal periods can be calculated (Table 22).

In addition, Table 22 lists the registered total number of births and deaths, and annual number of births and deaths. The difference between births and deaths is the natural increase, and the difference between population growth and natural increase is the number of net migrants.

During the period 2012–2021, the net total number of migrants was -854 people, meaning that 854 more people had left the country than had arrived; this was 504 males and 350 females.

Table 22. *Population change, number of registered births and deaths, and number of net migrants by sex, Nauru: 2012–2021*

Sex	Population growth		Number of births		Number of deaths		Natural increase		Net migration	
	Total	Annual	Total	Annual	Total	Annual	Total	Annual	Total	Annual
Total	1,596	160	3,574	357	860	86	2,714	271	-1,118	-112
Males	788	79	1,813	181	479	48	1,334	133	-546	-55
Females	808	81	1,761	176	381	38	1,380	138	-572	-57

Note: Births and deaths according to vital statistics system. Because the 2011 took place in November 2011, births and deaths are not counted.

Finally the crude birth rates (CBR), crude deaths rates (CDR) and migration rates can be calculated – again using the balancing equation (Table 24):

- *Population growth rate = CBR minus CDR plus net migration rate*
- *Net migration rate = Population growth rate minus CBR plus CDR*

Table 23. *Population growth rate, crude birth rate, crude death rate, and net migration rate by sex, Nauru: 2011–2021*

Sex	Mid-period population size	Population growth rate (%)	Crude birth rate	Crude death rate	Natural growth rate (%)	Net migration rate (%)
Total	10,853	1.47	3.29	0.79	2.50	-1.03
Males	5,485	1.44	3.31	0.87	2.43	-1.00
Females	5,368	1.51	3.28	0.71	2.57	-1.07

The population growth rate of the period 2011–2021 was 1.47% as the population increased from 10,084 people in 2011 to 11,680 in 2021. The CBR and CDR were 32.9 and 7.9 per 1000 population and, according to the balancing equation, the net migration rate was -1.03% as there were more departures than arrivals.

It should be noted that the number of births in Table 22 and the CBR in Table 23 are based on civil registration data for 2012–2021. These data may be somewhat underestimated, which would result in an underestimation of the natural growth and, consequently an underestimation of net emigration. There is, however, no solution for this, as the alternative would be to use data from the Own Children method, which, as was seen in section 3.1.5, underestimates fertility more than the civil registration data.

4. SOCIAL CHARACTERISTICS

4.1 Marital status

At the time of the 2021 census, 44.9% of males (1,608) and 44.5% of females (1,603) aged 15+ were legally married and another 12.5% were living in a de facto relationship (Figure 22). The proportion never married (single) was 37.4% of males (1,340) and 32.9% of females (1,187). A higher proportion of females (7.0%) was widowed than males (2.5%).
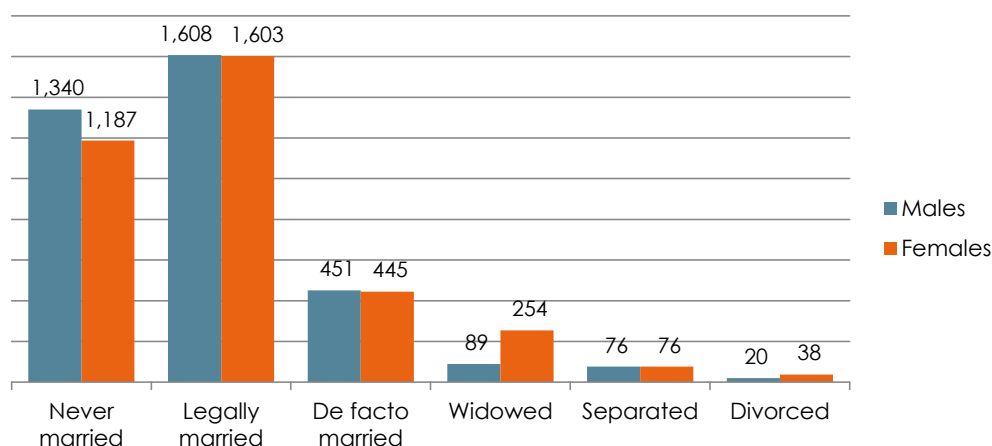
Figure 22. *Population aged 15+ by marital status, Nauru: 2021*

The age at marriage is an important proximate determinant of fertility. Women who marry at an early age often have more children than those marrying later.

The higher proportion of young married women compared with men of the same age indicates that women generally marry at younger ages than men (Table 24 and Figure 23). The average age at marriage (singulate mean age at marriage, SMAM) was 26.0 and 24.3 years for males and females, respectively, and was calculated based on the proportion of those never married/single by age, scaled by the percentage never married at ages 45–54.

About 4.6% of males and about 10.6% of females were married at ages 15–19 (Figure 24). At age 20–24 almost half of all women were already married compared with less than a third of males. Compared to the 2011 census, the percentage of males aged 15–19 who were married had slightly increased, whereas all the other percentages had decreased or stayed the same. The average age at marriage also went up (Table 24 and Figure 23).

Table 24. *Singulate mean age at marriage (SMAM) and percentage married at young ages, by sex, Nauru: 1992, 2002, 2011 and 2021*

| | Average age at first marriage | | | Ever married by age group (%) | | | |
| | SMAM | | Difference | 15–19 | | 20–24 | |
Year	Males	Females	(Women–Men)	Males	Females	Males	Females
1992	25.0	23.9	1.1	6.2	13.7	48.4	53.1
2002	24.3	22.2	2.1	8.6	15.4	44.4	50.8
2011	24.4	22.6	1.8	3.6	13.4	37.2	47.6
2021	26.0	24.3	1.7	4.6	10.6	31.5	47.6
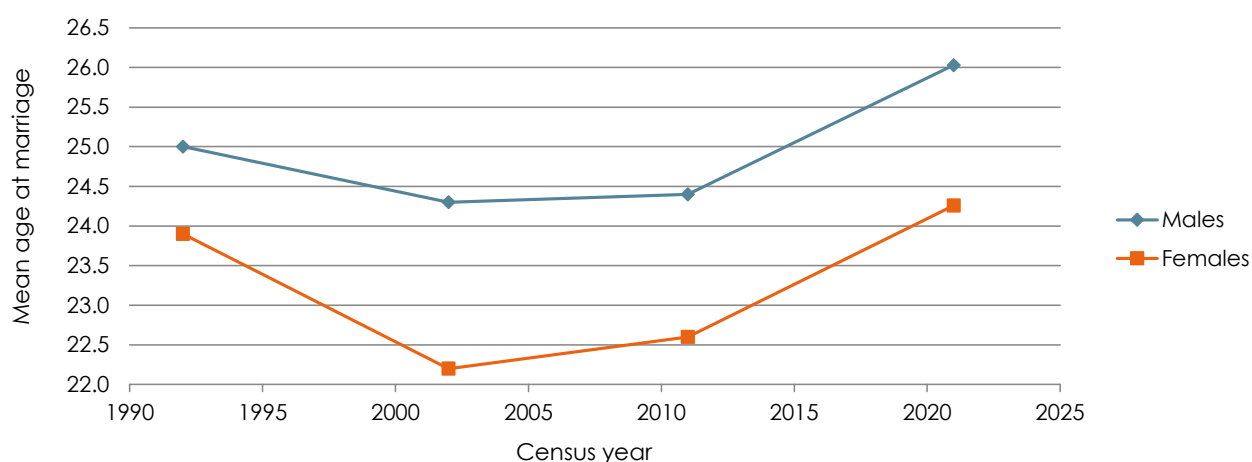
Figure 23. *Singulate mean age at marriage (SMAM) by sex, Nauru: 1992, 2002, 2011 and 2021*
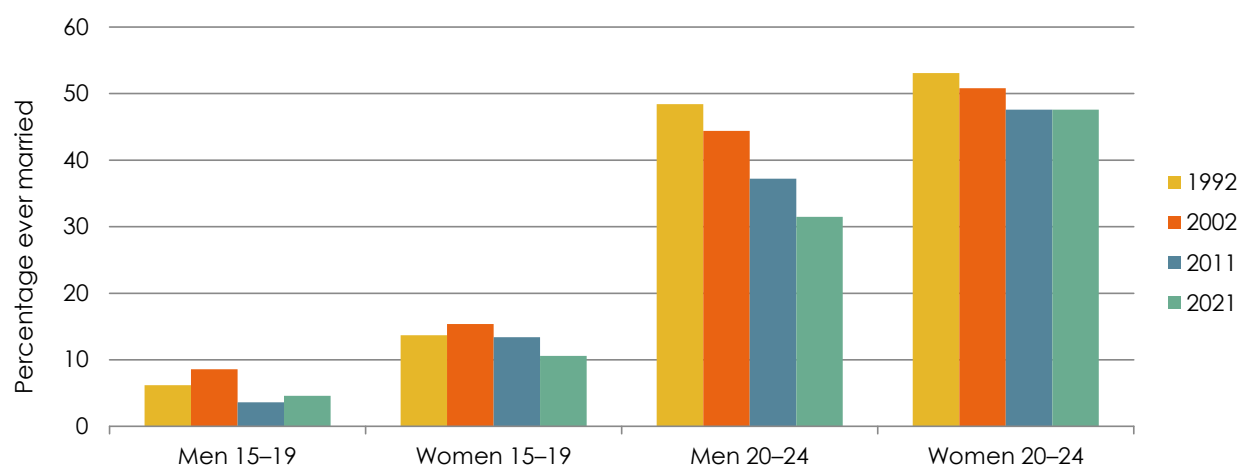
Figure 24. *Percentage of the population married at young ages by sex, Nauru: 1992, 2002, 2011 and 2021*

Figures 25 and 26 display the proportion of males and females married/never married by age. Clearly these two figures 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. It should be noted that beyond age 65, the percentages become rather erratic, due to the small denominators.

The proportion of females of married status is higher than that of males until age 40. From age 40, the proportion of married females steadily declines because an increasing number of females become widows (Figure 27). The discrepancy between the proportion of widowed males and widowed females at ages 50 and older increased continuously. At ages 40–44, only 1.8% of men were widowed, compared with 6.1% of women. At age 50–54, only 7.9% of males were widowed, compared with 14.8% of females and, at age 70 years and older, 30% and 63% of males and females, respectively, were widowed.

The higher proportion of widowed females is explained by:
- lower female mortality rates, and therefore longer life expectancies of female spouses – male spouses usually die before their female partners;
- the older age at marriage of males compared with their female partners as expressed in the average age at marriage (SMAM) above; and
- higher rates of remarriage among widowers than among widows.
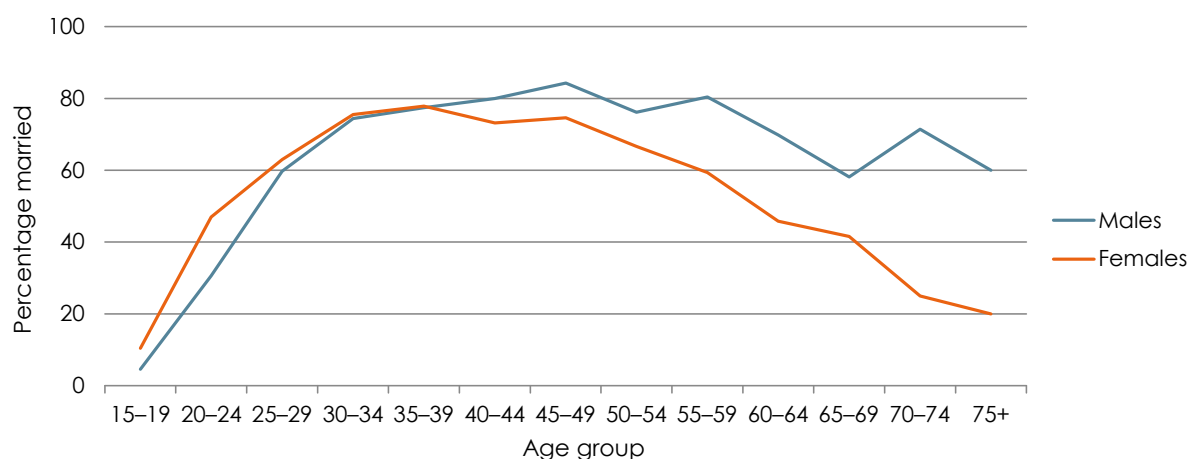
Figure 25. *Population aged 15+ in prate households by sex and proportion married (legally or de facto), Nauru: 2021*
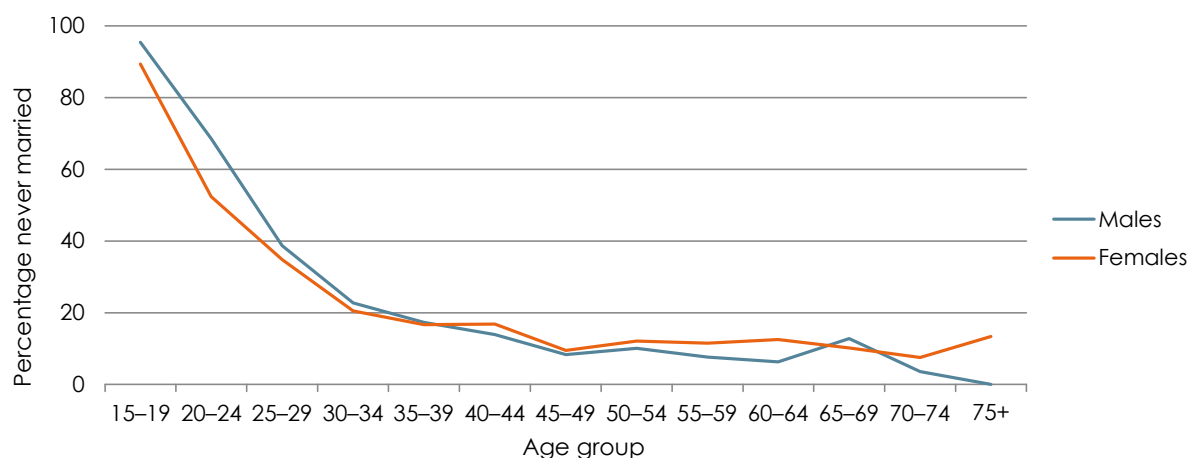
Figure 26. *Population aged 15+ by sex and proportion never married, Nauru: 2021*
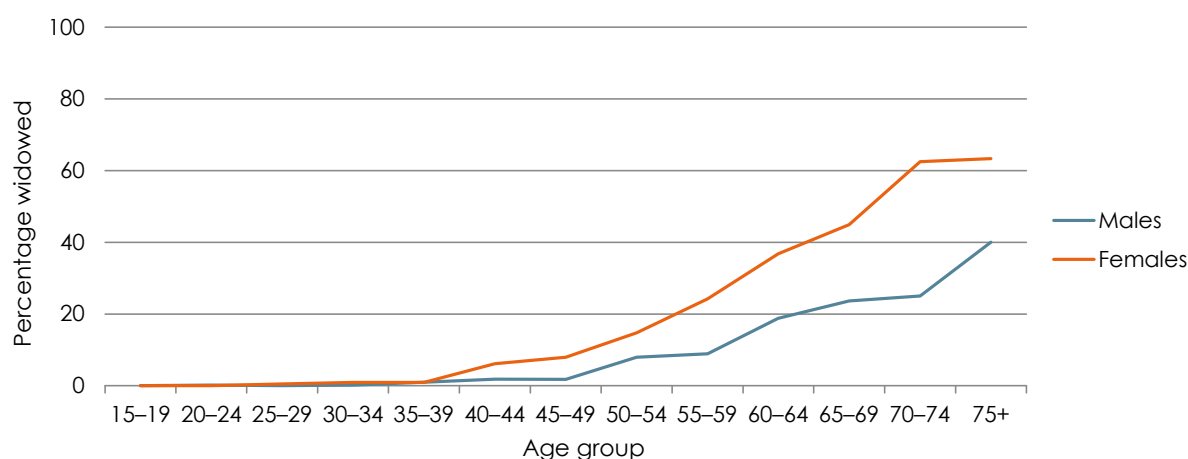
Figure 27. *Population aged 15+ by sex and proportion widowed, Nauru: 2021*

4.2 Religion

The Nauruan Congregational Church continues to be the dominant religious denomination in Nauru, with a share of 34.3% (4,001) of all persons affiliated with this church in 2021 (Table 25).

Table 25. *Population by religious affiliation, Nauru: 2011 and 2021*

Religious denomination	2011	2021
Nauruan Congregational	3,552	4,001
Roman Catholic	3,278	3,959
Assemblies of God	1,291	1,365
Nauru Independent	945	410
Pacific Light House	-	706
Seventh Day Adventist	73	168
Baptist	148	175
Protestant	-	126
Brethren Church	-	47
Hinduism	-	6
Methodist	-	18
Jehovah's Witness	89	-
Other religion	282	485
No religion	178	157
Not stated	109	57
Total	**9,945**	**11,680**

Almost as large was the Roman Catholic Church with 3,959 members (33.9% of all denominations), then Assemblies of God with 1,365 members (11.7%). All other denominations had 6% or less of the population. Persons with no religion comprised 0.5% of the population, and 57 people did not state their religion. Jehovah's Witnesses, which in 2011 had 89 members, seems to have disappeared by 2021.

By and large, there were no major differences between Nauruan nationals and foreigners, except for the fact that all Hindus and Methodists were non-Nauruan citizens, whereas the categories of "No religion", "Brethren Church" and "Seventh Day Adventists" were somewhat more common among foreigners than among nationals.

4.3   Country of origin

The 2021 census included two questions to determine a person's place of origin; where a person was born and what a person's citizenship was.

4.3.1 Place of birth

Based on information on the number of people by place of birth, 92.1% or 10,755 persons were born in Nauru (Table 26). Less than a thousand people were born overseas, most notably in Kiribati (275), Fiji (254) and Australia (138). The proportion of overseas born people declined significantly after 2002, when almost a quarter of all people living in Nauru at the time were born overseas. In particular, the number of people born in Kiribati and China decreased after 2002, when almost 1,000 people born in Kiribati lived in Nauru, and more than 400 were born in China. Since 2011, however, the number of persons born abroad has increased only slightly.

Table 26. *Population by place of birth, Nauru: 2011 and 202*

Country	2011 Census		2021 Census	
	Number	**%**	**Number**	**%**
Nauru	9,031	90.8	10,755	92.1
Kiribati	194	2.0	275	2.4
Tuvalu	45	0.5	80	0.7
Australia	147	1.5	138	1.2
New Zealand	14	0.1	9	0.1
Fiji	169	1.7	254	2.2
Solomon Islands	42	0.4	42	0.4
Philippines	45	0.5	18	0.2
PR China	51	0.5	9	0.1
Republic of China	88	0.9	7	0.1
India	8	0.1	6	0.1
Other	111	1.1	87	0.7
Total	**9,945**	**100**	**11,680**	**100**

4.3.2 Citizenship

Based on information on the number of people by citizenship, 11,012 were Nauruan citizens while 203 held double Nauruan/Kiribatian citizenship (Table 27). Only 4% of the population were not Naruan citizens, mostly I-Kiribati (170) and Fijian (141).

Table 27. *Population by citizenship, Nauru: 2021*

Country of citizenship	2011 Census		2021 Census	
	Number	**%**	**Number**	**%**
Nauru	9,418	94.7	11,012	94.3
Dual citizenship Nauru/Kiribati	-	-	203	1.7
Kiribati	132	1.3	170	1.5
Tuvalu	21	0.2	41	0.4
Australia	24	0.2	20	0.2
New Zealand	2	0.0	2	0.0
Fiji	58	0.6	141	1.2
Solomon Islands	41	0.4	25	0.2
Philippines	36	0.4	9	0.1
PR China	125	1.3	1	0.0
Republic of China	17	0.2	11	0.1
India	2	0.0	4	0.0
Tonga	-	-	17	0.2
Marshall Islands	-	-	2	0.0
Papua New Guinea	-	-	3	0.0
Other	69	0.7	19	0.2
Total	**9,945**	**100**	**11,680**	**100**

4.4 Disability

Nauru is a signatory to a United Nations convention to uphold the rights of people with disabilities; and is therefore obliged to: "Promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities and to promote respect for their inherent dignity".

The question on disabilities included in the 2021 census was whether a person over age five had any difficulties or health problems in seeing, hearing, walking, remembering, self-care and communication – regardless of the severity of the difficulties experienced (Table 28). The degrees of difficulty distinguished were: 1. No difficulty; 2. Some difficulty; 3. Severe difficulty; and 4. Cannot do it at all. The numbers corresponding to this last category, i.e. persons who are blind, deaf, lame, paralysed or mentally disabled, are shown in Table 29.

Overall, 621 people, or 6.1% of the total population over age five, reported at least one disability, regardless of the severity of the difficulties experienced (Table 28). The proportion of males (5.8%) with a disability was slightly lower than that of females (6.3%). The disabilities that were most commonly mentioned were difficulties with seeing (276 people), followed by difficulties with walking (252), remembering (157), self-care (155), and hearing (134).

A total of 224 people reported a severe disability and 73 (37 men and 36 women) declared themselves totally incapable of executing at least one function (Table 29). Of these, 35 people were recorded as lame (unable to walk), and 30 were unable to carry out self-care, 10 were deaf, and 9 were blind (note that a person can have more than one disability).

Nineteen people with a total disability – 10 males and 9 females – were in school, but only two males and one female were employed in some capacity. A total of 16 (2 males and 14 females) were retired.

Table 28. *Population aged 5+ reporting a difficulty regardless of the severity of the difficulty, Nauru: 2021*

Difficulty	Number of people			%		
	Total	Males	Females	Total	Males	Females
Seeing	276	120	156	2.7	2.3	3.1
Hearing	134	59	75	1.3	1.1	1.5
Walking	252	120	132	2.5	2.3	2.6
Remembering	157	74	83	1.5	1.4	1.6
Self-care	155	81	74	1.5	1.6	1.5
Communication	109	62	47	1.1	1.2	0.9

Table 29. *Population aged 5+ reporting a total disability, Nauru: 2021*

Difficulty	Number of people			%		
	Total	Males	Females	Total	Males	Females
Seeing	9	5	4	0.09	0.10	0.08
Hearing	10	7	3	0.10	0.14	0.06
Walking	35	16	19	0.34	0.31	0.38
Remembering	2	1	1	0.02	0.02	0.02
Self-care	30	18	12	0.29	0.35	0.24
Communication	11	6	5	0.11	0.12	0.10

As is to be expected, the proportion of the population with a disability increased with age (Figures 28 and 29). While only about 2.7% of people aged 5–19 had a disability, about 3.9% aged 25–39 had a disability. From age 40, the proportion of the population with a disability increased continuously. About one quarter of the population aged 60–69 reported a disability, and over half of the population 75+ years did so. The difficulty that was most commonly mentioned by the older population was walking or vision or hearing.
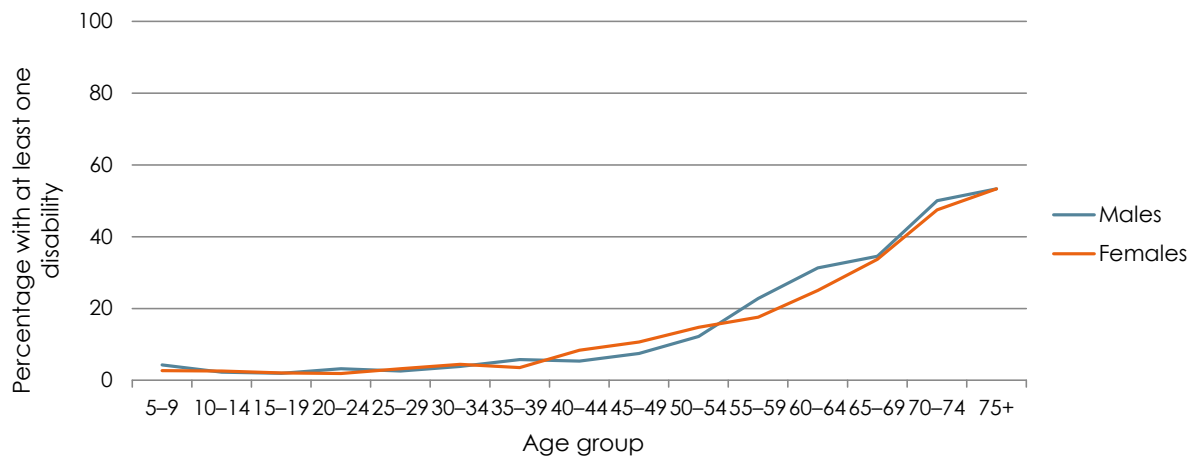
Figure 28. *Percentage of the population by age and sex reporting any disability regardless of the severity of the disability, Nauru: 2021*
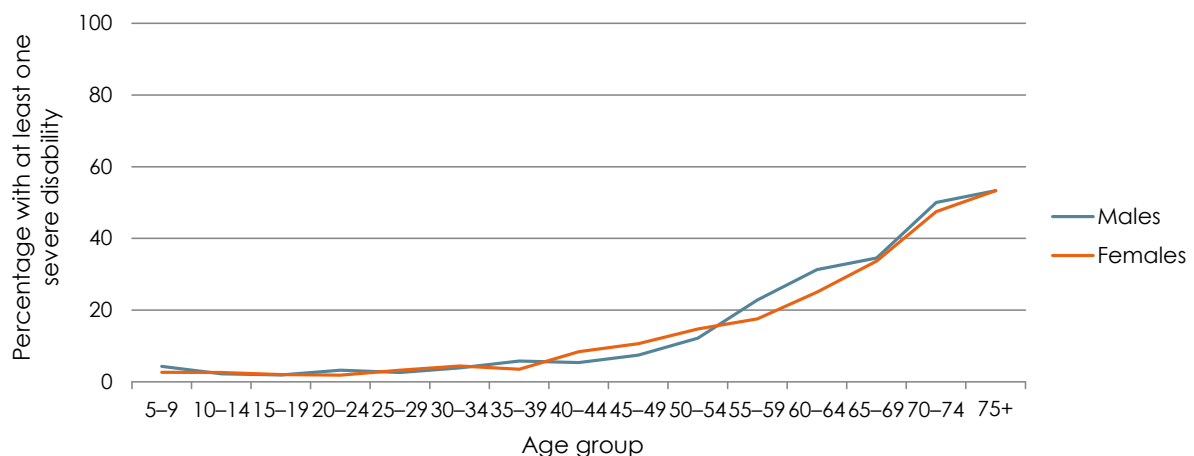
Figure 29. *Percentage of the population by age and sex reporting a severe disability, Nauru: 2021*

4.5   Educational characteristics

According to the Education Act of 2011, "Each parent of a school-age child must ensure the child is enrolled at school until the child completes the school year during which the child attains the age of 18 years".

Primary schooling includes grade 1–6, which corresponds to students aged 6–11, and secondary schooling includes form 1–6, corresponding to students aged 12–17.

4.5.1 School attendance

The census measures school attendance, rather than school enrolment. This may make a considerable difference if children, due to whatever circumstances, are not actually attending

school, despite having been enrolled at the beginning of the school year. In practice, the question of whether children are attending can be difficult to measure, whereas administrative data on school enrolment, as collected by the educational authorities, in comparison with the school age population can be more relevant from a policy perspective.

According to the 2021 census, 2,981 people of the population 5+ years were attending schools: 1,493 boys and 1,488 girls. Of those who attended school during the past year, 2,981 did so full time and 582 part time. The distribution of those currently attending a school by type of school is shown in Figure 30.
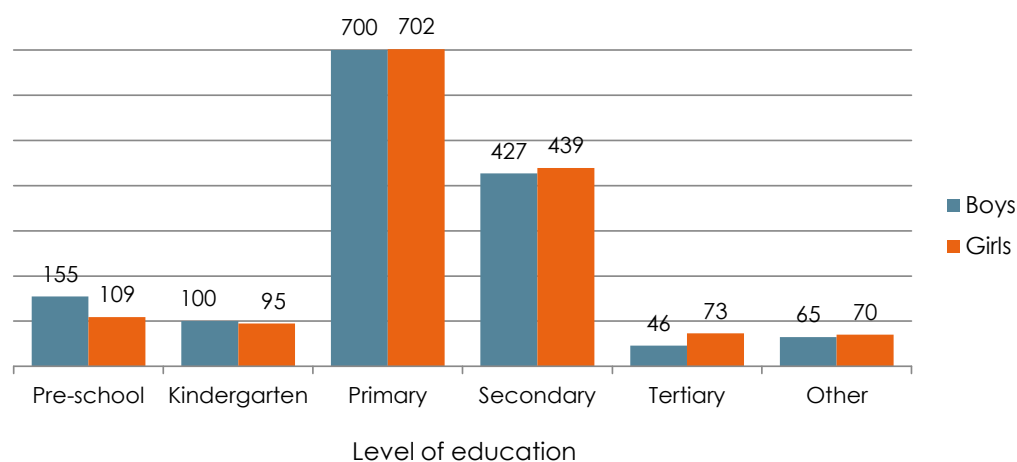
Figure 30. *Population aged 5+ attending school by sex and by level of school attended, Nauru: 2021*[12]

The educational infrastructure in Nauru consists of four early childhood centres, three primary schools and two public secondary schools. During the past decade, Nauru has undergone an educational reform that has lowered the primary school entry age from 7 to 6. This makes the 2021 attendance figures difficult to compare to those of 2011.

According to the 2021 census, almost half (47.0%) of all students (1,402) were attending primary schools, 29.1% were in secondary schools (866) and 15.4% in preschools or kindergartens (459). Only 4.0% (119) of all students attended a tertiary institution, and another 135 students (4.5%) attended other institutions, such as apprenticeships, specialised trades schools, etc.

As shown in Figure 31, between ages 5 and 11 attendance was roughly constant at slightly over 80%, whereas, from age 12, attendance rates gradually declined. At age 11, attendance was 83% of all people at school, but it was only 72% at age 14, and declined further to less than half of the population aged 17.

12 These numbers do not include 297 persons whose attendance status is unknown, thereby depressing the total numbers. For comparison, the 2019 mini census counted 1,787 persons in primary schools (945 boys and 842 boys), 980 in secondary schools (461 boys and 519 girls) and 107 persons in tertiary education (46 males and 61 females).
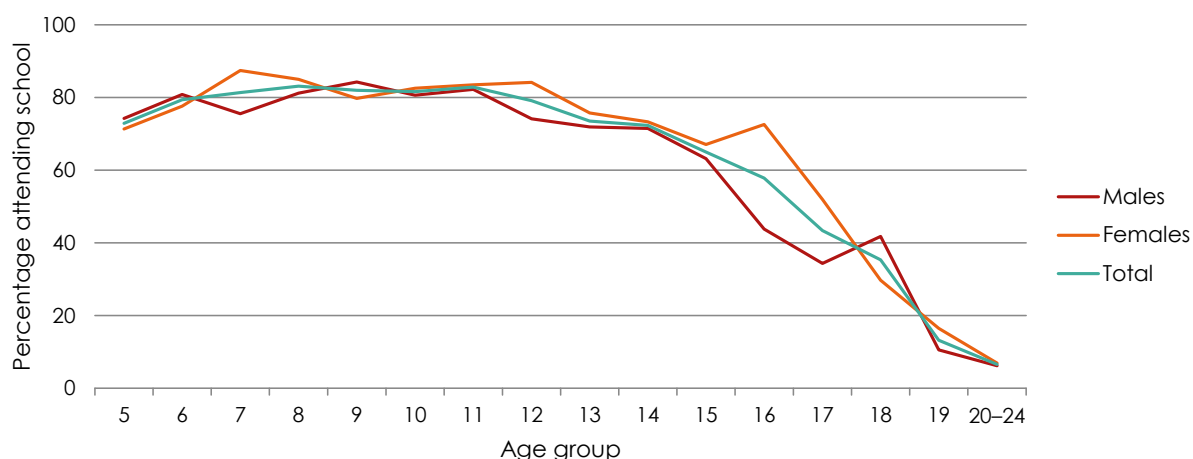
Figure 31. *Percentage of the population aged 5–24 by age and sex attending school, Nauru: 2021*[13]

Figure 32 shows that there were no systematic differences between male and female attendance rates for students aged 5–11. From the age of 12, however, school attendance rates for females were noticeably higher than for males. The percentage of school leavers increased slowly to about 13% by age 11, after which it started to increase more rapidly. At age 15 this increased to about 30%, and more than half of the 17-year-olds had left school.
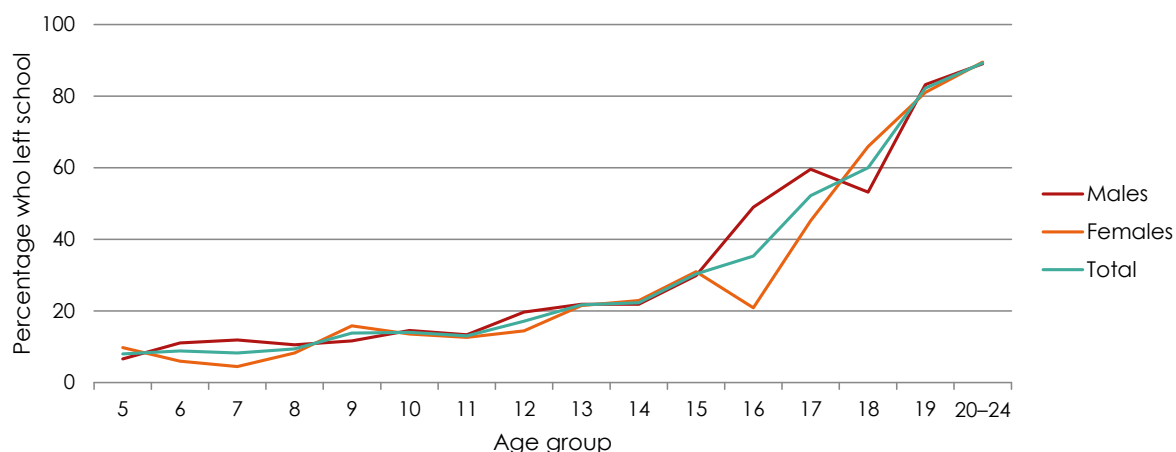
Figure 32. *Percentage of the population aged 5–24 by age and sex who left school, Nauru: 2021*

Of the total population 5+ years, 474 people (4.6%) had never been to school: 269 males and 205 females (Figure 33). This percentage was higher for males (5.2%) than for females (4.1%). There were, however, also 482 people who did not declare whether they had ever been to school.

---

13   Figure 31, as well as Figures 32, 33 and 34, is affected by the fact that for 6.5% of children aged 5–24 either their current attendance status or whether they have attended in the past is unknown. The information displayed is based on the total number of children with complete information on both variables. If it is assumed that all children with missing information are actually attending, this raises the rates in the 7–12 age category by 1.2% and in the 13–18 age category by 3.3%.
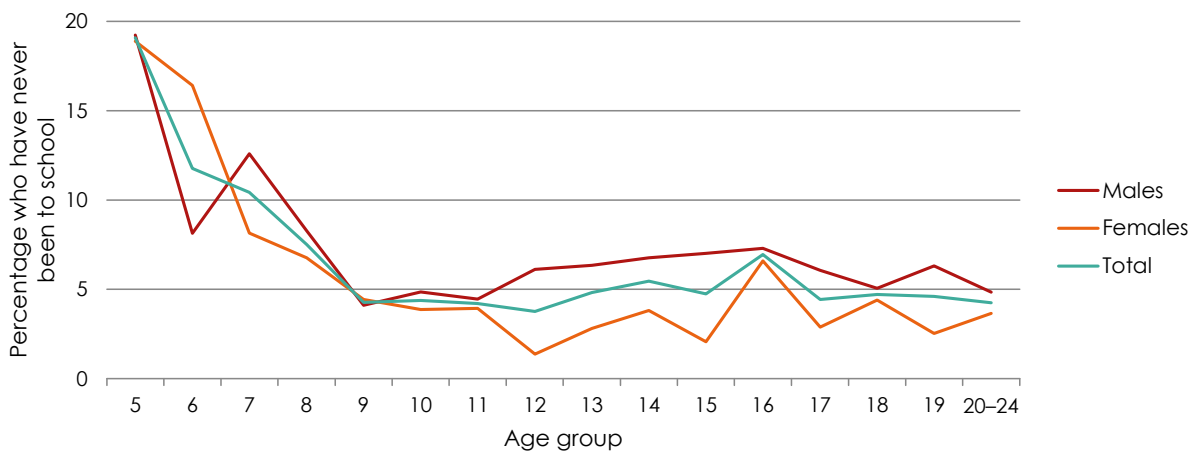
Figure 33. *Percentage of the population aged 5–24 by age and sex who have never been to school, Nauru: 2021*

Figure 34 displays different indices for primary and secondary school attendance. All of these have the populations of the appropriate age groups (7–12 years for primary education and 13–18 for secondary education) as their denominators. However the numerator of the net attendance rate is the number of persons who are attending a given level and who have the appropriate age for doing so. The gross attendance rate (GAR) considers only the number of people attending a given level of education, without considering their ages. The age specific attendance rate (ASAR) only considers whether people of the given age group are attending education, regardless of the level.
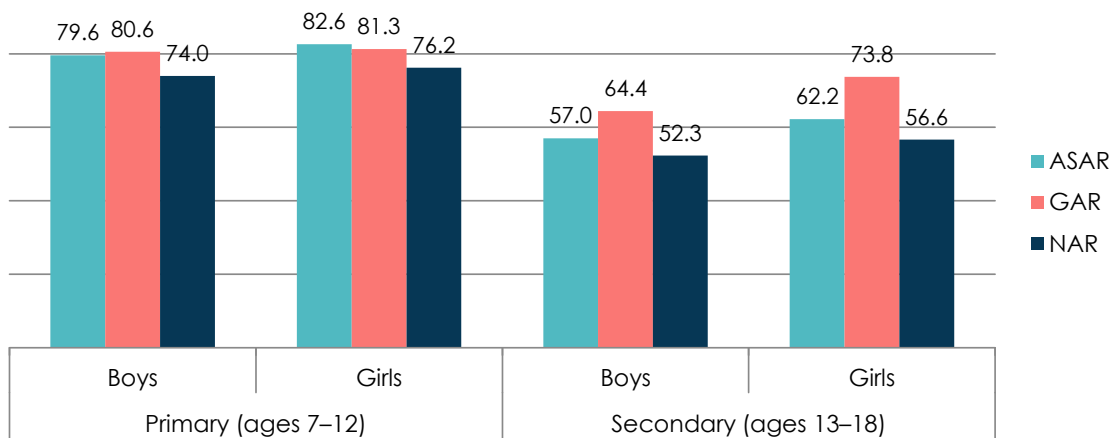
Figure 34. *Various types of attendance rates for primary (ages 7–12) and secondary (ages 13–18) education by sex, Nauru: 2011 and 2021*

The primary gross and net attendance rates (NAR) are very similar, at about 80% for boys and 82% for girls. At the secondary level the differences are more pronounced because at that age there are more children who are not enrolled at the appropriate level of education. The secondary GAR was 64.4% for boys and 73.8% for girls, but the NAR was considerably lower, at 57.0% for boys and 62.2% for girls.

The gap between male and female school attendance rates in favour of females that already existed in the previous census has further widened, and female attendance rates are now noticeably higher than male attendance rates.

Among all those who had attended school at some time, but who were no longer doing so, the average age when male and female school leavers left school was approximately[14] 16.1 years of age for males and 16.4 years for females. The peak ages for leaving school were 18 (23.0%) and 16 (22.1%). Just under a third (31.6%) had left before age 16 and 9.1% had concluded their education after age 18 (Figure 35).
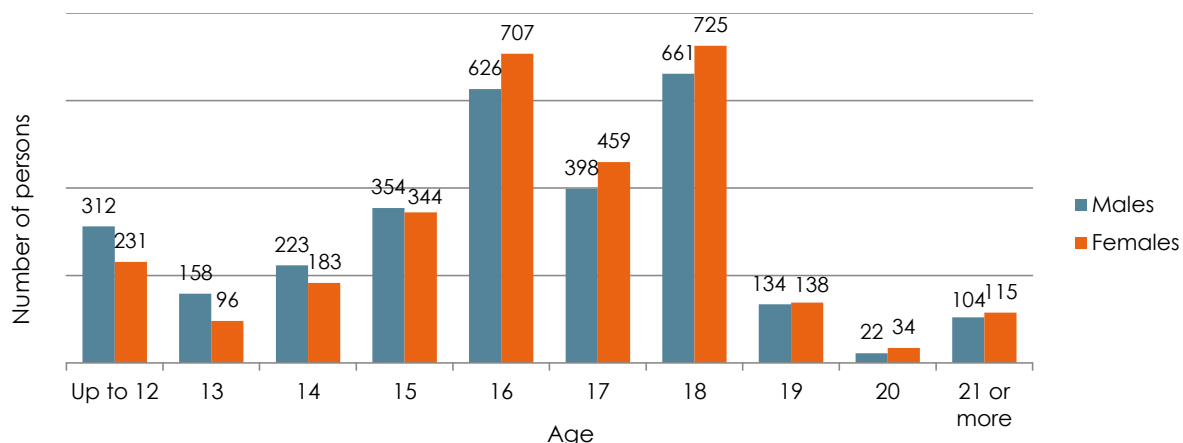
Figure 35. *Persons who left school by age at leaving school, Nauru: 2021*

4.5.2 Educational attainment

Based on data on the highest grade completed, the overwhelming majority of the population over age 15 (95.6% of males and 94.8% of females) had completed at least Form 1 of secondary education. The largest group was those who had completed Form 4–5 of secondary education, 36.7% of males and 40.2% of females over age 15. The groups that had completed only Forms 1–3 or grades 6–7 were roughly of equal size, about 25% each (Figure 36).

Almost 5% of people – 135 males and 168 females – had a tertiary qualification, such as a matriculation certificate, other certificate, diploma, or undergraduate or post-graduate degree.
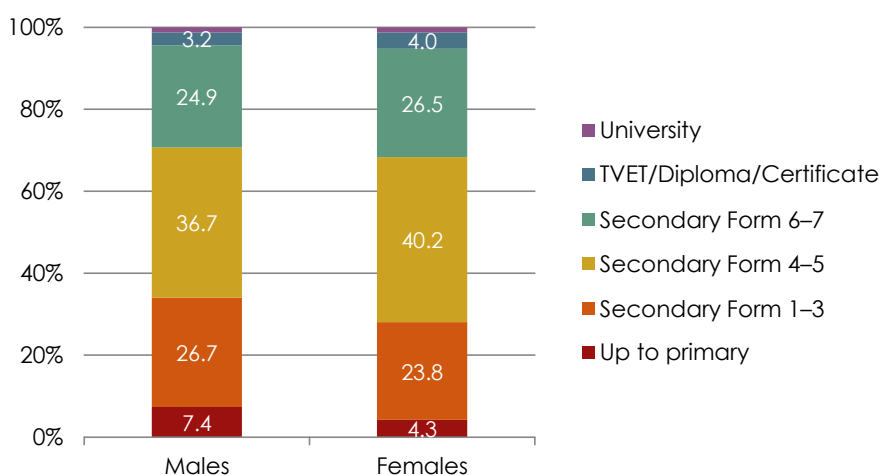
Figure 36. *Percentage of the population aged 15+ by sex and highest level of education reached, Nauru: 2021*

---

14 The exact averages cannot be computed due to the truncation of the data at ages 12 and 21.

4.5.3 Literacy and language ability

4.5.3.1 Literacy

The literacy rate in a population is one of the most important indicators of development. Literacy, defined as the ability to read and write, refers to the skill that enables people to access, understand and communicate information today. This skill contributes to a better understanding of one's environment and other people, leading to improved health, knowledge and employment. Society benefits from high literacy rates, as it is linked to better health, efficiency, and productivity.

It is possible to distinguish between levels of literacy, in terms of the degree to which people are able to read or write, or whether people can read but not write. These distinctions require elaborate testing, which a census cannot undertake as it is time-consuming. The 2011 census limited the question on literacy to those who spoke Nauruan at home, and the 2021 census asked two questions to assess if people could read and/or write in any language.

Based on the responses to the above questions, and considering those that can read and write fluently as being fully literate, 79.7% of the population 5+ years would be classified as such; 76.4% of males and 83.0% of females. The higher percentage for women is notable. The difference is even greater in the case of literacy in Nauruan, which is 52.4% for the population over age five, 45.2% of men and 59.6% of women. These numbers also show that literacy in Nauruan among Nauruan speakers is generally lower than literacy in any language among the general population (Figure 37).
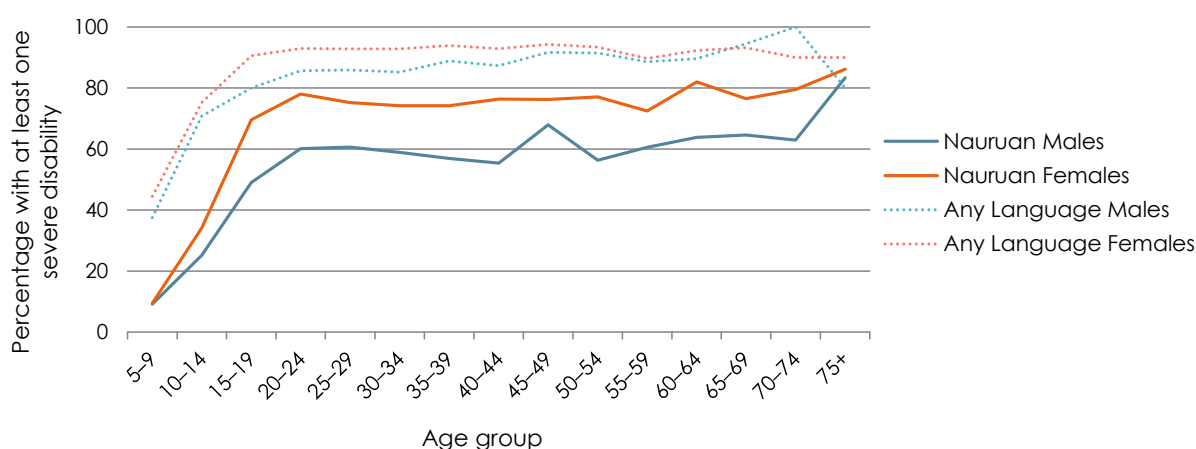
***Figure 37.** Percentage of the population aged 5+ by age and sex who can read and write fluently in Nauruan or in any language, Nauru: 2021*

Note: Literacy in any language is computed in relation to the total population, literacy in Nauruan relative to the population speaking Nauruan at home.

The results show that the level of literacy is very high in Nauru as can be expected since past school attendance rates have been very high. In general, female literacy rates are higher than those of males.

The adult literacy rate (reading and writing in any language) for the population 15+ years was 89.6%: 86.5% for males and 92.6% for females (Figure 38). The youth literacy rate for the population aged 15–25 was 82.8% for males and 91.8% for females.
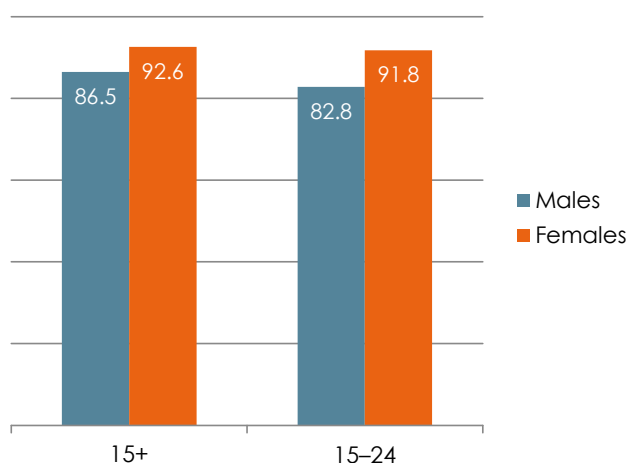
Figure 38. *Percentages of adults aged 15+ and youth (15–24) who can read and write in any language by sex, Nauru: 2021*

4.5.3.2 Language ability

The 2021 census included a question on whether Nauruan was spoken in the respondent's household and, if so, whether he/she was literate in Nauruan. As shown in Table 30, the majority of respondents (69.0%) spoke only Nauruan at home, while 25.3% spoke Nauruan in combination with another language. Of those who spoke Nauruan at home, either as the only language, or in combination with others, 52.4% could both read and write in the language. This percentage was higher among multilinguals (59.0%) than among monolinguals (50.0%). As much as 8.2% of the population (9.1% of men and 7.3% of women) consisted of persons who spoke other languages at home, in addition to Nauruan, and who could not read or write in Nauruan. A small percentage (3.9%) of the population spoke only another language at home.

Table 30. *Population aged 5+ by whether Nauruan is spoken in the household and literacy in Nauruan, Nauru: 2021*

Language	Number of people			Percentage of population		
	Total	**Males**	**Females**	**Total**	**Males**	**Females**
Only Nauruan						
Read fluently in Nauruan	355	204	151	3.5	3.9	3.0
Write fluently in Nauruan	27	11	16	0.3	0.2	0.3
Both read and write	3,522	1,534	1,988	34.4	29.7	39.3
Neither read nor write	3,145	1,841	1,304	30.8	35.6	25.8
Nauruan and other						
Read fluently in Nauruan	202	116	86	2.0	2.2	1.7
Write fluently in Nauruan	21	12	9	0.2	0.2	0.2
Both read and write	1,524	658	866	14.9	12.7	17.1
Neither read nor write	838	470	368	8.2	9.1	7.3
Only other language	400	207	193	3.9	4.0	3.8
None	192	118	74	1.9	2.3	1.5

4.6   Internet use

The 2021 census included a question on whether a person used the internet at least once during the week before the census. A second question asked where internet was accessed most often: from home, internet café, free wireless hotspots area, workplace, place of education, with neighbours or some other place.

Results show that 81.1% of both men and women used the internet during the given timeframe. In 2011, it was mainly the young population aged 15–39 who used the internet. This has changed, however, and in 2021 more than 90% of the population between ages 15 and 50 used the internet, with almost no difference between men and women. Only after age 50 did the use show a marked decline (Figure 39). The overwhelming majority (91.8%) of users accessed the internet from their homes.
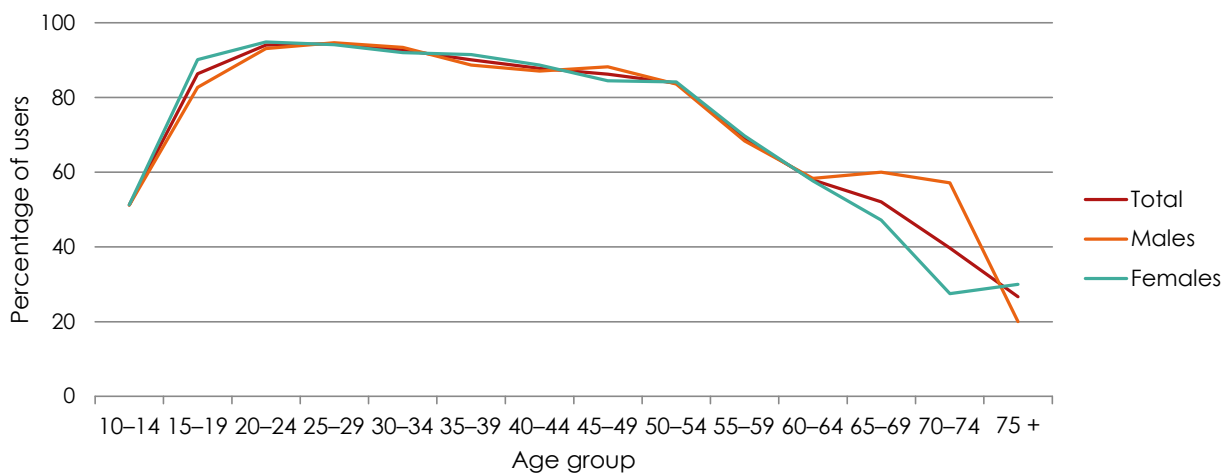
Figure 39. *Percentage of the population aged 10+ by age and sex using the internet, Nauru: 2021*

4.7   Labour market activity

4.7.1 Introduction

In Nauru, the 2021 census included several questions on labour market activity. Enumerators were instructed to ask each respondent aged 15 + whether they worked during the last week before the census. Work was defined as any activity concerned with providing for the necessities of life. It did not matter whether or not the person had a job or was paid for what they did.

A person who "works for pay" is someone who worked for wages, salary, commission, or had a contract, or was operating a business. The person was either a government or private employee, an employer, or was self-employed, including persons who "produced goods or services for sale".

A person who did "work to support the household by producing goods mainly for own consumption", performed a variety of tasks such as farming, gardening, fishing or producing handicrafts for their own consumption and are subsequently described as subsistence workers.

A person who did "voluntary work" or "unpaid family work" is someone who worked but did not receive a wage, salary or commission, and did not have a contract. The UN publication *Principles and Recommendations for Population and Housing Censuses, Revision 3,* recommends that employers, own-account workers, members of producers' cooperatives and contributing family workers should

all be considered self-employed." People selling their products should also be classified as employed. According to this definition, all people classified as subsistence workers are considered employed.

Based on the above, data collected have been assigned to the three categories of:

- Employed (those who "work for pay" or "produced goods mainly for sale" or "produced goods mainly for own consumption", and those doing "voluntary work", or "unpaid family work");
- Unemployed (those who: (i) did not work in the week prior to the census (other than those who had a job but were not at work during the reference week), but (ii) spent some time looking for work, and (iii) were available to work if a job was offered to them);
- Not in the labour force (those not employed or unemployed).

If the person did not work and did not spend some time looking for work, or looked for work but was not available for work, they were classified as economically inactive (not in the labour force).

4.7.2 Economic activity

The total labour force of 4,812 people is defined as employers (134) or self-employed (127), employees (4,238), those who did unpaid work (71), or the unemployed (242) (Table 31).

The paid employed people are defined as those who "work for pay" and "work to support the household by producing goods or services mainly for sale". The total number of paid employed people consisted of 4,238 people, 2,407 (56.8%) males and 1,831 (43.2%) females.

The non-labour force of 2,375 people is defined as those being full-time students (522), those engaged in home duties (1,361), the retired (262), the disabled (123), and all those who did not work and were not unemployed (did not look for and were not available for work) for various reasons (107).

A general pattern is the fact that there were more males than females in the labour force categories, while there were almost three times more women engaged in home duties than men.

Table 31. *Population aged 15+ by sex and labour market activity, Nauru: 2021*

	Activity	Total	Males	Females
Labour force	Employer	134	88	46
	Own account worker	127	61	66
	Employee for wage/salary	4,238	2,407	1,831
	Contributing family worker	71	34	37
	Unemployed	242	134	108
	Total	4,812	2,724	2,088
Non labour force	Full-time student	522	239	283
	Home duties	1,361	346	1,015
	Retired/Old age	262	100	162
	Disabled	123	69	54
	Other	107	106	1
	Total	2,375	860	1,515
Total		**7,187**	**3,584**	**3,603**

4.7.3 Labour force participation rate, employment–population ratio, and unemployment rate

- 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 unemployment rate is the number of people unemployed by a given age and sex and/or place of rural–urban residence, divided by the population in the labour force with the same characteristics, multiplied by 100.

The LFPR was calculated at 67.0% in Nauru in 2021. At the same time the EPR was only 63.6%, and the unemployment rate was 5.0% (Table 32). The LFPR was higher for males (76.0%) than for females (58.0%), so was the employment-population ratio, with 72.3% and 55.0% for males and females respectively. The unemployment rate was slightly higher (5.2%) for females than for males (4.9%).

Table 32. *Percentages f the opulation aged 15+ by sex, place of residence, labour force participation rate, employment-population ratio, and unemployment rate, Nauru: 2021*

Indicator	Total %	Males %	Females %
LFPR	67.0	76.0	58.0
EPR	63.6	72.3	55.0
Unemployment rate	5.0	4.9	5.2

The LFPR, EPR and unemployment rates by age and sex are presented in Figures 40–42. The general pattern is low participation rates for the population 15–19 years, when many of the teenagers are still attending school or are struggling to enter the labour market. Then the rates sharply increase, reaching a plateau at ages 30–49, after which the rates gradually decrease.

It is interesting to see that a large proportion of the population aged 60+ was still in the labour force, indicating that many older people keep providing economically for themselves and their household/families. Although the difference has narrowed since 2011, the labour force participation rate and the employment:population ratio were higher for males than for females at all ages. The labour force participation rate for females did not exceed 77% at any age, while that of males was higher than 85% at ages 25–49 (Figure 40).

In terms of the employment:population ratio, about 85% of all males aged 25–49 were employed as paid workers. In contrast, the age groups with the highest percentage of females in paid employment did not exceed 74% in any age group (Figure 41).

The unemployment rates show a very different pattern from the LFPR and EPR. The highest unemployment rate was for the young job seekers aged 15–19 (21%). The rate rapidly decreased with increasing age, and was below 5% between the ages of 30 and 70. There is a spike in the 70–74 age group, but not too much should be made of this as it reflects a numerator over two over a denominator of only 16. Although the difference is small, the unemployment rates in most age groups are slightly higher for females than for males (Table 42).
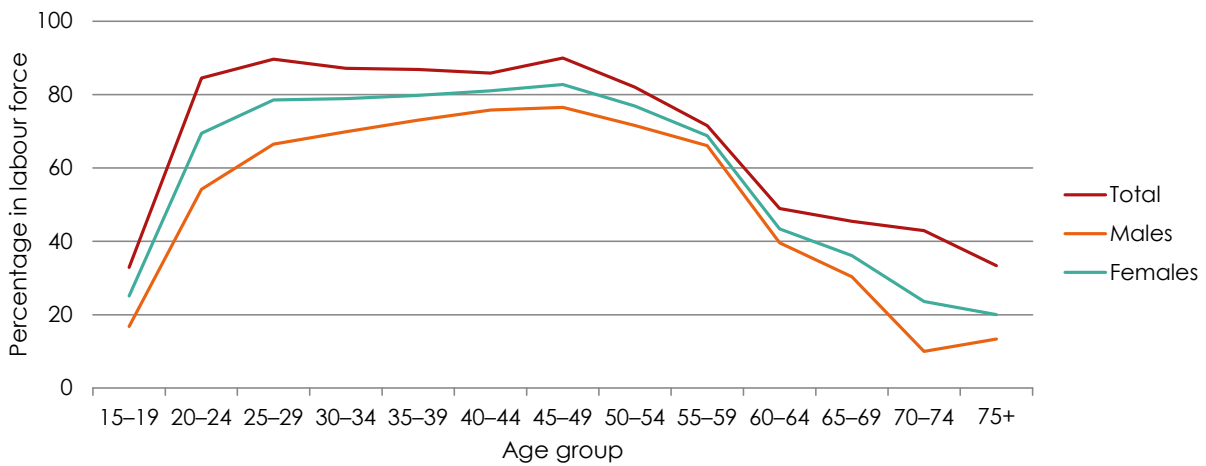
Figure 40. *Population aged 15+ by age, sex and labour force participation rate (LFPR), Nauru: 2021*
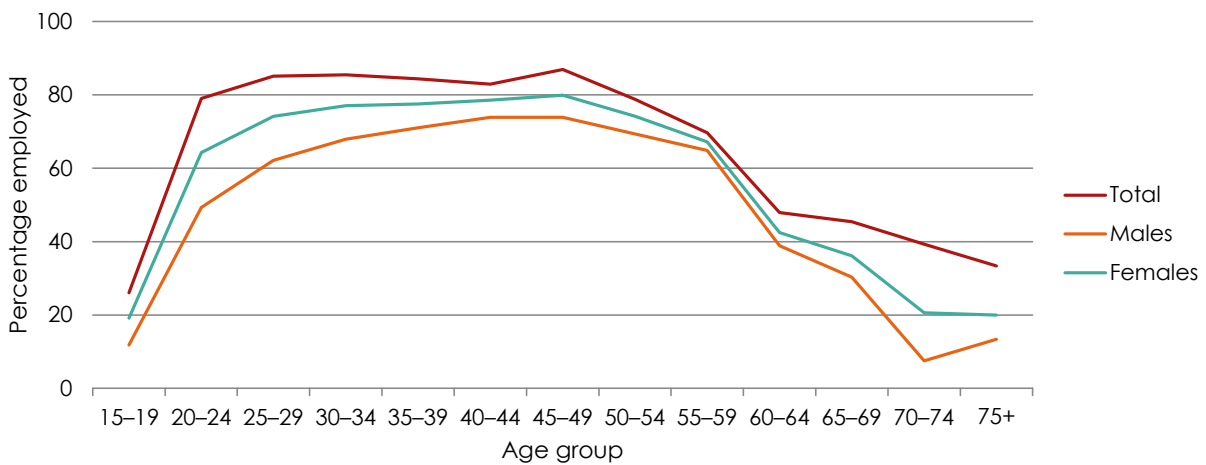
Figure 41. *Population aged 15+ by age, sex and employment-population ratio (EPR), Nauru: 2021*
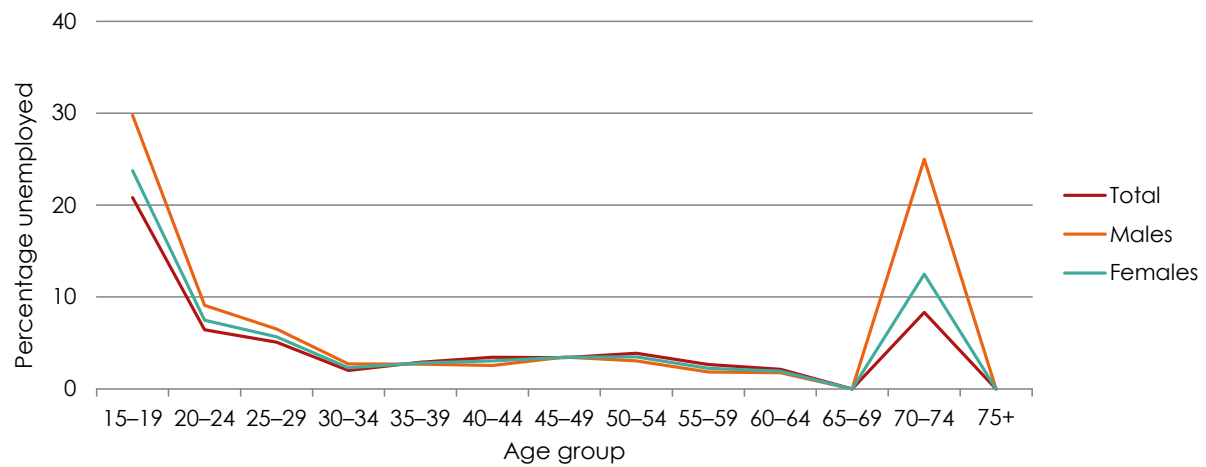
Figure 42. *Population aged 15+ by age, sex and unemployment rate, Nauru: 2021*

4.7.4 Employment status

Out of a total of 4,499 people in paid employment, 94.2% (4,238) were employees either with a private enterprise or as government workers. Only about 2.8% were own account workers (127),

and a total of 134 people were employers. The proportion of males and females in the different employment categories were very similar.

Just under two thirds of the population in paid employment (65.8% of males and 63.8% of females) reported working 40 hours per week, aside from secondary economic activities. Those who worked more than 40 hours comprised 12.9% of those in paid employment (14.9% of males and 10.4% of females), whereas 10.3% of males and 11.9% of females worked less than 20 hours. The overall average was 37.1 hours worked, which is more than the 2011 average of 32.5.

4.7.4.1   *Employed population by industry group*

The largest numbers of employed workers were in the category of *Administrative and support service activities,* with 957 people or 20.9% of all employed people, 18.4% of whom were male and 24.3% female (Figure 43). The second largest occupational group was *Public administration and defence and compulsory social security,* with 576 people, or 12.6%, of all employed people. This category accounted for 11.8% of male employed workers and 13.6% of female employed workers. Next largest was *Activities of extraterritorial organisations and bodies* (416 persons or 9.1%, with almost no difference between males and females) and *Construction* (373 persons or 8.2%: 13.9% male workers, but only 0.6% female workers). *Mining and quarrying*, which has traditionally been important in Nauru due to phosphate mining, accounted for 307 persons (6.7%), whereas *Manufacturing,* which in 2011 employed 383 persons, or 12%, in 2021 accounted for only 205, or 4.5% of all employed people.

The relationship between the number of male and female workers varies by industry group, with males predominating in about half of the groups and females in the other half. Industries with a strong predominance of male workers include *Agriculture, forestry and fishin*g; *Mining and quarrying; Manufacturing* and *Construction*. Female dominated industries include *Wholesale and retail trade; Financial and insurance activities; Education* and *Human health and social work activities.*
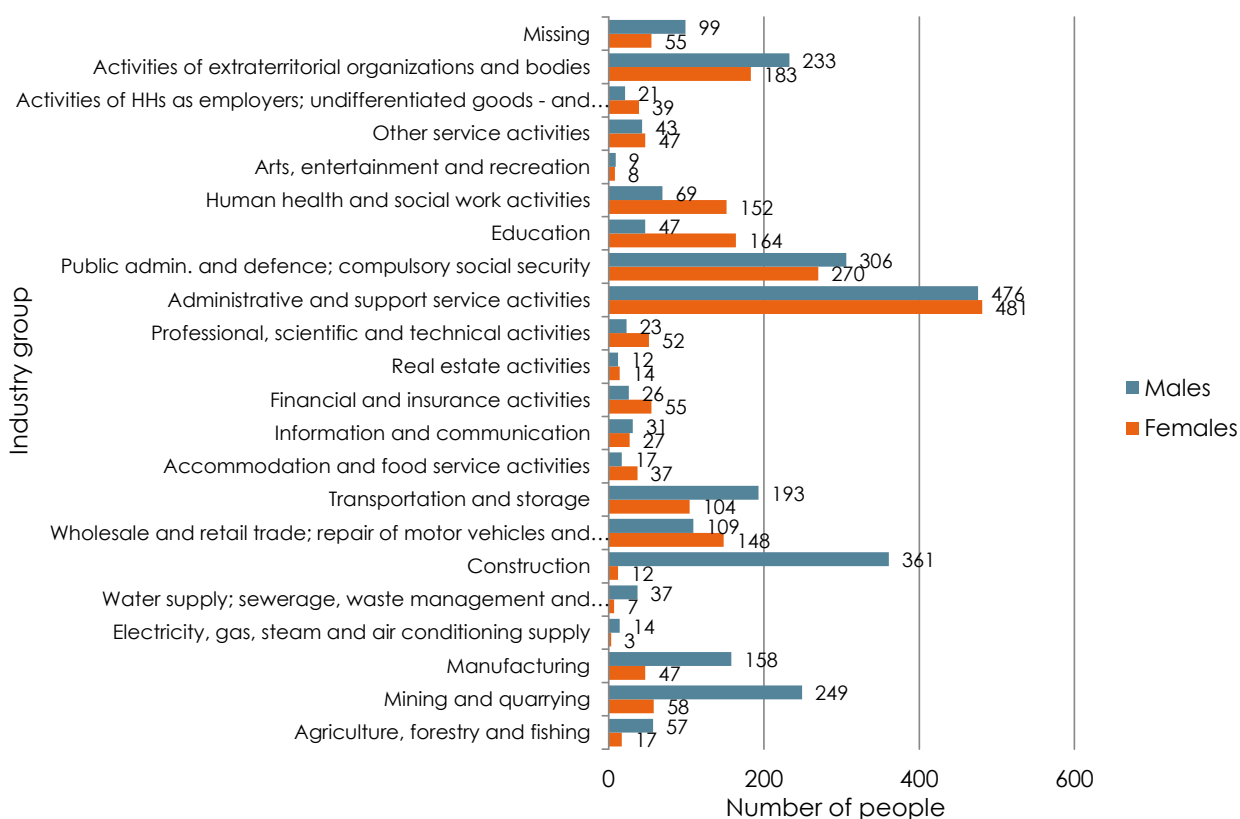
Figure 43. *Employed population by sex and industry, Nauru: 2021*

4.7.4.2 Employed population by occupational group

The largest numbers of employed workers were in the category of *Service and sales workers,* with 1,504 people or 32.9% of all employed people, of whom 31.4% were male and 34.9% female (Figure 44). The second largest occupational group, with 19.3% (23.4% of male and 13.9% of female workers), were *Elementary occupations* (881), followed by *Professionals*, with 10.6% (486) and *Technicians and associate professionals* (8.6%), with 393 individuals.

Most categories are dominated by males, especially *Plant and machine operators and assemblers,* with 171 males and 39 females, *Elementary occupations,* with 605 males and 276 females, and *Craft and related trades workers*, with 282 males and only 29 females. However, there are exceptions. Women predominate among *Professionals* with 339 females compared to 147 males, and among *Clerical and support workers,* with 198 females compared to 61 males. In 2011 there were about twice as many male managers as female managers but, in 2021, there were 166 female managers and 147 male managers.

Figure 44. *Employed population by sex and occupational group, Nauru: 2021*

5. HOUSEHOLDS AND HOUSING

5.1 Introduction

The household is the smallest organisational entity in the census and provided the unit of enumeration for individuals. The household has also important social significance in terms of production and reproduction, gender relations and group identification within communities. Although there is a large overlap with families, households are conceptually different, as they are defined by agreement on collaboration, not necessarily on kinship or consanguinity (blood ties). A distinction in this respect is made between private and collective household types (institutions).

This section addresses the average household size, and also household structure. In all households, one person was designated head of that household. In principle, the household itself did this but, where necessary, the enumerator had to identify a head. All other household members were identified by their relationship to this head.

Household: definition and types

In the census, a household is defined as a group of people who share a common eating arrangement; members of a household normally eat food prepared in the same kitchen or they share in the cost, collection and preparation of that food. Although the identification of a household was based on a usual common eating arrangement of a group of people, enumeration coverage rules prescribed the inclusion of all and only those people who slept in the household on census night.

The census distinguished between two types of households:

- A private household: a group of related people (for example, a family) with or without additional persons who live together and share a common eating arrangement. A private household can also consist of one or more unrelated persons who have a common eating arrangement.
- A collective household (institution): a group of unrelated persons staying together for special reasons, such as education, medical treatment, boarding, travel or imprisonment.

5.2 Number and size of households

In the 2021 census, a total of 2,023 households were counted, all of which were classified as private households.[15] Compared to 2011, the number of private households increased by 376 (Table 33).

Comparing the overall average household size, the number of people per household fell slightly, from 6.0 in 2011 to 5.8 people per household in 2021. However, there was some significant variation in household size by district (Figure 45). The highest average household size was recorded in Anetan, with 6.7 people per household on average, followed by Boe and Ewa, with 6.5. The lowest household sizes were found in Location (4.8), followed by Aiwo, Buada and Ijuw, each with 5.6 people per household.

In 2021, the most common household size was five people per household (289), accounting for 14.3 % of all private households and 12.4% of the total population (1,445) lived in households

---

15 The original census records contained 66 institutional households. However, upon a closer analysis almost all of these turned out to have characteristics that made it more appropriate for them to be classified as private households. Consequently they were reclassified and the missing variables were imputed, based on the 2019 mini census and on their similarity to other private households.

of 6 people (Figure 46). There were 164 single-person households accounting for 8.1% of all households which represents a slight increase compared to the 2011 census when there were 105 single-person households, with a share of 6.4% of all households. However, just over 10% of the population lived in households with 15 persons or more.

On the other hand in 2021 there were 288 households with 10 persons or more (14.3%), which is a slight decrease compared to 2011 when 16% of the households had 10 people or more.

Table 33. *Population, number of households and average household size by district, Nauru: 2006, 2011 and 2021*

Place of Residence	Number of households			Number of people			Average household size		
	2006	2011	2021	2006	2011	2021	2006	2011	2021
NAURU	1,538	1,647	2,001	9,086	9,945	11,680	5.9	6.0	5.8
Yaren	202	101	139	1,165	747	803	5.8	7.4	5.8
Boe	64	131	131	408	851	845	6.4	6.5	6.5
Aiwo	74	208	225	500	1,220	1,258	6.8	5.9	5.6
Buada	23	132	174	157	739	969	6.8	5.6	5.6
Denigomodu	63	55	60	508	307	348	8.1	5.6	5.8
Nibok	107	70	122	761	484	724	7.1	6.9	5.9
Uaboe	103	39	57	704	318	341	6.8	8.2	6.0
Baitsi	76	68	91	473	513	523	6.2	7.5	5.7
Ewa	57	61	82	371	446	537	6.5	7.3	6.5
Anetan	34	90	118	235	587	795	6.9	6.5	6.7
Anabar	276	63	93	1,059	452	565	3.8	7.2	6.1
Ijuw	251	28	49	1,355	178	276	5.4	6.4	5.6
Anibare	63	34	59	378	226	373	6.0	6.6	6.3
Meneng	45	241	300	328	1,380	1,797	7.3	5.7	6.0
Location	100	326	321	684	1,497	1,526	6.8	4.6	4.8
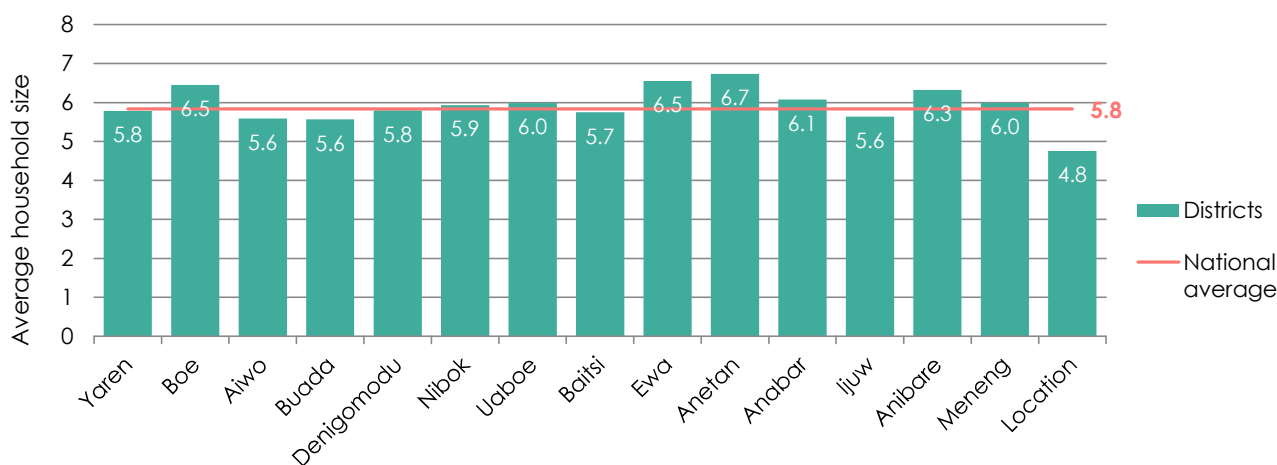
Figure 45. *Average household size by district, Nauru: 2021*
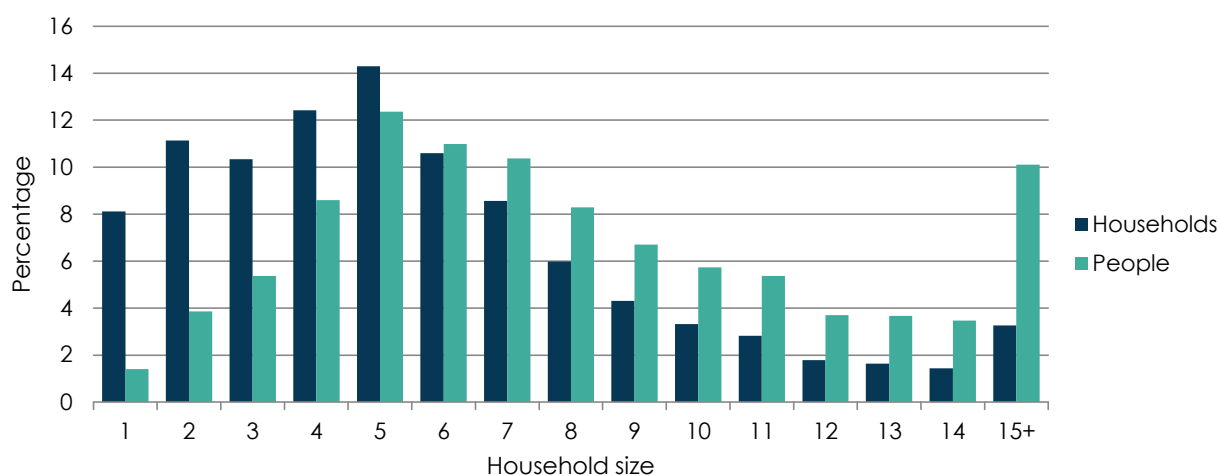
Figure 46. *Percentage distribution of households and people living in them by household size, Nauru: 2021*

5.3   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).

Almost 60% of heads of household in Nauru were men (1,198) with 40% (823) of households headed by women. The number of female-headed households has risen considerably since the 2021 census, when 34% of households were headed by a woman.

In most cases, women headed the household when her spouse was not present (temporarily absent), or when the woman was widowed. This is evident from the low number of male spouses (331).

Not surprisingly, the majority of household members (59.2%) were children: sons and daughters of the household head or spouse, adopted children, children of in-laws, and grandchildren.

Only 0.5% (45) of all household members were parents or parents-in-law, which is an indication that the oldest (male) person in the households is usually regarded as the head of household. Less than 1% of all household members were not related to the head of household.

Table 34. *Population by household composition (relationship to head of household), Nauru: 2021*

Relationship	In numbers			In percentages		
	Total	Male	Female	Total	Male	Female
Head of household	2,021	1,198	823	17.3	20.3	14.2
Spouse of head	1,208	331	877	10.3	5.6	15.2
Son/Daughter	4,186	2,129	2,057	35.8	36.1	35.5
Adopted son/daughter	212	107	105	1.8	1.8	1.8
Child of spouse	108	48	60	0.9	0.8	1.0
Son/Daughter-in-law	525	311	214	4.5	5.3	3.7
Grandchild	1,880	970	910	16.1	16.5	15.7
Parents (in law) of head	45	11	34	0.4	0.2	0.6
Brother/Sister (in law)	347	168	179	3.0	2.9	3.1

Nieces/Nephews	538	288	250	4.6	4.9	4.3
Other relatives	501	270	231	4.3	4.6	4.0
Not related/Friend	109	62	47	0.9	1.1	0.8
Total	**11,680**	**5,893**	**5,787**	**100**	**100**	**100**

5.4 Household income sources

5.4.1 Main household income

During the three months before the 2021 census, 89.2% of households received wages or salaries, 36.2% had income from land lease, 12.2% received pensions or retirement benefits, 12.1% had income from their own business, and 8.3% received income from rents of houses or flats. Note that households can have more than one source of income (Figure 47).

There was a slight variation in the importance of the different household income sources by district. The income from wages and salaries is lower in Ijuw, Uaboe, Nibok and Ewa, income from own business activities was high in Boe, but relatively low in Ijuw, Baitsi and Anabar.
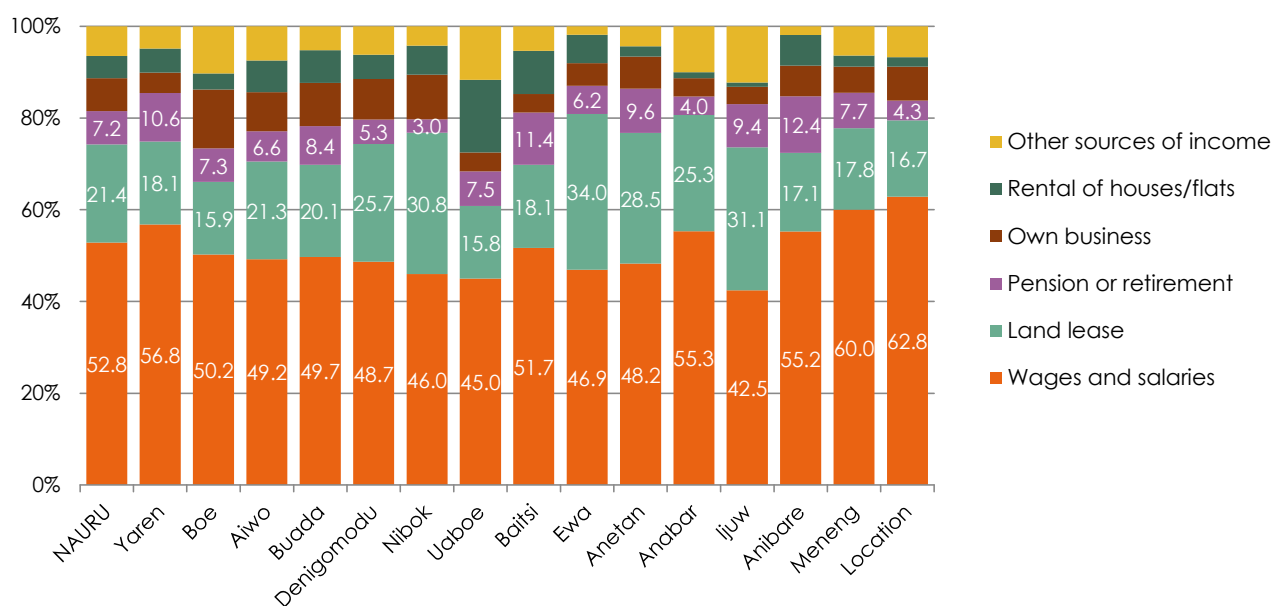
Figure 47. *Percentage distribution of household income sources by district, Nauru: 2021*

5.4.2 Agricultural cash crops, livestock, fisheries and hunting activities

The 2021 census included several questions on whether households were engaged in agricultural, fisheries and hunting activities, such as growing food crops, growing fruits, raising livestock, fishing, noddybird catching or production of handicrafts. Questions related to:

- which cash crops were grown, such as cassava, sweet potatoes, cucumber, cabbage, egg plant, cherry tomato, pumpkin, watercress, long beans, chilli or other crops;
- which fruits were cultivated, such as pawpaw (*papaya*), sweet melon, pandanaus (*epwo*), breadfruit *(demme),* mango, lime, soursup *(dowatip),* bananas, dwarf coconuts or other fruits;
- whether the household raised pigs, chickens, ducks or other livestock;
- the quantity of each category of livestock raised;
- the total area of all the land used for agriculture purposes;

- whether the household was involved in fishing activities, such as collecting on ocean flat (by hand), collecting on reef flat (by hand), offshore fishing (hook or line or spear), trolling, deep sea fishing, reef fishing (hook or line or spear), traps or net fishing;
- whether fishing was done from a boat with motor, a boat without motor (canoe, sail) or shore-based (no bed); and
- the frequency of fishing activities.

In all of these cases it was also asked whether the activity was undertaken only for home consumption, mainly for home consumption but some sale, mainly for sale, but some for home consumption, only for sale or other (e.g. customary purposes). The question on the purpose of the activities was also asked for noddybird catching and production of handicrafts.

Overall, households declared performing the following own-account activities. Fishing was the most common (29.6% of all households), particularly in Anetan (52.5%), Ewa (48.8%) and Denigomodu (46.7%). The second most common activity was noddy bird catching (9.5%), which was particularly common in Anetan (28.0%) and Denigomodu (26.7%). The other activities were raising livestock (7.9%), particularly in Anetan (24.6%), growing food crops (5.2%), growing fruits (4.9%) and handicraft production (2.9%), especially in Ewa (12.2%) (Table 35).

Table 35. *Percentages of households involved in particular own-account activities, by district, Nauru: 2021*

District	Growing food crops	Growing fruits	Raising livestock	Fishing	Noddy bird catch	Handicraft production
NAURU	5.2	4.9	7.9	29.6	9.5	2.9
Yaren	5.8	5.0	8.6	30.9	8.6	1.4
Boe	2.3	1.5	1.5	30.5	12.2	3.1
Aiwo	7.6	5.8	5.3	20.0	7.1	1.3
Buada	11.5	13.2	8.0	15.5	4.0	2.3
Denigomodu	6.7	8.3	11.7	46.7	26.7	1.7
Nibok	3.3	3.3	7.4	41.8	13.9	3.3
Uaboe	12.3	10.5	8.8	33.3	15.8	5.3
Baitsi	0.0	0.0	4.4	12.1	3.3	1.1
Ewa	11.0	7.3	17.1	48.8	18.3	12.2
Anetan	7.6	8.5	24.6	52.5	28.0	4.2
Anabar	6.5	4.3	9.7	21.5	9.7	3.2
Ijuw	0.0	0.0	0.0	24.5	4.1	4.1
Anibare	3.4	8.5	1.7	42.4	1.7	1.7
Meneng	2.3	2.7	11.3	30.7	7.0	1.7
Location	2.8	1.9	2.2	26.2	4.7	3.1

5.4.2.1 Agricultural activities

A total of 105 households were involved in agricultural activities other than producing fruits. The crops cultivated by most of them were chilli (61 households), cabbage (49), egg-plant (35) and cherry tomatoes (33). Comparing these numbers with those of the 2011 census suggests some reduction in the number of households cultivating agricultural crops and also fruits (Table 36).

Table 36. *Percentage of households by district and agricultural activity, Nauru: 2021*

District	Cassava	Sweet potato	Cucumber	Cabbage	Egg-plant	Cherry tomatoes	Pumpkin	Water-cress	Long bean	Chilli	Other crops
NAURU	23	21	33	49	35	33	30	15	26	61	18
Yaren	0	2	2	6	2	2	3	0	2	3	1
Boe	0	0	2	3	2	1	1	0	0	3	0
Aiwo	4	3	7	6	4	8	7	2	1	5	1
Buada	5	5	7	9	10	8	4	3	4	13	6
Denigomodu	1	0	3	2	2	2	3	2	2	3	1
Nibok	1	2	1	2	3	2	1	2	3	3	1
Uaboe	2	0	1	2	0	0	0	0	2	2	2
Baitsi	0	0	0	0	0	0	0	0	0	0	0
Ewa	4	3	2	3	0	0	1	1	1	4	2
Anetan	0	2	1	5	4	2	2	2	3	6	4
Anabar	3	2	1	2	1	2	0	0	0	3	0
Ijuw	0	0	0	0	0	0	0	0	0	0	0
Anibare	2	0	1	0	1	1	1	0	1	1	0
Meneng	0	1	3	5	4	3	5	3	4	6	0
Location	1	1	2	4	2	2	2	0	3	9	0

The overwhelming majority (93.9%) of households involved in agricultural activities did so for their own consumption. Only in Boe, Buada, Denigmodu and Meneng were there a few (six all together) households who sold part of their production and none that produced exclusively for selling their crops. The plots of land on which this agriculture was practised were typically very small; 95.8% were less than 100 square metres in size, i.e. smaller than a tennis court.

A total of 99 households cultivated fruits. Table 37 details how many grew particular kinds of fruits. Most households grew more than one kind. As was evident from Table 35, much of the home production of fruits was concentrated in Buadu, which had the largest number of households producing any of the fruits listed in Table 37. Overall the fruits most commonly grown were bananas (59 households), lime (55), pawpaw (46) and breadfruit (37).

Table 37. *Number of households involved in cultivating fruits by district and type of fruit, Nauru: 2021*

District	Pawpaw (papaya)	Sweet melon	Pandanus (epwo)	Breadfruit (demme)	Mango	Lime	Soursop (dowatip)	Banana	Dwarf coconut	Other fruit
NAURU	46	4	26	37	17	55	20	59	31	7
Yaren	5	0	3	4	0	6	1	4	3	0
Boe	2	0	1	1	0	0	0	1	1	0
Aiwo	5	1	2	1	2	8	2	7	4	0
Buada	14	1	6	13	14	14	10	15	11	3
Denigomodu	2	0	1	1	0	3	0	2	1	0
Nibok	1	0	1	1	0	0	0	3	0	0
Uaboe	2	0	1	1	0	3	0	3	0	0
Baitsi	0	0	0	0	0	0	0	0	0	0

Ewa	2	0	1	4	0	4	0	4	2	0
Anetan	2	0	4	4	0	5	3	8	3	3
Anabar	2	1	2	1	0	3	2	2	2	0
Ijuw	0	0	0	0	0	0	0	0	0	0
Anibare	2	0	2	1	0	2	2	2	1	1
Meneng	3	1	1	3	1	2	0	6	1	0
Location	4	0	1	2	0	5	0	2	2	0

The vast majority of households cultivating fruits (89.6%) did so for their own consumption. None produced exclusively for the market, seven sold part of their product, and three cultivated fruits for other purposes.

5.4.2.2   Raising livestock

The number of households raising livestock was similarly small and almost exclusively limited to pigs (136 households) and chickens (46). The total number of pigs held was 491 (compared to 1,306 in 2011) and the total number of chickens 541 (compared to 4,683 in 2011). This appears to indicate a dramatic decrease in household livestock raising. The majority of households raising pigs were in Meneng (31), Anetan (26) and Buada (14). The 2011 census counted 167 ducks, but none were reported in the 2021 census.

Table 38. *Number of households raising livestock, by district, Nauru: 2021*

District	Pigs	Chickens	Ducks	Other livestock
NAURU	136	46	0	2
Yaren	10	3	0	0
Boe	1	1	0	0
Aiwo	8	6	0	0
Buada	14	7	0	0
Denigomodu	7	0	0	0
Nibok	9	0	0	0
Uaboe	4	4	0	1
Baitsi	3	3	0	0
Ewa	10	4	0	1
Anetan	26	8	0	0
Anabar	5	1	0	0
Ijuw	0	0	0	0
Anibare	1	0	0	0
Meneng	31	7	0	0
Location	7	2	0	0

As shown in Table 39, the purposes for raising of livestock were more diverse than for fruits and other agricultural products. Although the largest category was that of households raising livestock for home consumption (72), there were 18 households, mostly in Anetan and Meneng, that did so purely for commercial purposes, while 19 households sold most of their product and 35 some of it.

Table 39. *Purposes of the raising of livestock by households, by district, Nauru: 2021*

District	Total	Only for home consumption	Mainly home consumption, but some sale	Only for sale	Mainly sale, but some home consumption	Other (e.g. customary)
NAURU	153	72	35	18	19	9
Yaren	12	8	0	1	3	0
Boe	2	2	0	0	0	0
Aiwo	11	7	2	1	0	1
Buada	14	5	7	1	1	0
Denigomodu	7	3	2	0	1	1
Nibok	9	4	3	1	1	0
Uaboe	5	5	0	0	0	0
Baitsi	4	2	1	1	0	0
Ewa	13	9	2	0	2	0
Anetan	29	12	5	5	5	2
Anabar	5	1	0	1	3	0
Ijuw	0	0	0	0	0	0
Anibare	1	0	1	0	0	0
Meneng	34	11	11	5	3	4
Location	7	3	1	2	0	1

5.4.2.3 Fishing activities

The following section provides a summary of the number/proportion of households involved in fishing activities, and whether it was mainly for own consumption (subsistence), for sale, or both.

The census questionnaire distinguished between eight categories of fishing activities.

1. Collecting on ocean flat (by hand) e.g. *akida, akorung*
2. Collecting on reef flat (by hand) e.g. *bwoko, iyo, godu*
3. Offshore fishing (hook or line or spear)
4. Trolling, deep sea fishing
5. Reef fishing (hook or line or spear)
6. *Karag dagiga* (hooking an octopus)*, romm* (reef fish scavenging), *ti-emor i* (fly fishing)
7. Traps
8. Net fishing

The questionnaire asked whether the purpose of these activities was mainly for own consumption (subsistence), for sale, or for both, how often the activity was undertaken, and what means of transportation was used for the purpose.

It was already shown in Table 35 that 29.6% of households in Nauru were engaged in fishing activities, regardless of the type and purpose of fishing. This varied from 12.1% in Baitsi to more than half (52.5%) in Anetan, 48.8% in Ewa and 46.7% in Denigomodu. It is less than in 2011 when just over half of households practised fishing, rising to more than 80% in Ijuw and Anibare.

The most common types of fishing were collecting of fish on the reef by hand, to catch *bwoko, iyo* or *godu* (18.4% of households), offshore fishing with a hook or spear (12.0%) and reef fishing with a hook, line or spear (11.3%). Next most common was deep sea fishing (10.0%). The methods varied

considerably by district (Table 40). For example, the collection of fish on the reef by hand was a very common method in Anetan (37.3%) and Ewa (36.6%) but was not practised much in Baitsi (7.7%). Deep sea fishing, on the other hand, was relatively common in Uaboe (22.8%) and Anetan (21.2%), but not practised much in Anibare (1.7%), Ijuw (4.1%) or Baitsi (4.4%). Net fishing was a common method in Ewa (35.4%), but nationally only 9.0% of households practised this fishing method.

Table 40. *Percentage of households engaged in fishing, by district, Nauru: 2021*

District	Collecting on ocean floor by hand *(akida, akorung)*	Collecting on reef by hand *(bwoko, iyo, godu)*	Offshore fishing (hook, line or spear)	Deep sea fishing	Reef fishing (hook, line or spear)	*Karag dadiga, romm, ti-emor i*	Traps	Nets
NAURU	6.9	18.4	12.0	10.0	11.3	8.2	2.5	9.0
Yaren	7.2	19.4	2.2	15.8	5.8	4.3	0.0	9.4
Boe	6.9	22.1	15.3	6.9	9.9	15.3	3.8	7.6
Aiwo	7.1	9.8	6.7	6.7	8.0	4.4	2.2	4.9
Buada	2.9	8.6	6.3	6.3	6.3	3.4	0.6	0.6
Denigomodu	1.7	23.3	16.7	16.7	16.7	1.7	1.7	10.0
Nibok	2.5	32.0	4.9	12.3	4.9	4.1	1.6	3.3
Uaboe	17.5	26.3	24.6	22.8	24.6	17.5	10.5	12.3
Baitsi	2.2	7.7	4.4	4.4	2.2	4.4	1.1	5.5
Ewa	18.3	36.6	28.0	19.5	26.8	22.0	9.8	35.4
Anetan	16.1	37.3	27.1	21.2	26.3	25.4	3.4	17.8
Anabar	14.0	16.1	10.8	11.8	12.9	8.6	3.2	11.8
Ijuw	2.0	20.4	2.0	4.1	0.0	2.0	0.0	6.1
Anibare	8.5	15.3	16.9	1.7	20.3	5.1	3.4	5.1
Meneng	6.0	14.7	12.0	9.3	9.7	7.3	2.0	6.3
Location	3.7	15.9	15.0	6.2	12.5	6.9	2.2	11.8

As shown in Table 41, most households engaged in fishing (72.3%) did so only for home consumption. Very few were engaged in fishing exclusively for commercial purposes, but some did sell part of their catch, particularly households in Meneng, Location and Anetan, which together make up about half of the households that did so.

Table 41. *Purposes of own-account fishing by households, by district, Nauru: 2021*

District	Total	Only for home consumption	Mainly home consumption, but some sale	Only for sale	Mainly sale, but some home consumption	Other (e.g. customary)
NAURU	599	433	133	1	31	1
Yaren	43	32	7	0	4	0
Boe	40	39	1	0	0	0
Aiwo	45	40	3	0	2	0
Buada	27	21	4	0	2	0
Denigomodu	28	20	7	0	1	0
Nibok	51	41	8	0	2	0

Uaboe	19	11	7	1	0	0
Baitsi	11	6	4	0	1	0
Ewa	40	38	2	0	0	0
Anetan	62	44	17	0	1	0
Anabar	20	9	8	0	2	1
Ijuw	12	2	8	0	2	0
Anibare	25	18	7	0	0	0
Meneng	92	57	25	0	10	0
Location	84	55	25	0	4	0

The 2021 census also asked about the frequency with which households engaged in fishing activities. Among the 599 households that declared fishing as an own-account activity, the average frequency was about once a fortnight. In Uaboe and Anibare the average was about once a week (Table 42).

Table 42. *Households engaged in fishing by frequency of fishing and district, Nauru: 2021*

District	Total	Every day	Every week	Every fortnight	Monthly
NAURU	599	66	199	166	168
Yaren	43	2	15	13	13
Boe	40	3	14	9	14
Aiwo	45	7	13	10	15
Buada	27	4	9	7	7
Denigomodu	28	2	7	13	6
Nibok	51	1	16	27	7
Uaboe	19	8	8	2	1
Baitsi	11	1	4	1	5
Ewa	40	4	10	12	14
Anetan	62	5	8	22	27
Anabar	20	3	9	2	6
Ijuw	12	0	3	5	4
Anibare	25	7	16	1	1
Meneng	92	6	25	31	30
Location	84	13	42	11	18

The questionnaire also asked what means of transportation was used. About a third used a boat with a motor and another third practised shore-based fishing that did not require a boat. It should be noted that only 142 outboard motorboats were declared in the census, whereas 196 households reported using a motorboat, which suggests a shared use of the available boats. Only a relatively small percentage of households (5.8%) used a canoe or other type of boat without a motor and the remainder did not report what kind of transport they used. The use of motorboats was much more common in Yaren (60.5%) and Anabar (60.0%), than in other districts. Shore-based fishing methods were most common in Uaboe (63.2%) and Ewa (62.5), but were not used in Buada, which does not have a shore.

Table 43. *Percentage of households that practise fishing as an own-account activity and their mode of transport, by district, Nauru: 2021*

District	Boat with motor	Boat without motor (canoe, sail)	Shore-based (no bed)
NAURU	32.7	5.8	31.2
Yaren	60.5	7.0	14.0
Boe	32.5	17.5	25.0
Aiwo	40.0	4.4	51.1
Buada	44.4	0.0	0.0
Denigomodu	28.6	7.1	39.3
Nibok	25.5	3.9	23.5
Uaboe	47.4	15.8	63.2
Baisi	36.4	0.0	27.3
Ewa	22.5	2.5	62.5
Anetan	30.6	1.6	8.1
Anabar	60.0	0.0	20.0
Ijuw	33.3	0.0	16.7
Anibare	24.0	4.0	4.0
Meneng	29.3	4.3	33.7
Location	19.0	10.7	50.0

5.4.2.4 Noddy bird catching

As was shown in Table 35, 9.5% of households in Nauru engaged in noddybird catching, less than in 2011, when it was 14%. The activity is most common in Anetan and Meneng. Table 44 shows that this was mostly done for own consumption. However, five households undertook this activity purely for commercial purposes, 19 sold most of the product, but also used some for home consumption and 48 did the reverse.

Table 44. *Purposes of noddybird catching by households, by district, Nauru: 2021*

District	Total	Only for home consumption	Mainly home consumption, but some sale	Only for sale	Mainly sale, but some home consumption	Other (e.g. customary)
NAURU	192	118	48	5	19	2
Yaren	12	10	0	0	2	0
Boe	16	11	2	3	0	0
Aiwo	16	11	2	0	3	0
Buada	7	5	2	0	0	0
Denigomodu	16	4	9	0	3	0
Nibok	17	11	5	0	1	0
Uaboe	9	5	4	0	0	0
Baitsi	3	3	0	0	0	0
Ewa	15	13	1	0	1	0
Anetan	33	18	9	0	5	1

Anabar	9	4	3	0	1	1
Ijuw	2	1	1	0	0	0
Anibare	1	1	0	0	0	0
Meneng	21	14	4	1	2	0
Location	15	7	6	1	1	0

5.4.2.5 Food insecurity

Despite the fact that a significant number of Nauruan households are engaged in fishing or other types of food production, food insecurity is a real concern in the country. As many as 11.7% of households reported having gone without eating for a whole day because of a lack of money or other resources during the past 12 months, whereas 47.0% worried about this possibility and 51.8% reported not having had the resources to buy food of the desired quality (Table 45). There is a fair amount of variation by district, with food insecurity being most tangible in Meneng and least in Buada, Denigomodu and Anibare. Households in Ijuw did not report a high incidence of absolute food shortage, but a high percentage (87.2%) reported a lack of healthy and nutritious food.

Table 45. *Percentage of households that experienced different levels of food insecurity during the past 12 months, by district, Nauru: 2021*

District	Food Insecurity Experience Scale (FIES)*							
	1	2	3	4	5	6	7	8
NAURU	47.0	51.8	37.1	21.5	20.3	19.3	14.5	11.7
Yaren	54.4	40.0	26.5	10.5	11.3	9.0	5.9	4.4
Boe	40.5	32.0	17.4	14.3	13.4	14.9	11.8	6.7
Aiwo	53.2	60.6	41.8	17.3	19.2	18.3	14.2	12.7
Buada	29.7	36.8	19.2	10.5	7.6	7.1	4.1	2.4
Denigomodu	34.0	35.8	35.8	18.9	22.6	21.2	5.8	1.9
Nibok	67.8	70.0	62.5	30.5	18.6	22.0	6.7	9.2
Uaboe	46.3	7.4	7.4	3.7	3.7	3.7	1.9	1.9
Baitsi	59.3	34.1	31.9	11.0	9.9	12.1	9.9	9.9
Ewa	49.4	44.0	46.2	25.0	32.5	20.5	15.8	6.3
Anetan	55.9	78.0	61.5	28.2	18.8	19.5	13.7	7.6
Anabar	29.2	43.8	21.6	16.4	14.7	14.7	12.3	10.0
Ijuw	2.1	87.2	2.1	6.4	0.0	2.1	0.0	0.0
Anibare	22.8	86.0	15.8	7.0	7.0	7.0	7.1	3.6
Meneng	63.9	66.3	58.0	37.9	38.4	38.0	35.5	32.1
Location	38.8	44.4	35.8	29.5	29.1	25.3	18.8	14.3

Note: Percentage excludes households that did not know or refused to answer.

* The meaning of the values on the FIES scale.

1: You or others in your household were worried about not having enough food to eat because of a lack of money or other resources.

2: You or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources.

3: You or others in your household ate only a few kinds of foods because of a lack of money or other resources.

4: You or others in your household had to skip a meal because there was not enough money or other resources to get food.

5: You or others in your household ate less than you thought you should because of a lack of money or other resources.

6: Your household ran out of food because of a lack of money or other resources.

7: You or others in your household were hungry but did not eat because there was not enough money or other resources for food.

8: You or others in your household went without eating for a whole day because of a lack of money or other resources.

5.4.2.6 Handcraft production

Only 2.9% of Nauruan households reported own-account activities in the production of handicrafts. In about 40% of cases this was done purely for home consumption, but 14 households declared engaging in this activity for purely commercial purposes and another 18 sold at least part of their product. Ewa has the largest number of households producing handicrafts (10), four of which work exclusively for selling their product.

Table 46. *Purposes of handicraft production by household, by district, Nauru: 2021*

District	Total	Only for home consumption	Mainly home consumption, but some sale	Only for sale	Mainly sale, but some home consumption	Other (e.g. customary)
NAURU	58	24	10	14	8	2
Yaren	2	1	0	0	0	1
Boe	4	3	0	0	0	1
Aiwo	3	3	0	0	0	0
Buada	4	2	1	1	0	0
Denigomodu	1	1	0	0	0	0
Nibok	4	1	2	1	0	0
Uaboe	3	1	0	0	2	0
Baitsi	1	1	0	0	0	0
Ewa	10	5	0	4	1	0
Anetan	5	2	1	2	0	0
Anabar	3	0	1	1	1	0
Ijuw	2	0	0	1	1	0
Anibare	1	0	1	0	0	0
Meneng	5	1	1	2	1	0
Location	10	3	3	2	2	0

5.5 Housing

5.5.1 Introduction

While it fulfils a variety of social roles, housing primarily provides shelter and security for the family and individuals. It also provides a relative measure of social status and an expression of lifestyle choices and comfort. As an important social institution, housing provides owners with a sense of worth and belonging in any community.

The challenge for the country and any government of the day is to provide sustainable livelihoods, safe and secure living environments and a better quality of life for the poor and other vulnerable groups, while maintaining a reasonable standard of the existing housing stock.

The Universal Declaration of Human Rights adopted in 1948 recognised the right to adequate housing (Office of the UN High Commissioner for Human Rights (OHCHR) and UN Habitat (2014). The right to adequate housing. OHCHR, Geneva).

5.5.2 Tenure

The majority (76.2%) of all households in Nauru owned the living quarters they occupied (Figure 48). The highest proportion of households owning their living quarters were in Nibok (98.4%) and Baitsi (97.8%). On the other hand, homes occupied without payment are extremely common (63.4%) in Boe and Location (38.9%). Relatively few (4.8%) of homes are rented, with the highest percentages in Aiwo (9.8%) and Buada (8.0%).
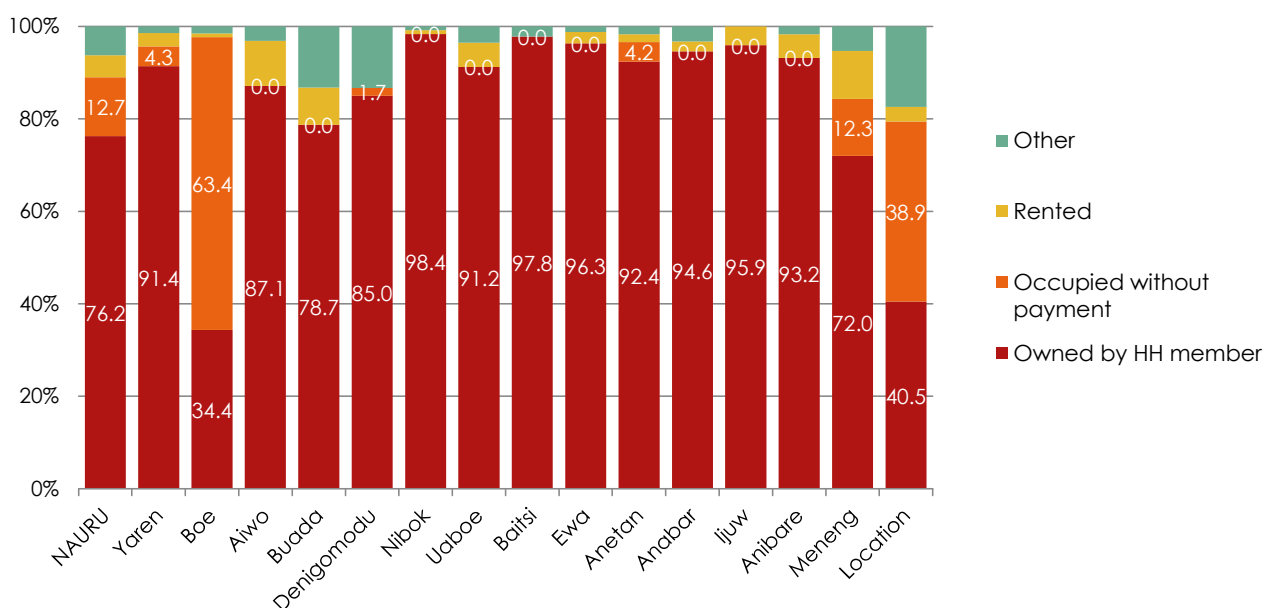
Figure 48. *Percentage of households by district and housing tenure, Nauru: 2021*

5.5.3 Type of living quarters, and year/period of construction

The 2021 census provides information on the type of building that each household lived in. Seven building categories were distinguished:

- one family house detached from others;
- one family house made up of multiple small structures;
- one family house attached to others;
- building with two or more apartments;
- dwelling attached to shop or other non-residential building;
- lodging house, hostel, etc.;
- hut;
- single quarters; and
- any other type of building that cannot be classified as one of the above types.

The majority, 56.6% of Nauru's households, lived in a one-family house detached from others, 15.2% lived in a one-family home made up of multiple small structures, 14.2% lived in a building with two or more apartments, 11.4% lived in a one-family house attached to others, 1.1% lived in a dwelling attached to a shop or other non-residential building, and 1.5% lived in other types of living quarters, such as a lodging house, a hut or an improvised structure (Figure 49).

While the overall pattern of types of housing was similar across the districts, it is worth noting that 72.3% of households in Location lived in buildings with two or more apartments, while 22.7%

lived in one-family homes attached to others. The latter type of housing was also relatively more common in Denigomodu and Uaboe.

More than a third (35.8%) of all living quarters in Nauru were built more than 50 years ago, and 21.7% were built 21–50 years ago. Only 3.5% of dwellings were recently constructed – during the last two years before the October 2021 census – whereas the year of construction of 16.3% of the buildings was unknown. Almost all the buildings in Location (to the extent that their age was known) were more than 50 years old, which is also the case for more than 60% of dwellings in Uaboe, 55% of those in Aiwo and Ewa and 52% of those in Yaren (Figure 50).

The highest proportion of newly built buildings constructed during the two years before the census were located in Anibare (12%) and Ijuw (10%).
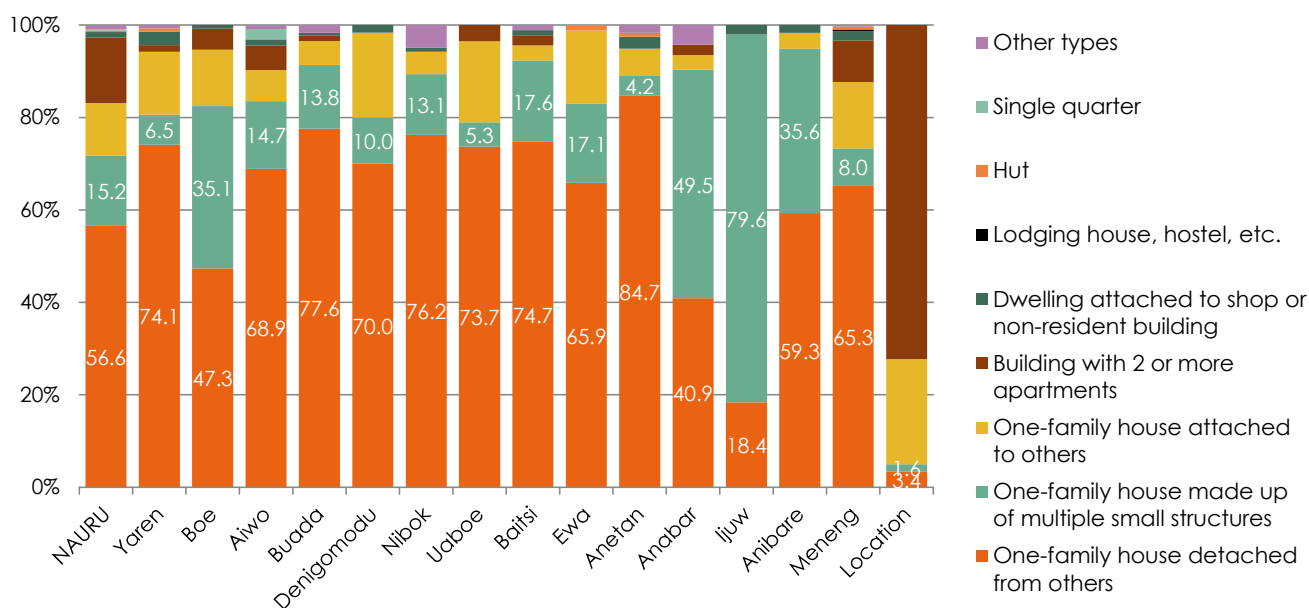
Figure 49. *Percentage of households by district and type of living quarters, Nauru: 2021*
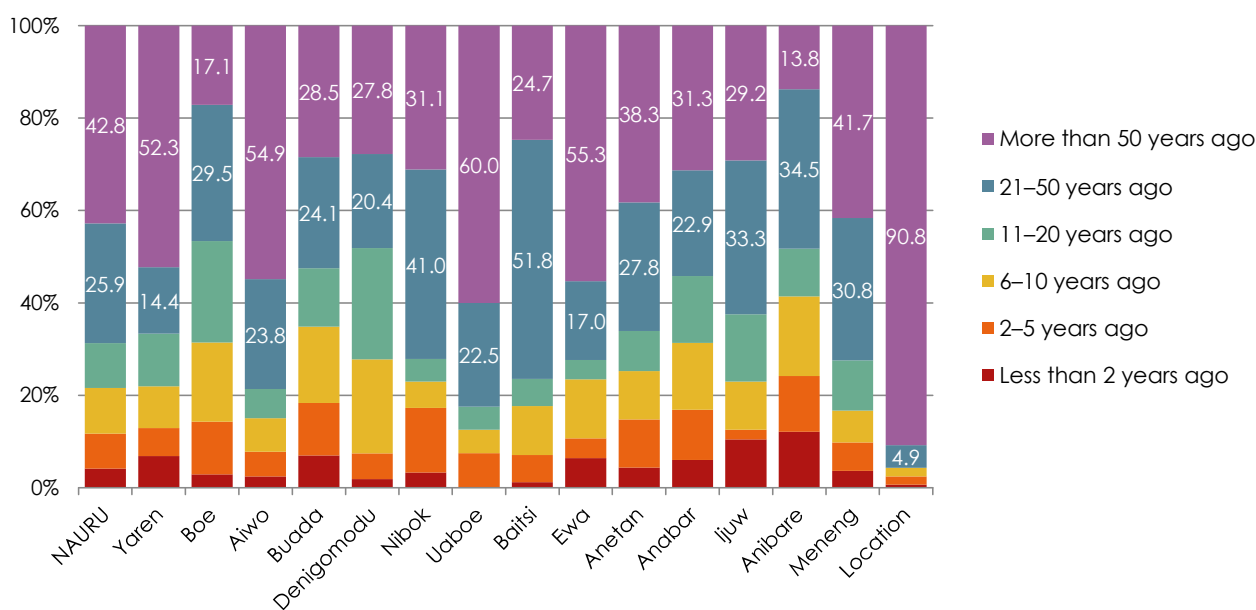
Figure 50. *Percentage of households by district and period when building (dwelling) was constructed, Nauru: 2021*

Note: Excludes buildings of unknown age.

5.5.4 Number of rooms

The distribution of dwellings by number of rooms is shown in Figure 98. The majority (71%) of all dwellings in Nauru had at least five rooms, and another 15% had four rooms; 5% had three rooms, 4% had two rooms, and 4% had only one room or no rooms at all.

There were on average 5.5 rooms per dwelling (Table 47). The districts with the highest average number of rooms per dwelling were Ewa (6.9) and Uaboe (6.6), while households in Boe had 6.2 rooms on average. The districts with the lowest average number of rooms were Ijuw (4.0), and Anabar, with with 4.7 rooms on average. With the exception of Nibok, where no change occurred, the average number of rooms per household increased between 2011 and 2021 by almost 15% on average.[16]

Table 47. *Households by district and average number of rooms per dwelling, Nauru: 2011 and 2021*

District	2011	2021
	Number of rooms per dwelling	
NAURU	4.8	5.5
Yaren	5.1	5.4
Boe	5.3	6.2
Aiwo	4.8	5.8
Buada	5.2	5.5
Denigomodu	4.0	5.0
Nibok	5.3	5.3
Uaboe	6.1	6.6
Baitsi	5.1	5.7
Ewa	5.0	6.9
Anetan	4.8	4.8
Anabar	4.6	4.7
Ijuw	3.6	4.0
Anibare	5.1	5.2
Meneng	4.7	5.2
Location	4.2	5.4

---

16 Note that the category "sitting rooms" was not asked for in 2011, which may have caused some downward bias compared to 2021, when this category was explicitly included.
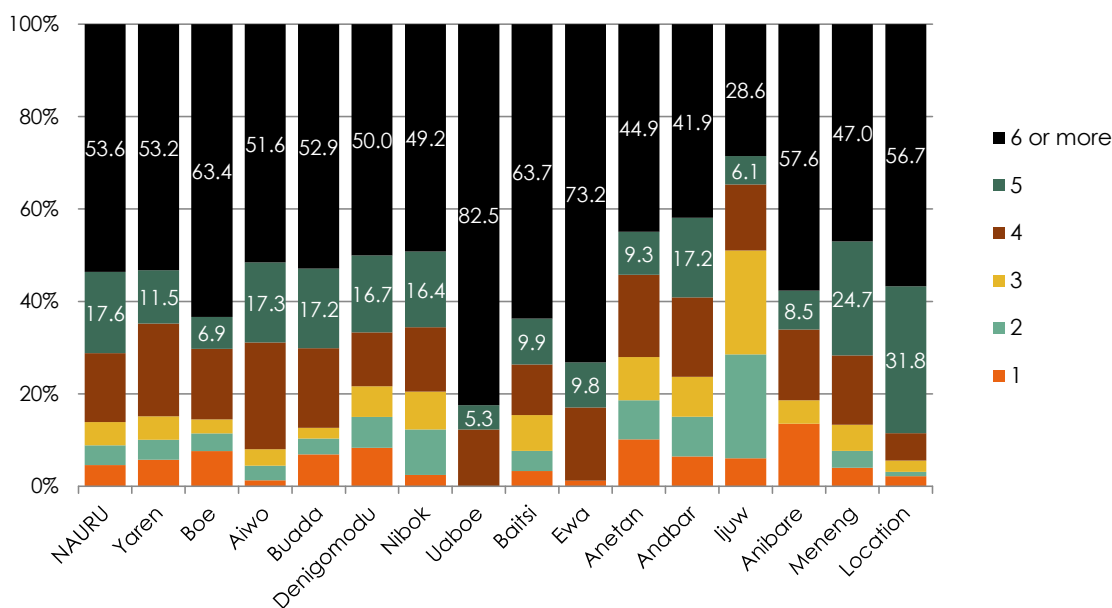
Figure 51. *Percentage of households by district and number of rooms, Nauru: 2021*

The census also collected information on the number of bedrooms, sitting rooms, dining rooms and kitchens separately.

More than 61% of all households had three or more bedrooms. Households in Ewa had the highest number of bedrooms, with an average of 3.6, although the percentage of households with three or more bedrooms was highest in Location (85.4%) (Figure 52).

While the vast majority of households (75.4%) had a dining room, a sizeable minority (24.6%) of households did not. This was particularly so among households in Anetan and Ijuw (Figure 53). Similarly, 86.2% of households had a sitting room, but 11.8% did not, with only 2% of households having more than one. The highest percentage of households without a sitting room was in Anetan (31.0%).

Ninety-one per cent of households in Nauru had a kitchen unit, whereas 9% had none (Figure 54). The proportion of households without a kitchen unit was highest in Denigomodu (30%) and Anetan (23.7%). It is notable that Ijuw and Baitsi, which in 2011 had more than 20% of households without a kitchen, had less than 10% in 2021.
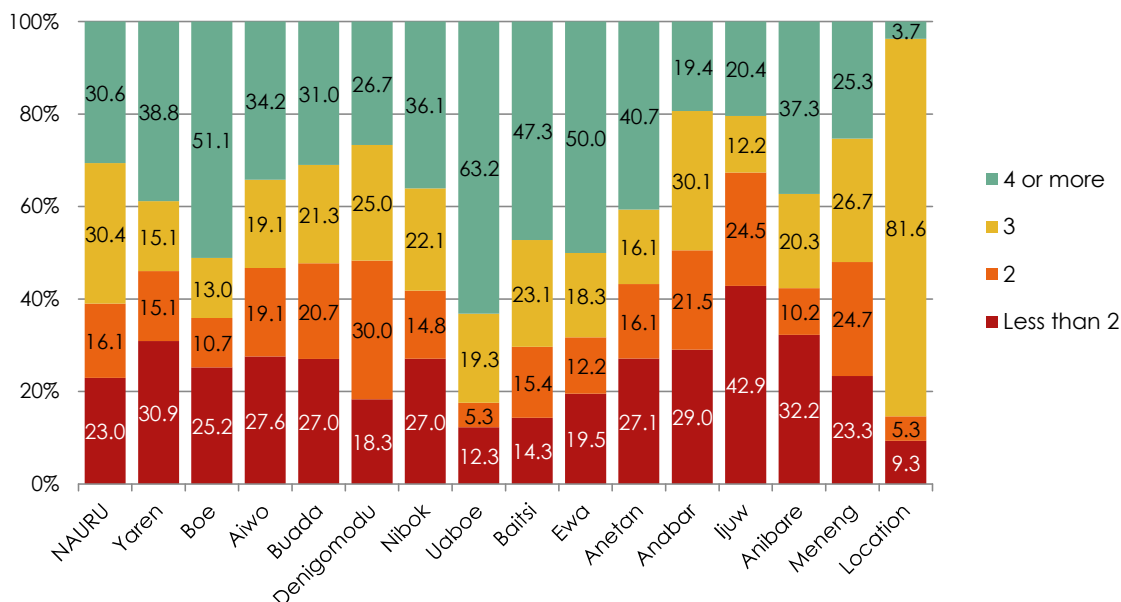
Figure 52. *Percentage of households by district and number of bedrooms, Nauru: 2021*
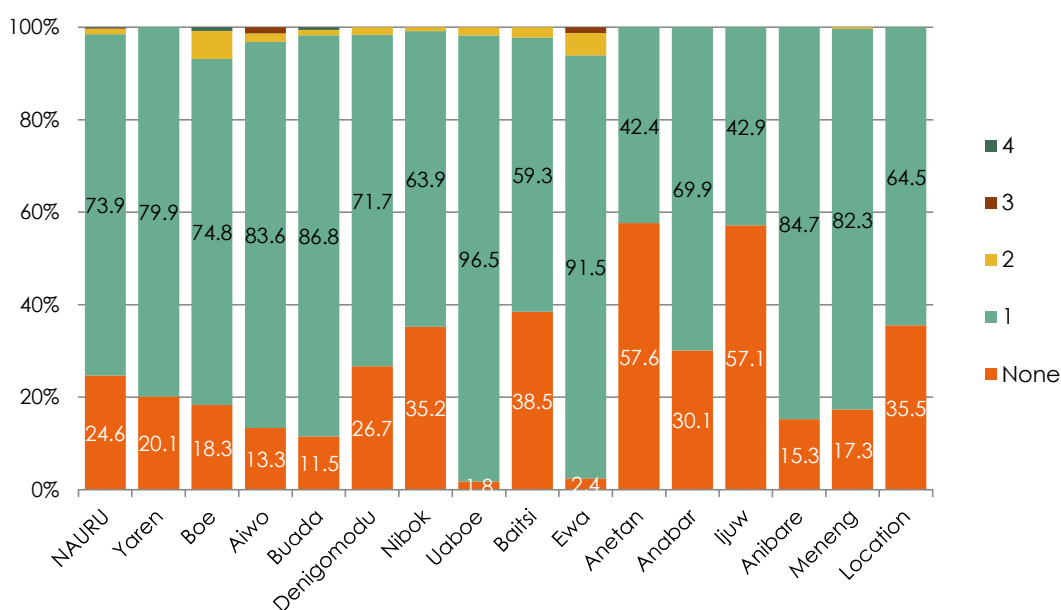
Figure 53. *Percentage of households by district and number of dining rooms, Nauru: 2021*
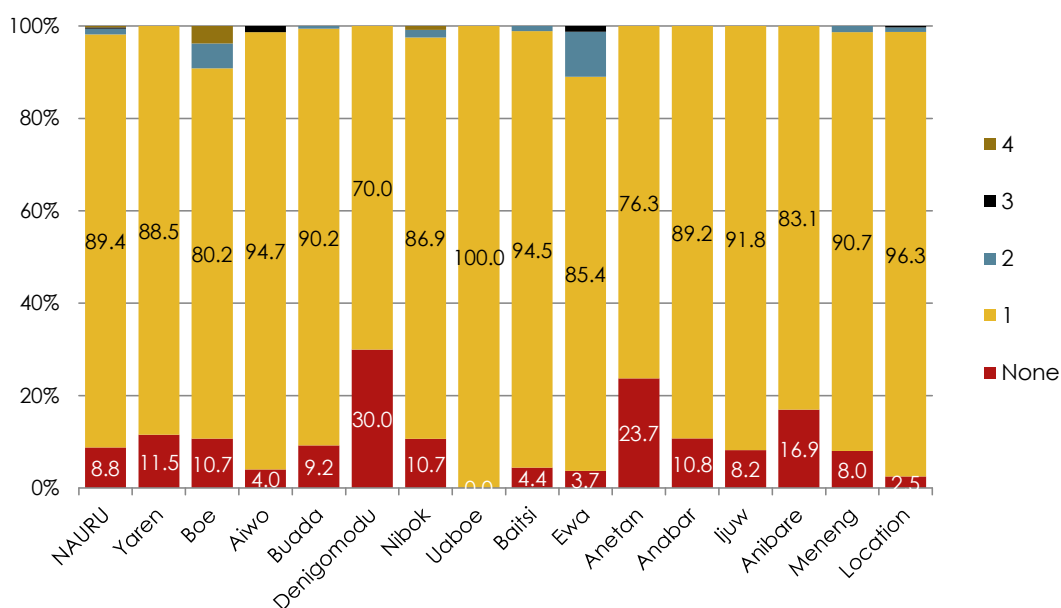
Figure 54. *Percentage of households by district and number of kitchen units, Nauru: 2021*

5.5.5 Condition and material used for dwellings

Outer walls

More than half of the material used for the outer walls of dwellings was concrete, stone or bricks. Masonite was used for 16.0%, 12% were made of wood, 4.5% were made of tin, corrugated iron, or aluminium or other metals, and 9.6% were made of other, not further specified, materials (Figure 55).
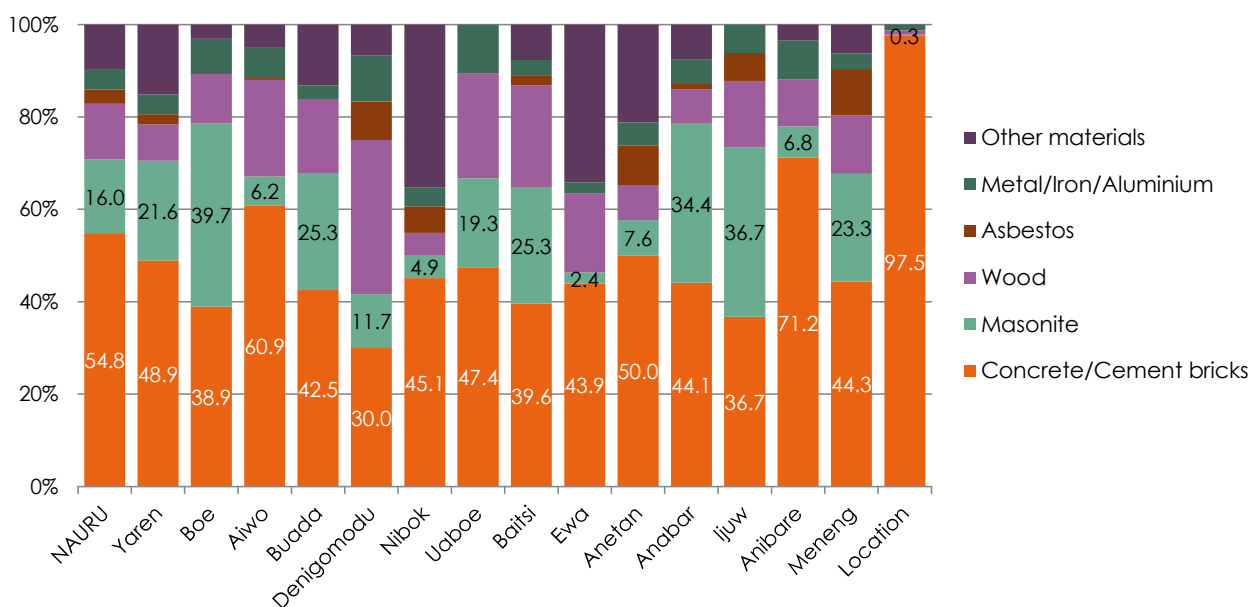
Figure 55. *Percentage of households by district and main type of material used for the outer walls of dwellings, Nauru: 2021*

Almost all (97.5%) outer walls of dwellings in Location were made of concrete, while a third of outer walls in Denigomodu were made of wood, and more than a third in Boe, Anawar and Ijuw were made of masonite. The fact that more than 5% of outer walls in Denigomodu, Nibok, Anetan, Ijuw and Meneng were made of asbestos is cause for some concern.

Roofs

More than 90% of roofs in Nauru were made of tin or aluminium or other metals, and 5.8% of concrete. The use of concrete was higher in Location (18.7%). Fortunately the use of asbestos for roofing had diminished considerably, from 28% in 2011 to 1.1% in 2021 (Figure 56). In Ijuw (8.2%) and Uaboe (5.3%) there are a significant number of houses with a wooden roof.
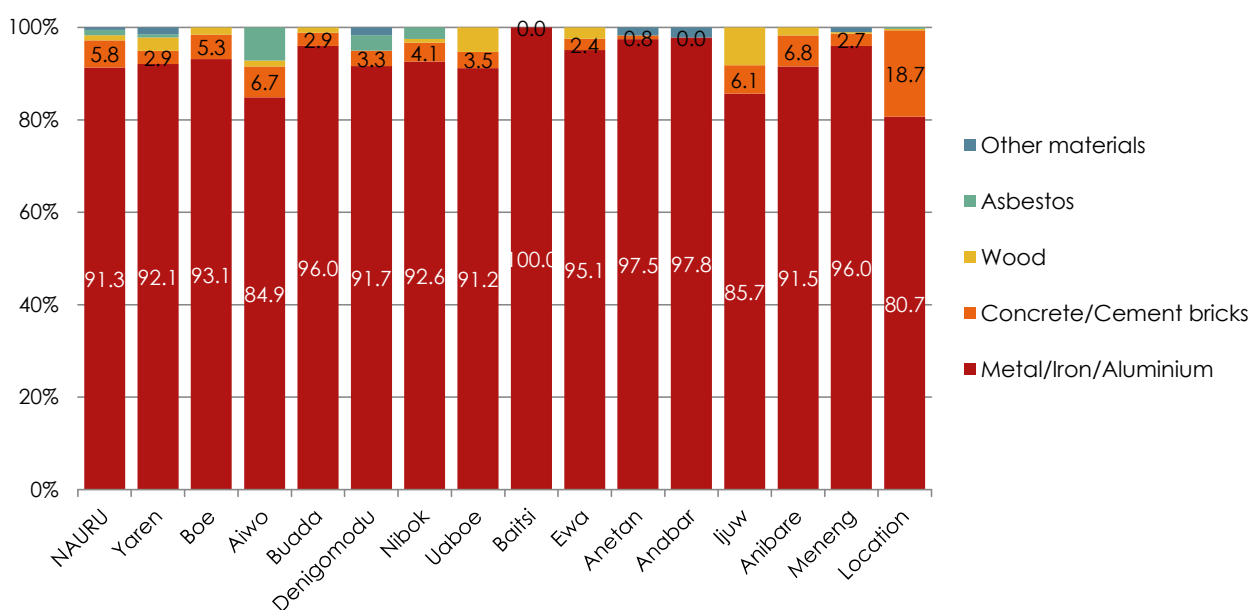
Figure 56. *Percentage of households by district and material used for the roof of dwellings, Nauru: 2021*

Floors

By far the most common material used for floors was concrete (76.5%) (Figure 57), followed by wood (15.0%). Wood was more common in Denigomodu (41.7%) and Ijuw (34.7%). Tile flooring was relatively rare (4.7%), except in Baitsi (24.2%) and Meneng (12.7%).
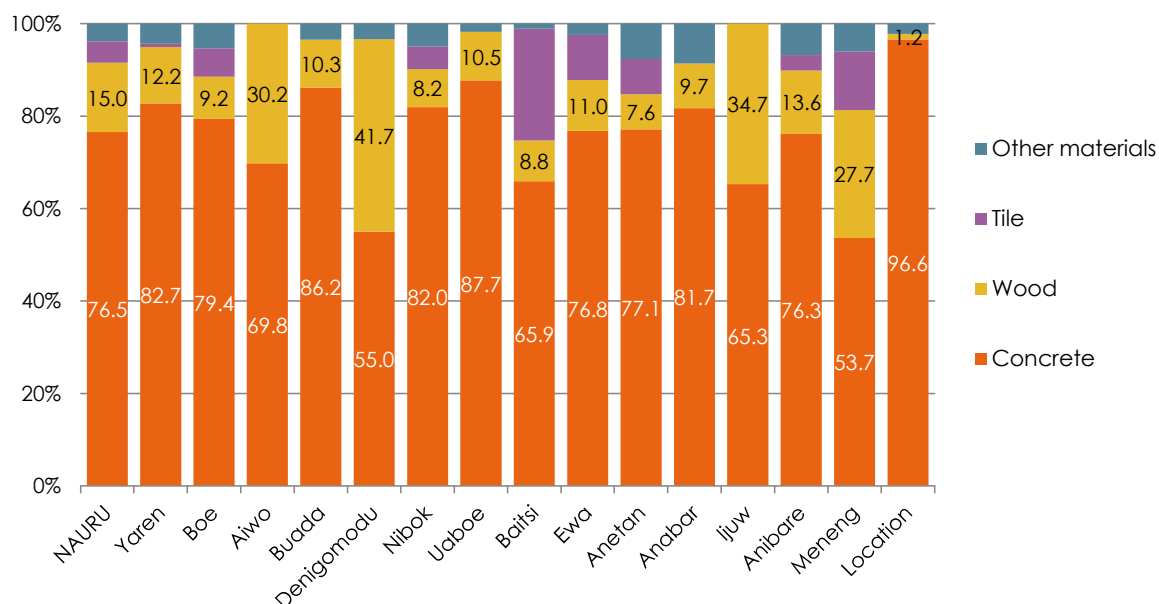
Figure 57. *Percentage of households by district and material used for the floor of dwellings, Nauru: 2021*

Guttering

Almost 36% of households in Nauru had no guttering, but in those that did, 71.8% had tin or aluminium guttering and 27.4% used plastic (PVC) (Figure 58). A small number of households still have asbestos guttering, most notably in Denigomodu (6.7%). The proportion of households without guttering was particularly high in Ijuw (81.6%) and Anabar (60.2%).
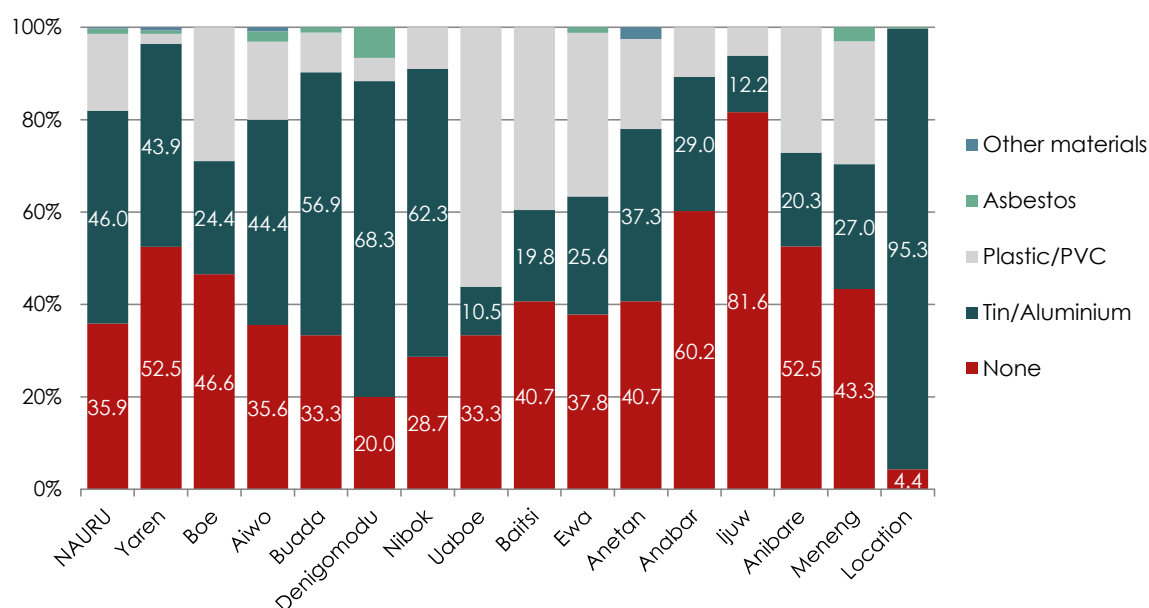
Figure 58. *Percentage of households by district and material used for guttering of dwellings, Nauru: 2021*

Eleven per cent of all dwellings' guttering needed replacing, and 23.8% needed repair. The proportion of guttering that needed replacing or repair was particularly high in Uaboe (63.2%) and Baitsi (51.9%) (Figure 59).
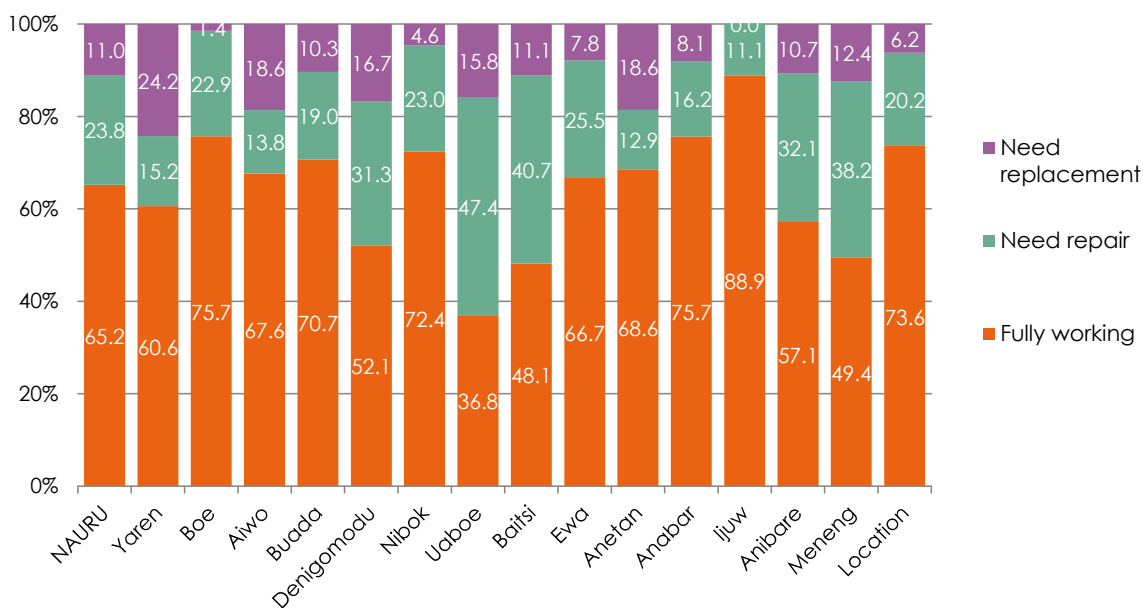
Figure 59. *Percentage of households by district and condition of guttering of dwellings, Nauru: 2021*

Downpipes

Over 70% of households had downpipes and 61.5% of households had downpipes connected to a water storage tank (Figure 61). In 56.4% of households, the downpipes were working, in 11.4% of households they needed repair and in 4.1% they needed to be replaced. The percentage of households with downpipes that needed repair or replacing was particularly high in Uaboe (26.8%) and Yaren (22.1%) (Figure 60).
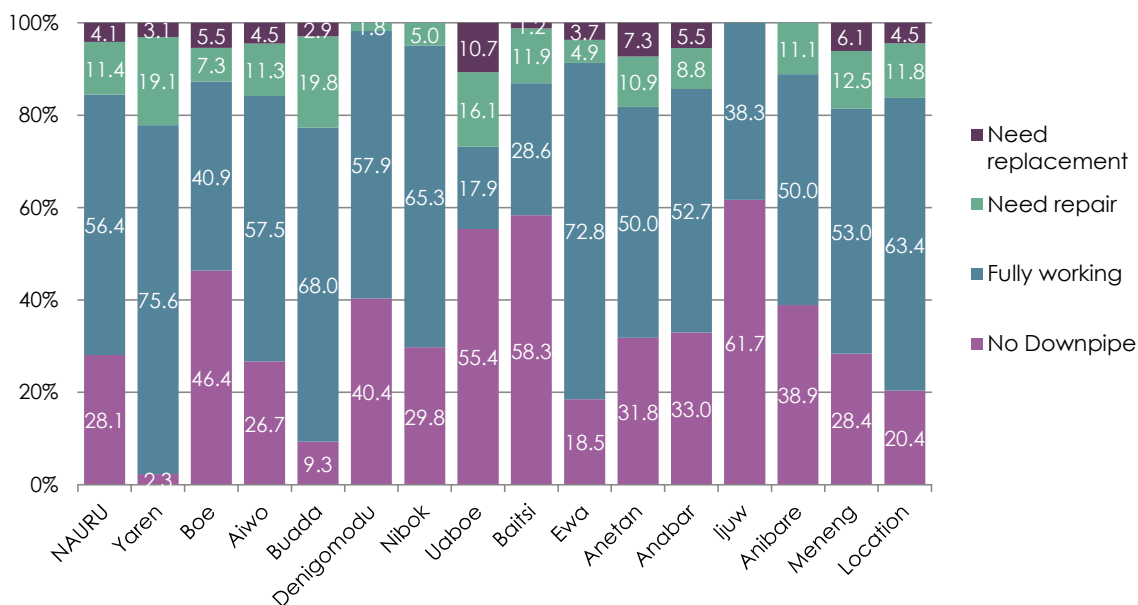
Figure 60. *Percentage of households by district and condition of downpipes of dwellings, Nauru: 2021*
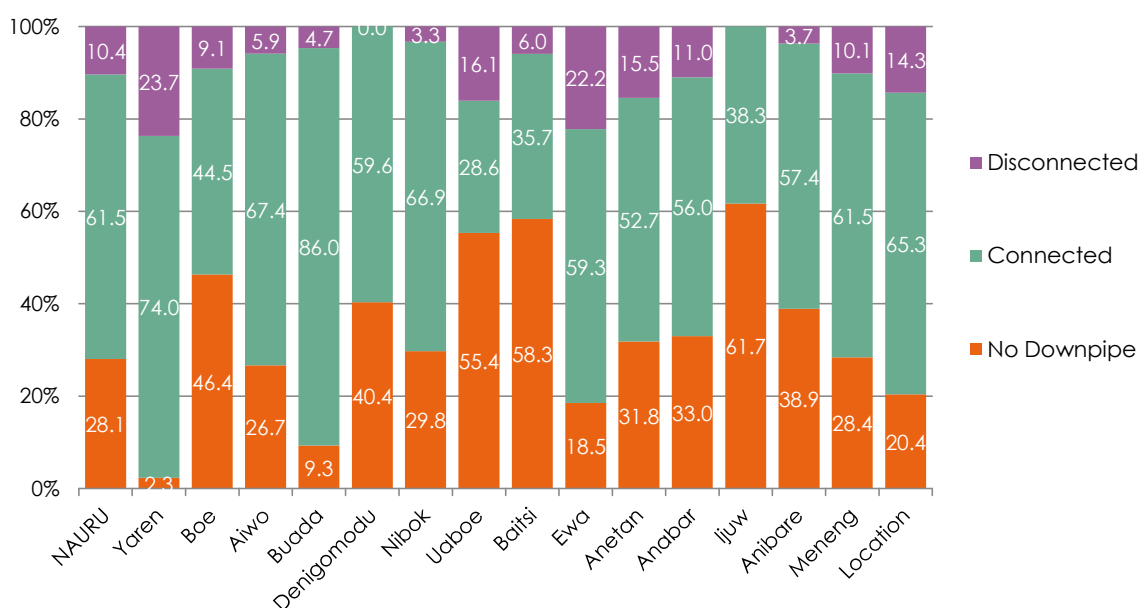
Figure 61. *Percentage of households by district and whether downpipes connected to water storage tank, Nauru: 2011*

5.5.6 Water sources

The general access of the population to water, sanitation, electricity and other basic amenities is an important measure of the country's development. Improving the quality and sustainability of electricity, water supply and sanitation are essential for social and economic growth and employment creation.

Figure 62 shows the main source of drinking water in Nauru's households. In 48.6% of households this was from a tanker truck and/or desalination plant. An additional 36.5% used a rain catchment, 8.0% had access to piped water, either inside or outside the home, and 3.0% used a communal tank. The proportion of households relying on a rain catchment was particularly high in Uaboe (89.5%) and Baitsi (77.0%) and communal tanks were particularly common in Anibare (18.6%) and Meneng (13.7%).
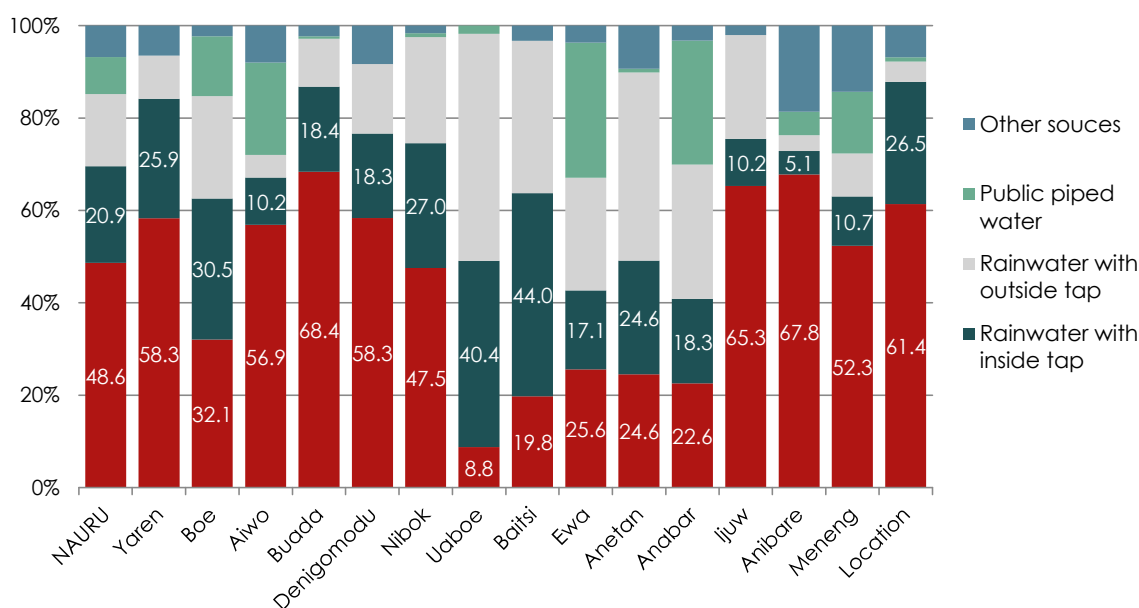
Figure 62. *Percentage of households by district and main source of drinking water, Nauru: 2021*

The distribution of dwellings by main source of water for cooking and personal hygiene is shown in Figure 63. It is almost identical to that for drinking water, with only a slightly higher use of rainwater compared to water from tanker trucks or desalination plants. The biggest difference concerns the use of communal tanks in Anibare and Meneng, which are used for drinking water, but generally not for cooking.
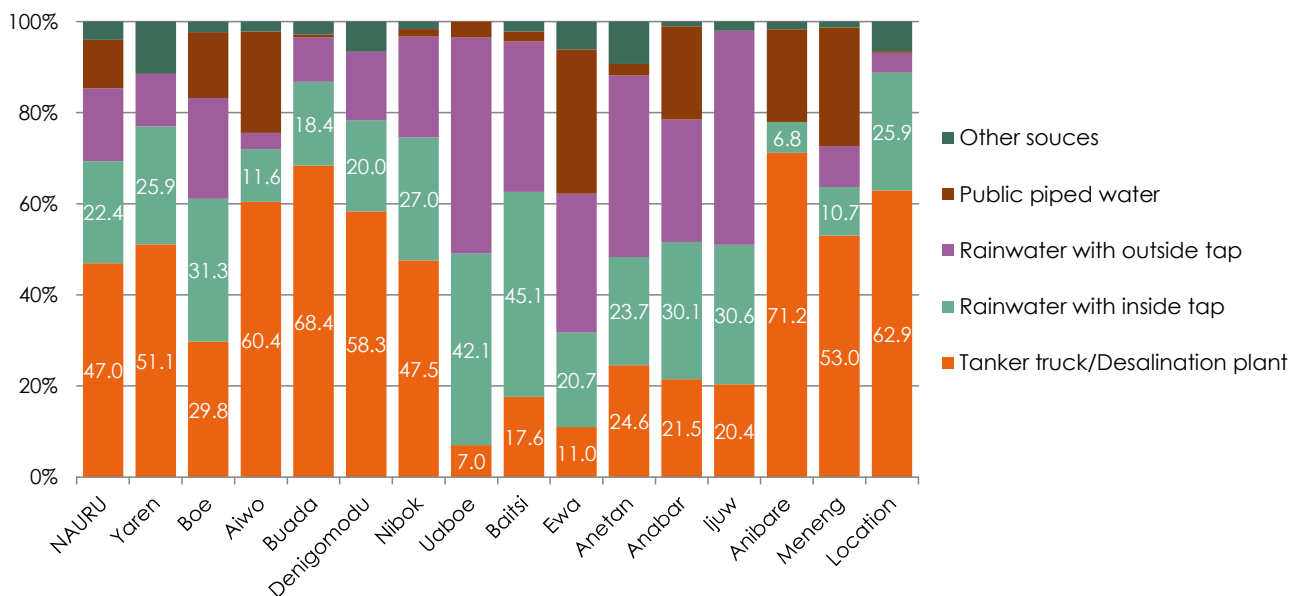
Figure 63. *Percentage of households by district and main source of water for cooking and personal hygiene, Nauru: 2021*

The overwhelming majority (96.3%) of households in Nauru had some form of water storage. but 15.3% of households in Boe district did not have a water tank. The majority (75.9%) of these tanks can hold between 3,000 and 10,000 litres of water. Very few (2.9%) had a capacity of less than 3,000 litres. A fair number of households (21.2%) had large storage tanks, with a capacity of more than 10,000 litres. These were particularly common in Ewa (49.4%). In Location, almost all (94.3%) of storage tanks were relatively small (3,000–5,000 litres) (Figure 64).
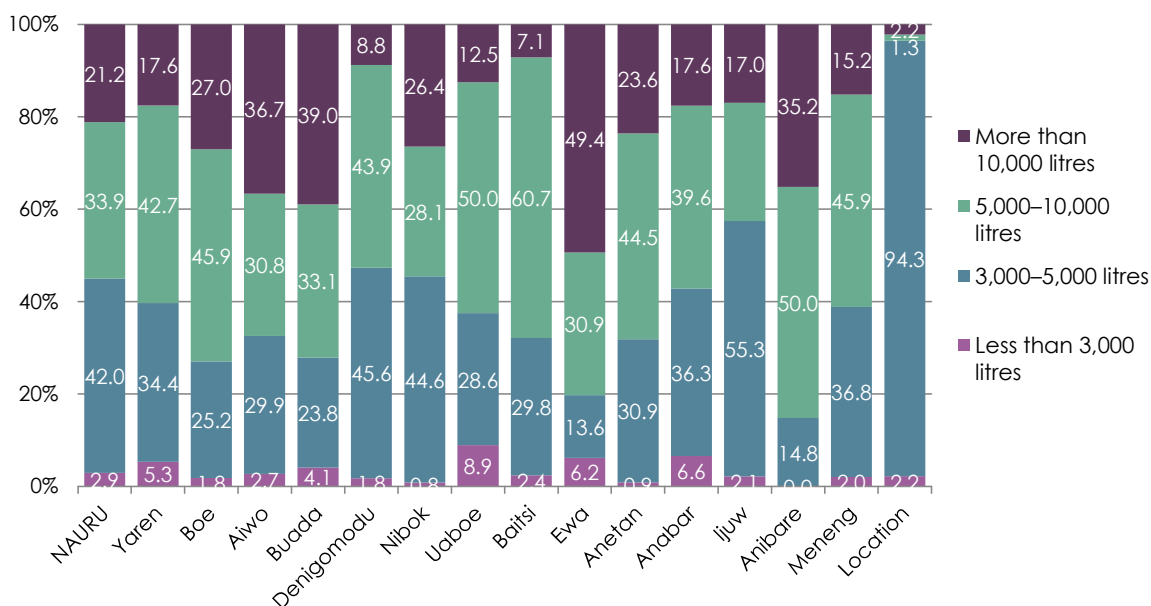
Figure 64. *Percentage of households by district and capacity of water storage tank, Nauru: 2021*

The most common materials for these tanks were plastic (58.4%), concrete (18.6%) and aluminium or galvanised iron (8.3%). Concrete tanks made up the majority (77.3%) of storage tanks in Location, but less than 25% everywhere else, particularly in Yaren, Boe, Uaboe and Baitsi, where less than 3% of households had a concrete tank. Plastic was particularly common material in Meneng (82.3%) and Anabar (81.7%) (Figure 65).
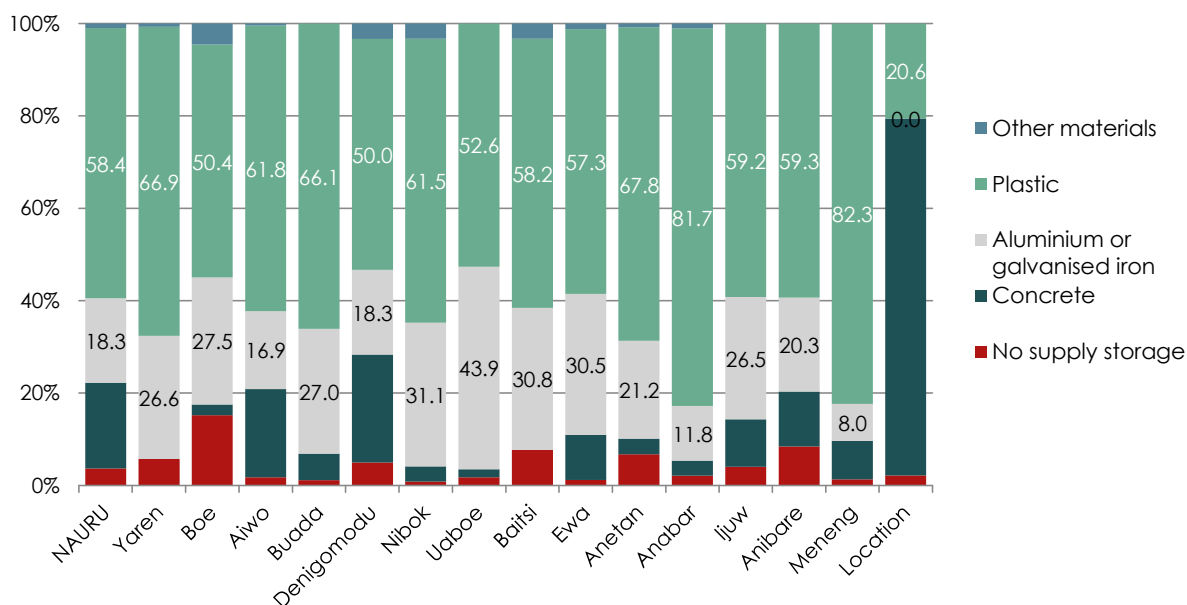
Figure 65. *Percentage of households by district and material used for water storage tank, Nauru: 2021*

More than 70% of households reported that their water supply dried up sometimes or frequently (Figure 66). The households with the most unreliable water supply were located in Ijuw where 89.2% of households' water supply dried up, followed by households in Anibare (86.4%), Anabar (83.9%), and Meneng (80.7%).
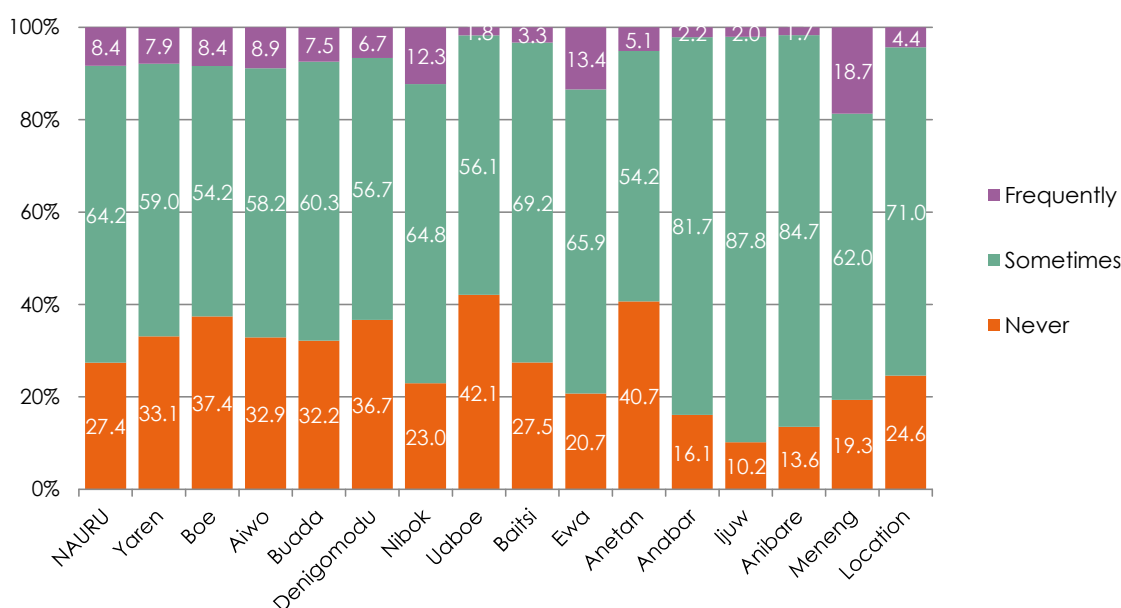
Figure 66. *Percentage of households by district and whether water supply dries up, Nauru: 2021*

Almost 40% of Nauru's households share their main water supply with other households (Figure 67). The proportion of sharing households was highest in Nibok (58.2%), Baitsi (52.7%) and Yaren (52.5%).
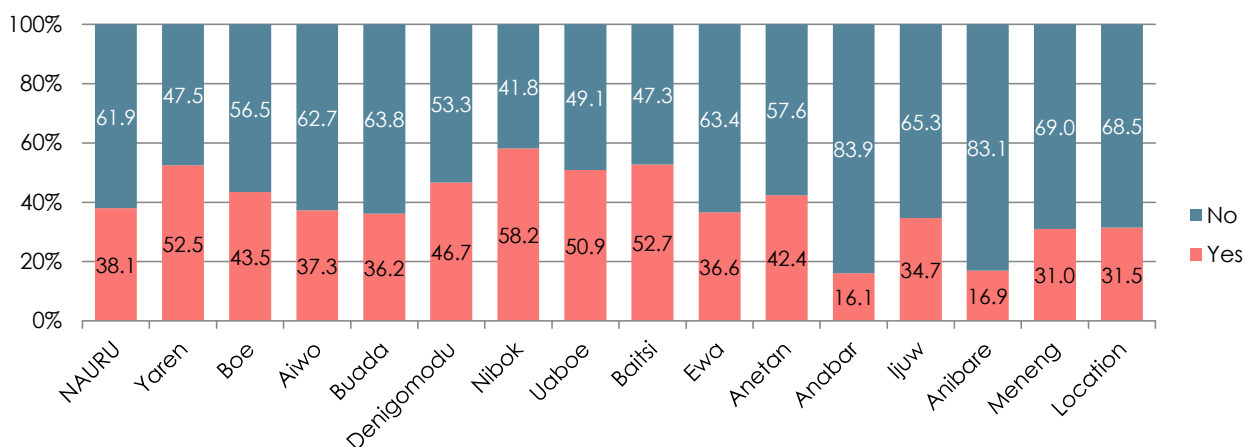
Figure 67. *Percentage of households by district and whether sharing water supply with other households, Nauru: 2021*

During periods of drought, 33.1% of households relied on groundwater, 22.7% depended on neighbours and relatives and 12.6% used desalinated sea water (Figure 68). The percentage of households relying on groundwater was highest in Uaboe (80.7%). Desalinated sea water was used most frequently in Ewa (31.7%), Denigomodu (30.0%) and Location (29.9%).
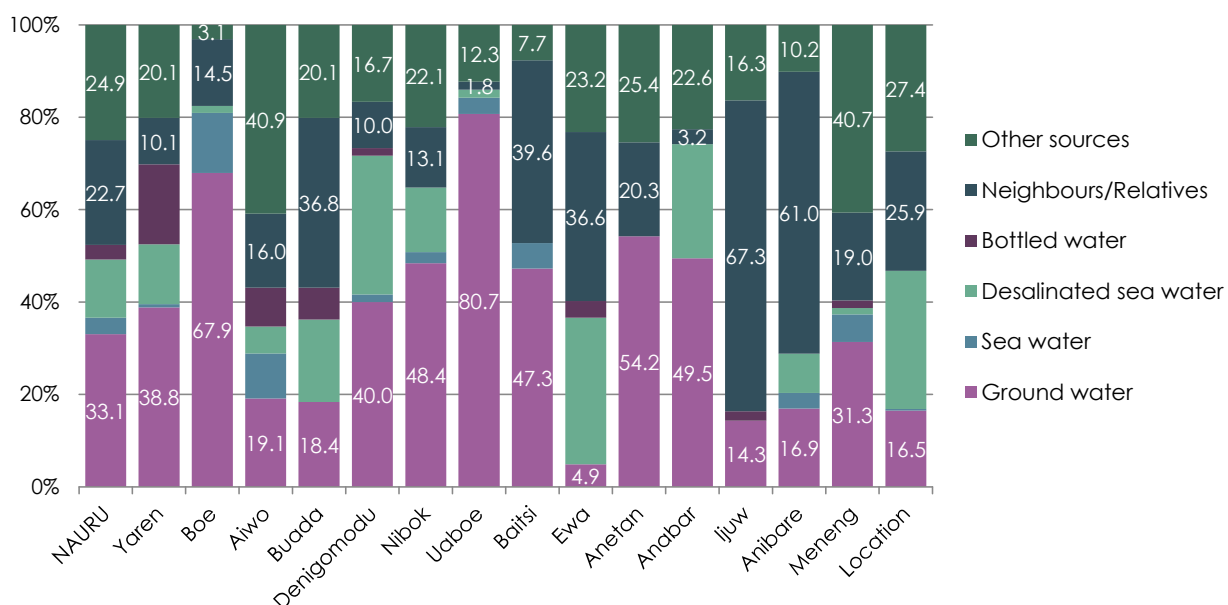
Figure 68. *Percentage of households by district and source of water during periods of drought, Nauru: 2021*

Most households (1,131 or 56%) did not use underground water. Groundwater was used most in Yaren (80.6% of households), Uaboe (79.8%) and Boe (79.6%). The districts with the fewest households using ground water were Location (6.2%) and Ijuw (12.2%). Those that did use it mostly did so for washing (27.5%) and personal bathing (25.7%), followed by gardening and other outside uses (17.4%). Very few households (1.6%) used it for cooking and drinking (Figure 69). Variations in use between districts are not great, but the proportion using ground water for washing was large in Location (69.2%) and its use for personal bathing was larger than average (45.2%) in Anibare.
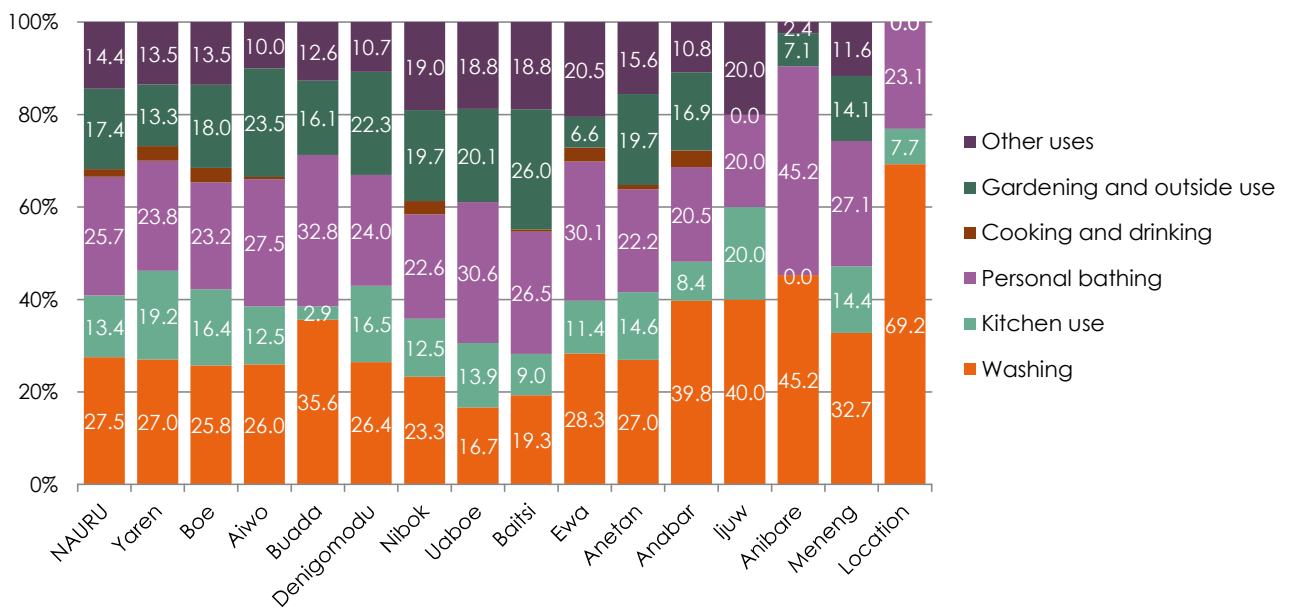
Figure 69. *Percentage of households by district and use of underground water, Nauru: 2021*

Using these numbers to quantify the proportion of households with improved sources for their drinking water is made difficult by the categories used in Figure 63. For example, tanker trucks or water vendors would normally not be considered an improved source, but it depends on the origin of the water. Here it was decided to consider all sources improved, except surface water, unprotected wells, vendor-provided bottled water, water obtained from family and friends and the residual category of "other sources". If this definition is adopted, 97.6% of water sources in Nauru should be considered improved.

5.5.7 Main energy source for lighting and cooking

The main and almost exclusive source (99.3%) of energy for lighting in Nauru was electricity, apart from six households that used solar energy and another six that had no lighting at all.

Almost all households in Nauru relied on the government for supplying electricity (99.5%). Only four households had no electricity, one used a generator and five used another source of electrical energy. Given that there are hardly any households relying on anything but electricity for their lighting, it is not worthwhile to provide a breakdown, but Figure 70 provides data on the type of lighting used. It shows that fluorescent tubes are the most common type of lighting (45.8%), particularly in Location (67.2%), Uaboe (66.3%) and Baitsi (60.1%). LED lights account for just under a quarter of all devices and slightly more in Yaren (40.4%), Ijuw (37.1%) and Buada (36.7%). Incandescent bulbs seem to be disappearing and currently account for only 12.6% of lighting devices, although they are still fairly common in Uaboe (26.3%), Baitsi (23.2%) and Ewa (20.1%).
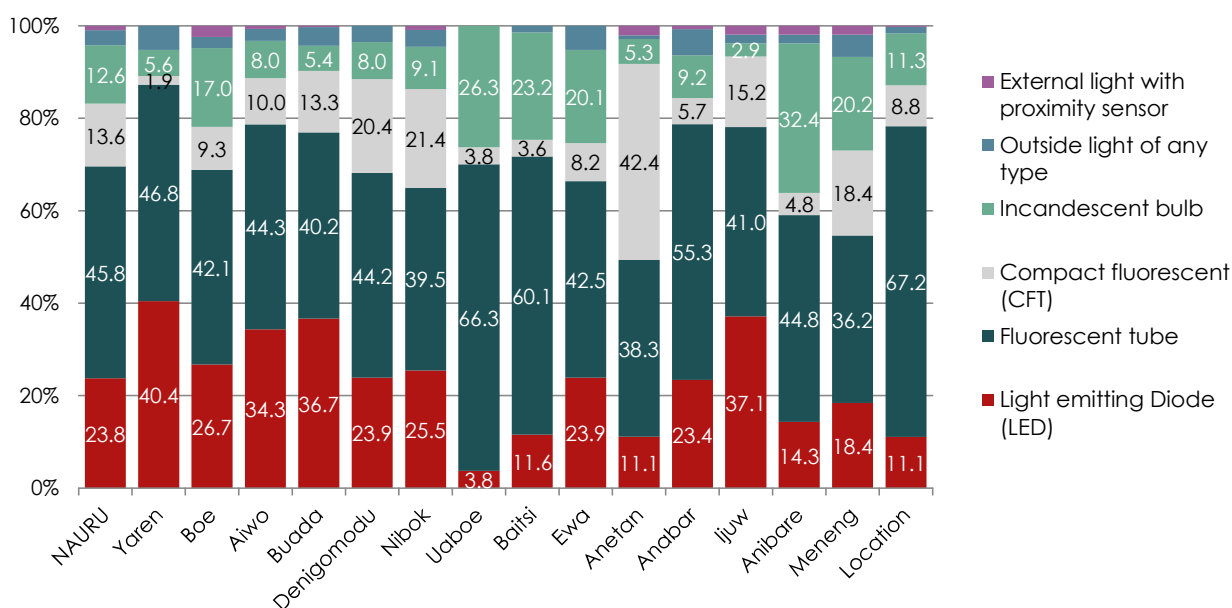
Figure 70. *Percentage of types of lighting used in households, by district, Nauru: 2021*

In 2011, 60% of all households in Nauru used electricity for cooking, but this percentage fell drastically to 10.1% in 2021. By far the most common source of energy nowadays is butane gas (74.0%), which is almost the only source used in Anibare (93.2%) and Ijuw (91.8%). The role of propane gas (LPG) is still relatively limited (14.5%), although it is the most common source in Uaboe (57.9%). Older sources of energy for cooking, such as wood or open fire or kerosene have all but disappeared (Figure 71).
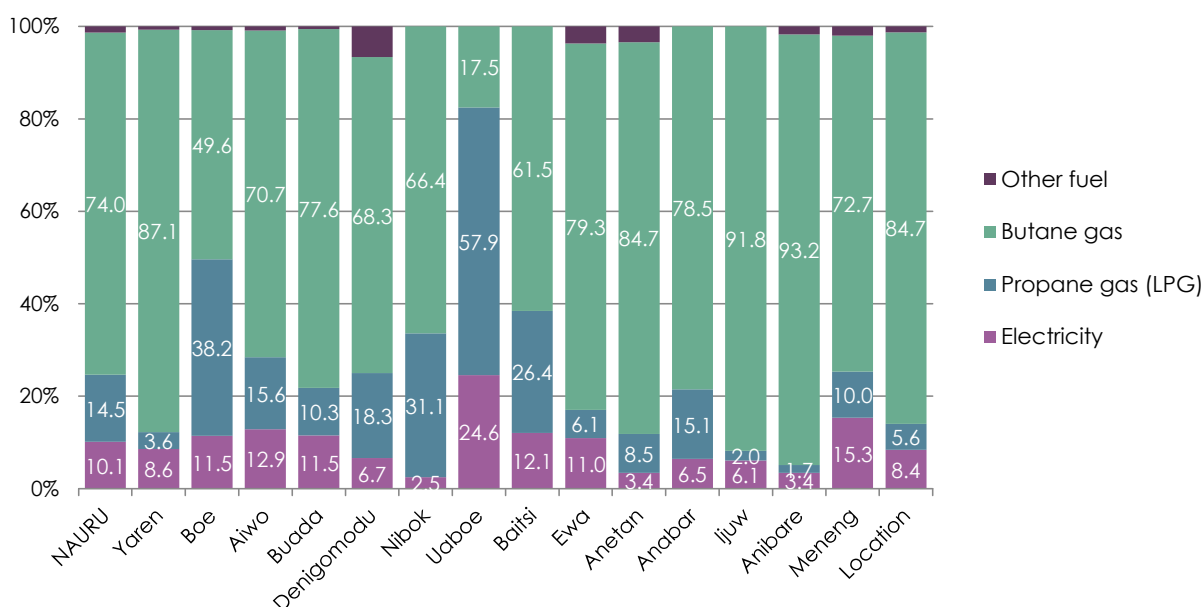
Figure 71. *Percentage of households by district and main source of energy for cooking, Nauru: 2021*

The majority of Nauruan households (53.5%) have a kitchen within the home. In Location, this percentage reached 75.1% and in Buada 71.8%. Cooking inside the home, without a specific kitchen area, is done in 30.8% of the households and considerably more in Uaboe (71.9%), Ijuw (71.4%) and Ewa (70.7%). Another 11.5% have a designated kitchen area outside the home. This solution was particularly common in Anetan (28.0%) and Anabar (24.7%). In Denigomodu, there are also a fair number of households (13.3%) that cook outside without having a specific kitchen area for the purpose.
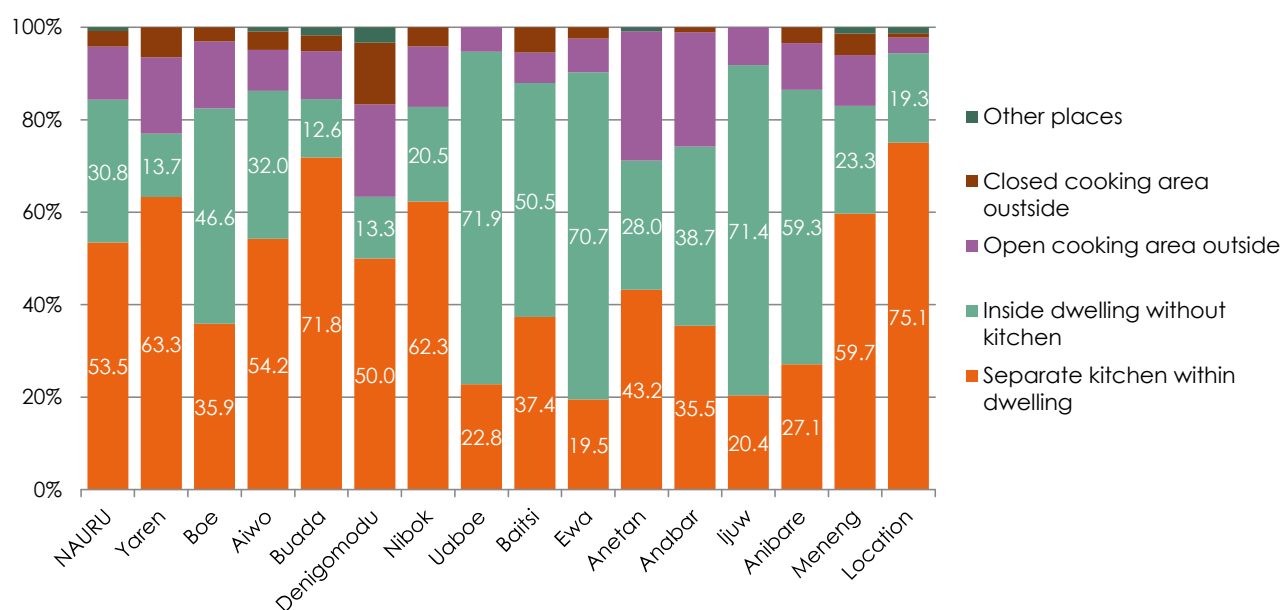
Figure 72. *Percentage of households by district and place of cooking, Nauru: 2021*

The 2021 census also contains data on the means by which households obtain information on energy efficiency, which is shown in Table 48. The most common source is through family or friends (45.5% of households), followed by outreach workers (23.2%), radio (21.5%) and internet (21.1%). There are, however, major variations by district. In Ijuw, outreach workers are by far the most common sources of information (83.7%), followed by radio (20.4%), while TV, community events, educational institutions, brochures, flyers, films and magazines play no role at all there. Outreach workers are also an important information source in Anibare (69.5%). Radio (52.5%) and TV (47.5%) are very important information sources in Nibok, and their importance is exceeded only by that of family or friends (79.5%). Uaboe scores high on practically all potential sources of information.

Table 48. *Percentage of households receiving messages to raise awareness of energy efficiency through particular sources, Nauru: 2021*

District	Family or friends	Internet	Radio	Outreach worker	TV	Community event	Education institution	Brochures or flyers	Film	Magazine
NAURU	45.5	21.1	21.5	23.2	14.0	13.6	10.9	9.3	6.9	6.0
Yaren	38.8	21.6	7.2	16.5	18.7	21.6	23.0	3.6	11.5	5.8
Boe	37.4	35.1	45.0	38.9	25.2	19.8	16.0	6.9	3.1	3.1
Aiwo	30.7	34.7	35.1	14.2	16.0	21.3	17.3	16.4	8.4	8.4
Buada	42.5	27.0	12.6	9.8	7.5	9.2	8.0	5.2	2.9	4.0
Denigomodu	51.7	18.3	20.0	35.0	10.0	25.0	8.3	5.0	3.3	3.3
Nibok	79.5	18.0	52.5	21.3	47.5	17.2	5.7	6.6	4.1	9.8
Uaboe	42.1	38.6	38.6	38.6	40.4	33.3	28.1	57.9	38.6	36.8
Baitsi	63.7	23.1	31.9	30.8	23.1	19.8	20.9	28.6	20.9	14.3
Ewa	19.5	17.1	13.4	8.5	2.4	8.5	4.9	4.9	2.4	4.9
Anetan	60.2	6.8	6.8	16.1	6.8	20.3	11.9	2.5	2.5	0.8
Anabar	33.3	7.5	5.4	11.8	3.2	4.3	2.2	4.3	3.2	2.2
Ijuw	6.1	4.1	20.4	83.7	0.0	0.0	0.0	0.0	0.0	0.0
Anibare	13.6	20.3	11.9	69.5	3.4	5.1	5.1	6.8	3.4	3.4
Meneng	51.0	27.3	23.0	15.7	13.7	7.0	9.7	10.3	10.7	6.0
Location	56.7	7.5	8.7	25.5	3.4	6.9	5.0	3.7	1.9	2.8

Figure 73 shows to what extent households actually engage in measures to increase energy efficiency. Almost half (48.4%) of households responded that they did not take any measures in this regard. Another 38.6% did engage in such measures, either fully (21.6%) or partially (17.0%), whereas 13.0% did not respond. The district with the highest full engagement in energy efficiency measures was Nibok (51.6%), while partial engagement in such measures was high in Anetan (60.2%) and Uaboe (43.9%).
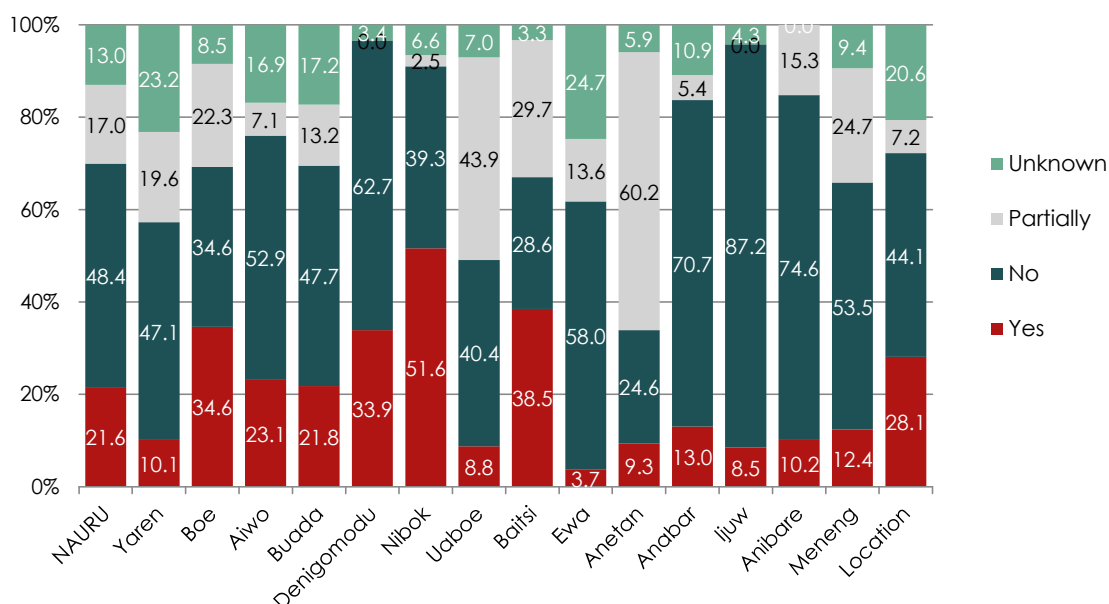
Figure 73. *Percentage of households by district and whether they engage in energy efficiency measures, Nauru: 2021*

5.5.8 Main toilet facility

Modern toilet facilities refer to installations constructed to dispose of human excreta. Therefore, they exclude toilet facilities in the sense of bush, rivers, beaches or the sea. In the census, the following types of (modern) toilets are distinguished:

- flush to piped sewer system;
- flush to septic tank;
- flush to pit latrine;
- flush to somewhere else;
- pit latrine with slab;
- pit latrine without slab/open pit;
- water sealed; and
- shared toilet.

The main type of toilet facility in Nauru was a flush toilet connected to a septic tank (53.0%). Almost all toilet facilities (95.1%) in Ewa were of this type. Flush toilets connected to a piped sewer system were still somewhat rare (15.4%) and hardly exist in Yaren, Buada, Nibok, Ewa, Anetan, Ijuw and Anibare, but they are now more common in Boe (37.4%), Location (34.6%) and Uaboe (33.3%). Flush toilets connected to a latrine still made up 20.4% and were the main type of toilet facility in Buada (60.9%).
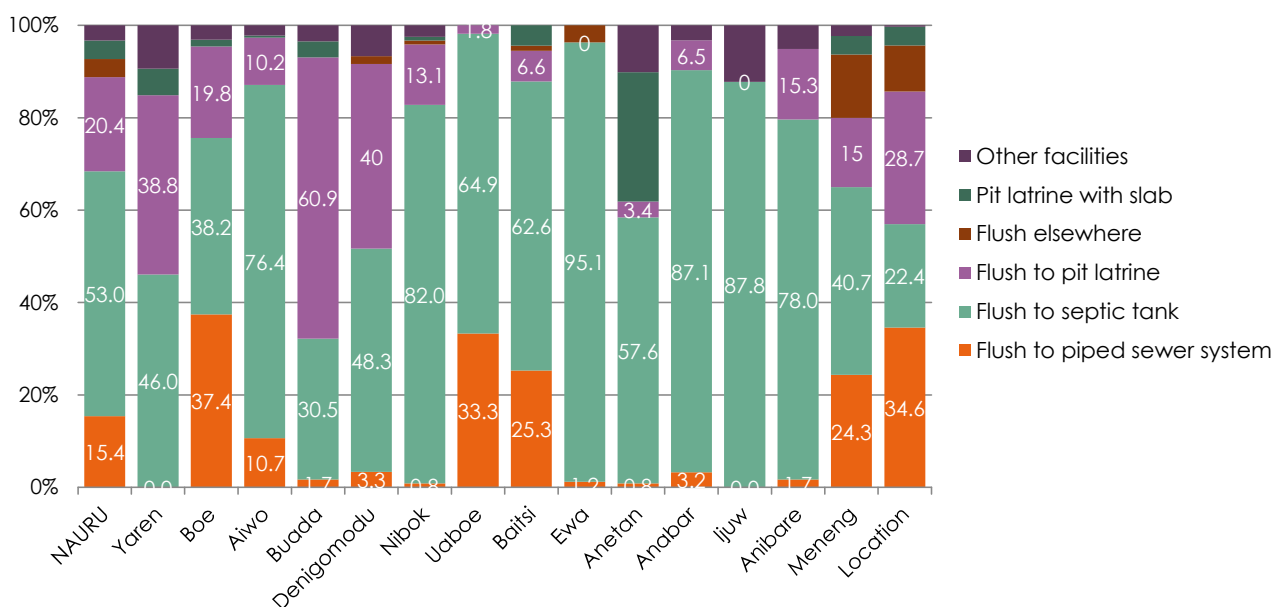
Figure 74. *Percentage of households by district and main type of toilet facility, Nauru: 2021*

The vast majority (80.3%) of households had toilet facilities within the dwelling, the highest percentages being in Uaboe (98.2%), Location (92.8%) and Baitsi (91.2%). A smaller proportion (15.7%) had them in the yard or plot. However, in Ijuw (44.9%), Anetan (42.4%) and Anibare (40.7%) more than 40% of households had their toilet facilities outside the dwelling. A surprisingly large number of households (29.7%) shared their toilet facilities with other households and 14.6% shared them with more than one other household. In Nibok (54.1%) and Ijuw (53.1%) shared toilets were reported in the majority of households.

If all sanitation facilities – except absence of toilet facilities, flush toilets not connected to a piped sewer system, septic tank or pit latrine, pit latrines without a slab, shared toilets, and the residual category of "other facilities" – are considered to be improved, then 93.3% of households fall into this category.

The 2021 census also asked about waste disposal. The vast majority of households (86.6%) used personal bins that were publically collected. Another 9.3% used personal bins that they personally delivered to the garbage dump. This was more common in Ewa (43.9%) and Aiwo (19.1%). Among the other methods used, the most common (2.3%) was burning, particularly in Ijuw (16.3%) and Denigomodu (8.3%). Composting of household waste was limited to 17 households in Location.

5.6   Amenities and capital goods

This section summarises the availability of a variety of household items and appliances. The different sections include a summary table presenting the total number of items by district. Subsequently, graphs are added that show the proportion of households by district with 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.

5.6.1 Means of communication

In total, 64 desktops were counted during the census, 980 laptops, 905 tablets, 274 Wi-Fi connections, 6,650 telephones/mobile phones and 172 SkyTV/Free TV connections. Interestingly, the number of desktop computers is smaller than in 2011, when 175 desktops were counted, probably due to

the introduction of alternatives such as tablets. The number of SkyTV/Free TV connections was also smaller than in 2011, when it was 287.

Only 3.0% of all households in Nauru had a desktop computer available – down from 9% in 2011 – while the percentage owning a laptop was considerably higher at 35.3%. Telephones and mobile phones were almost universal, with 98.4% of all households owning one or the other. The average number of mobile phones per household was more than three. Sky TV or Free TV were available in 8.5% of households. This percentage was higher than average in Boe (21.4%), whereas Ijuw did not have any Sky TV or Free TV connections.

While in 2011 over one quarter of all households were connected to the internet, in 2021 this number had increased to over 80%. This percentage was considerably lower in Anetan (39.0%), Denigomodu (45.0%) and Location (55.5%). A small number of households (12.2%) had modem Wi-Fi connections. The numbers were particularly low in Location (5.3%) and Nibok (6.6%) (Table 49).

Table 49. *Percentage of households with specific entertainment/communication appliances by district, Nauru: 2021*

District	Desktop computer	Laptop computer	Tablet	Internet connec-tion	Modem Wi-Fi con-nection	Telephone or mobile phone	Sky TV or free TV
NAURU	3.0	35.3	30.3	80.7	12.2	98.4	8.5
Yaren	5.8	28.1	29.5	89.9	12.2	100.0	12.9
Boe	1.5	46.6	49.6	88.5	17.6	97.7	21.4
Aiwo	4.0	37.3	23.6	95.6	14.7	98.7	13.8
Buada	4.0	50.6	39.7	96.0	16.7	98.9	11.5
Denigomodu	3.3	36.7	25.0	45.0	11.7	98.3	15.0
Nibok	0.8	32.0	24.6	90.2	6.6	99.2	9.8
Uaboe	0.0	59.6	56.1	98.2	15.8	100.0	3.5
Baitsi	2.2	34.1	37.4	87.9	8.8	95.6	3.3
Ewa	11.0	47.6	43.9	89.0	20.7	100.0	8.5
Anetan	0.8	45.8	44.9	39.0	17.8	99.2	6.8
Anabar	2.2	24.7	20.4	91.4	18.3	97.8	10.8
Ijuw	2.0	10.2	18.4	98.0	14.3	100.0	0.0
Anibare	0.0	35.6	23.7	94.9	11.9	100.0	3.4
Meneng	2.3	31.7	27.7	82.7	8.7	99.7	4.3
Location	3.1	24.3	18.7	55.5	5.3	95.3	2.8

5.6.2 Household appliances

Due to the large number of household appliances included in the 2021 census questionnaire, the information is presented separately for kitchen appliances (Table 50.A) and other household appliances (Table 50.B).

In total 1,558 refrigerators were counted during the census; 1,316 deep freezers; 1,117 washing machines; 462 microwave ovens; 411 electric ovens; 1,719 gas stoves; 1,442 irons; 1,558 electric kettles; 1,467 TVs; 1,580 air conditioners; 2,679 ceiling or standing fans; 104 generators; and 1,710 garbage bins.

Overall, 72.6% of all households in Nauru had a refrigerator, although this percentage was less than half of all households in Ijuw, and only just over half in Location. About two thirds (65.1%) of households owned a working deep freezer. The proportion of households with a deep freezer was particularly high in Uaboe (82.5%), Baitsi (76.9%), Aiwo (76.0%) and Anabar (75.3%) and lower than average in Location (47.4%) and Nibok (58.2%). A microwave was available to 22.9% of households in Nauru, although this percentage was much lower in Ijuw where only 4.1% owned a microwave oven. Alternative types of oven, such as electric ovens (20.3%) and gas ovens (85.1%), could also be found in many homes, the outlier being Meneng, where only 58.3% of households had a gas oven. A garbage bin (wheelie bin) was available to the vast majority (84.6%) of all households, although less so in Ijuw (71.4%) and Location (73.8%) (Table 50.A).

Just under three-quarters of households had a TV (72.6%), almost the same as in 2011. In Ijuw 57.1% had a TV and the percentage was also relatively low (64.0%) in Yaren. The most popular type of air conditioners were wall units, found in 56.1% of Nauruan homes. The split type was found in 22.1% of homes. Ijuw, Location and Anibare had a below average number of air conditioning units. The overwhelming majority (86.5%) of homes had a ceiling fan, slightly fewer than in 2011 (93%), probably because households have converted to air conditioning. Standing or desk fans were found in 46.0% of households, usually complementing a ceiling fan or air conditioner. Given that the vast majority of households are connected to the general electricity network, few (98) had a generator, most of which were found in Aiwo (15), Buada (12), Meneng (18), Yaren (7) and Baitsi (7) (Table 50.B).

Table 50. A. Percentage of households by district and specific kitchen appliances, Nauru: 2021

District	Refriger-ator	Deep freezer	Microwave oven	Stove/electric oven	Stove gas	Washing machine	Electric kettle	Garbage bin
NAURU	72.6	65.1	22.9	20.3	85.1	52.4	77.1	84.6
Yaren	74.1	61.9	24.5	25.9	83.5	66.2	71.9	75.5
Boe	84.7	73.3	29.8	18.3	82.4	72.5	71.8	85.5
Aiwo	86.2	76.0	28.0	28.9	81.8	55.1	73.8	90.2
Buada	78.7	63.8	20.7	20.7	89.7	56.3	81.6	90.2
Denigomodu	56.7	68.3	33.3	26.7	88.3	56.7	70.0	75.0
Nibok	72.1	58.2	19.7	20.5	90.2	49.2	78.7	85.2
Uaboe	77.2	82.5	45.6	31.6	94.7	63.2	91.2	96.5
Baitsi	87.9	76.9	22.0	18.7	92.3	49.5	84.6	92.3
Ewa	70.7	64.6	36.6	23.2	93.9	64.6	85.4	96.3
Anetan	79.7	71.2	29.7	16.9	98.3	56.8	79.7	94.9
Anabar	72.0	75.3	12.9	16.1	92.5	47.3	79.6	91.4
Ijuw	46.9	67.3	4.1	12.2	89.8	24.5	73.5	71.4
Anibare	71.2	66.1	18.6	22.0	84.7	57.6	81.4	81.4
Meneng	75.3	64.0	24.3	18.7	58.3	56.7	82.0	83.0
Location	52.0	47.4	11.5	14.0	95.3	29.6	68.8	73.8

Table 50. B. *Percentage of households by district and specific household appliances other than kitchen appliances, Nauru: 2021*

District	Generator	Iron	TV	Air conditioner split	Air condition wall unit	Ceiling fan	Standing or desk fan
NAURU	4.8	71.4	72.6	22.1	56.1	86.5	46.0
Yaren	5.0	60.4	64.0	28.1	69.1	89.2	43.9
Boe	4.6	83.2	86.3	28.2	70.2	95.4	39.7
Aiwo	6.7	75.6	77.3	35.1	59.6	90.7	34.7
Buada	6.9	75.9	78.2	22.4	59.2	86.2	40.8
Denigomodu	6.7	68.3	81.7	13.3	71.7	83.3	63.3
Nibok	4.9	69.7	84.4	26.2	53.3	84.4	51.6
Uaboe	7.0	78.9	80.7	21.1	64.9	94.7	40.4
Baitsi	7.7	71.4	76.9	14.3	59.3	94.5	35.2
Ewa	7.3	80.5	78.0	25.6	59.8	95.1	54.9
Anetan	2.5	81.4	78.8	20.3	59.3	90.7	50.8
Anabar	3.2	88.2	72.0	21.5	53.8	80.6	36.6
Ijuw	2.0	75.5	57.1	10.2	36.7	61.2	65.3
Anibare	3.4	76.3	62.7	18.6	42.4	69.5	49.2
Meneng	6.0	78.7	69.7	22.0	53.0	92.3	32.7
Location	1.2	46.4	58.9	12.5	43.3	76.3	66.7

5.6.3 Means of transportation

In total 1,155 motor cars were counted during the census, 2,361 motor bikes, 374 trucks, vans or minibuses, and 817 bicycles, with some households having more than one of these items. Car ownership has increased since 2011, when 29% of households had a car. In the 2021 census, car ownership was 41.5%, with higher percentages in Buada (57.5%), Aiwo (51.6%) and Boe (50.4%) (Table 51). The lowest percentage was in Location (20.2%). Motor bikes were much more common than cars, and 69.3% of households had at least one motor bike, the highest percentage being in Yaren (81.7%) and the lowest in Denigonodu (58.3%).

As can be expected, truck or van ownership was much less common: 15.2% of households had a van or truck, with the highest percentage in Buada (27.0%) and the lowest in Location (4.4%). In 2011, over a quarter of households owned a bicycle. This has gone down to 19.7%, with the highest percentage (44.9%) in Anetan and none in Ijuw. Canoes, outriggers and paddles are rare (0.9%), but a fair number of households do own an outboard motor boat (7.0%), especially in Uaboe (15.8%) and Yaren (10.1%).

Table 51. *Percentage of households by district and means of transport, Nauru: 2021*

District	Motor car	Motor bike	Truck/van/ Mini-bus	Bicycle	Outboard motor boat	Canoe-outrigger/paddle
NAURU	41.5	69.3	15.2	19.7	7.0	0.9
Yaren	54.0	82.7	20.1	23.0	10.1	0.7
Boe	50.4	77.9	17.6	34.4	6.1	2.3
Aiwo	51.6	66.7	17.3	17.3	5.8	0.4

Buada	57.5	67.2	27.0	20.7	5.7	0.0
Denigomodu	43.3	58.3	8.3	18.3	10.0	1.7
Nibok	33.6	67.2	13.1	18.0	8.2	0.8
Uaboe	43.9	77.2	22.8	33.3	15.8	0.0
Baitsi	49.5	80.2	19.8	16.5	1.1	0.0
Ewa	47.6	78.0	19.5	39.0	13.4	3.7
Anetan	38.1	73.7	18.6	44.9	11.0	1.7
Anabar	38.7	68.8	15.1	18.3	14.0	0.0
Ijuw	36.7	63.3	8.2	0.0	0.0	0.0
Anibare	33.9	59.3	11.9	3.4	8.5	0.0
Meneng	40.3	69.0	13.7	17.7	7.7	1.0
Location	20.2	60.7	4.4	7.2	1.9	0.9

5.7 Vulnerability to natural disasters

Due to its geographic location, Nauru is not particularly affected by natural disasters such as earthquakes or typhoons. The biggest problem for most households is drought or irregular rainfall, which in some form affected 62.7% of households during the past ten years. Although drought would be expected to be nationwide, the differences in percentage are notable, with 94.3% households in Nibok being affected, against only 26.7% in Boe and 32.9% in Ewa. These wide variations may have to do with the severity of the consequences of drought on households in different areas, including variations in disaster-preparedness.

The other major environmental problem reported is related to storm surges (16.8%), king tides (13.5%) and floods (10.7%). Because these disasters are more local in nature, greater variations by district are to be expected. For example, while 80.5% of households in Anetan reported problems with storm surge and 79.7% reported having been affected by king tides, fewer than 5% of households in Ijuw, Anibare, Uaboe, Buada and Ewa reported the former and fewer than 5% in Uaboe, Aiwo and Buada reported the latter. Remarkably, despite being landlocked, 3.4% of households in Buada reported having been affected by storm surge and 1.7% by king tide. The district most affected by floods was Anetan, where 67.8% reported having suffered from this problem during the past ten years, whereas no households in Uaboe reported such problems (Table 52).

Table 52. *Percentage of households by district that have been affected by particular environmental disasters during the past ten years, Nauru: 2021*

District	Drought/ irregular rains	Floods	Storm surge/aiue	King tide	Other disasters
NAURU	62.7	10.7	16.8	13.5	0.3
Yaren	51.8	14.4	12.9	9.4	0.7
Boe	26.7	3.8	9.2	6.1	0.0
Aiwo	62.2	3.6	10.2	1.3	0.4
Buada	48.3	1.1	3.4	1.7	1.1
Denigomodu	80.0	10.0	25.0	10.0	0.0
Nibok	94.3	19.7	18.0	4.9	0.8

Uaboe	64.9	0.0	1.8	0.0	0.0
Baitsi	57.1	2.2	12.1	11.0	0.0
Ewa	32.9	14.6	4.9	13.4	0.0
Anetan	85.6	67.8	80.5	79.7	0.8
Anabar	43.0	5.4	6.5	35.5	0.0
Ijuw	73.5	8.2	0.0	6.1	0.0
Anibare	79.7	0.0	0.0	69.5	0.0
Meneng	53.3	2.3	7.0	8.7	0.0
Location	85.4	13.1	32.7	5.0	0.0

Attempts to raise the awareness of households about climate change are being channelled through different information sources. Nevertheless, family and friends are still the main sources of information, with 49.2% receiving information through this channel. Internet (34.9%), radio (30.2%), outreach workers and TV are also important channels. Again, the variations between districts are remarkable. While 65.0% of the households in Denigomodu receive information through family and friends, this is only the case for 2.0% of households in Ijuw. Community events are a major source of information in Aiwo (40.4%), but play no role at all in Ijuw, while outreach workers are having an important impact in Ijuw (79.6%) and Anibare (71.2%), but much less so in Buada (10.9%) and Anabar (12.9%) (Table 53).

Table 53. *Percentage of households receiving messages to raise awareness of climate change through particular sources, Nauru: 2021*

District	Family or friends	Internet	Radio	Outreach worker	TV	Community event	Education institution	Brochures or flyers	Film	Other
NAURU	49.2	34.9	30.2	24.3	20.3	17.4	14.3	12.5	12.0	20.7
Yaren	38.1	33.8	12.2	20.9	20.1	22.3	25.9	0.7	12.2	7.9
Boe	35.1	35.9	47.3	33.6	25.2	15.3	16.8	6.9	2.3	19.1
Aiwo	48.0	51.1	54.2	16.4	32.0	40.4	24.9	26.2	13.3	28.0
Buada	37.4	61.5	25.9	10.9	28.2	11.5	12.6	9.2	11.5	9.8
Denigomodu	65.0	30.0	45.0	35.0	31.7	28.3	8.3	11.7	8.3	20.0
Nibok	84.4	26.2	63.1	27.0	46.7	20.5	13.1	7.4	9.0	17.2
Uaboe	45.6	43.9	40.4	40.4	40.4	35.1	33.3	57.9	38.6	71.9
Baitsi	62.6	46.2	34.1	28.6	23.1	20.9	24.2	30.8	24.2	45.1
Ewa	35.4	37.8	29.3	19.5	15.9	14.6	15.9	23.2	15.9	34.1
Anetan	61.0	13.6	10.2	19.5	6.8	18.6	14.4	5.9	0.8	5.9
Anabar	41.9	22.6	20.4	12.9	8.6	6.5	7.5	11.8	6.5	17.2
Ijuw	2.0	10.2	16.3	79.6	0.0	0.0	0.0	0.0	0.0	0.0
Anibare	13.6	35.6	15.3	71.2	3.4	10.2	5.1	6.8	5.1	6.8
Meneng	53.3	41.7	26.0	18.3	17.7	9.0	11.3	11.0	21.7	16.7
Location	58.6	16.8	17.8	22.4	7.8	11.2	5.6	5.0	7.8	25.9

Among those households affected by at least one natural disaster, 39.9% reported having taken preventive measures. This was the case in 79.1% of households in Nibok, but less than 10% in Uaboe, Anetan, Ijuw and Anibare. The most common reason given (35.2%) for not taking preventive

measures was: "There was nothing we could do." In Ijuw and Anibare more than 90% of households gave this answer. The second most common answer was: "We didn't know what to do." (20.0%). This answer was particularly common in Anabar (53.7%) and Anetan (48.5%). A small number of households (11.8%) stated that taking preventive measures was not their task or duty, particularly in Anetan (58.3%) and Anabar (43.9%). Less common reasons given were lack of skills or knowledge (10.3%), lack of money (7.7%) or lack of other resources (7.2%).

6. POPULATION PROJECTIONS

6.1 Introduction

Timely and accurate information about population trends is in high demand for anyone making decisions in business, research, government and the community. 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. As 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 place 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. 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.

6.2 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.

6.2.1 Projection period

The population projections cover the 29-year period of 2021–2050.

6.2.2 Base population

Projections are based on the 2021 Nauru census age and sex distribution, adjusted to mid-year 2021 (Table 54).

Table 54. *Base population for projections, Nauru: 1 July 2021*

Age group	Males	Females	Total
0–4	726	732	1,458
5–9	811	753	1,564
10–14	757	685	1,442
15–19	524	497	1,021
20–24	497	488	985
25–29	503	463	966
30–34	511	470	981
35–39	429	450	879
40–44	335	307	642
45–49	229	264	493
50–54	188	184	372
55–59	157	164	321
60–64	95	142	237
65–69	53	85	138
70–74	27	39	66
75+	15	30	45
Total	**5,857**	**5,753**	**11,610**

6.2.3 Fertility

The trend of the estimated TFRs for the period 2011–2021 was used as a guideline for preparing future fertility trends, and the average ASFR for the years 2021–2050, as described in Section 3.1, was used as a starting point, with four assumptions made about future fertility developments (Figure 75).
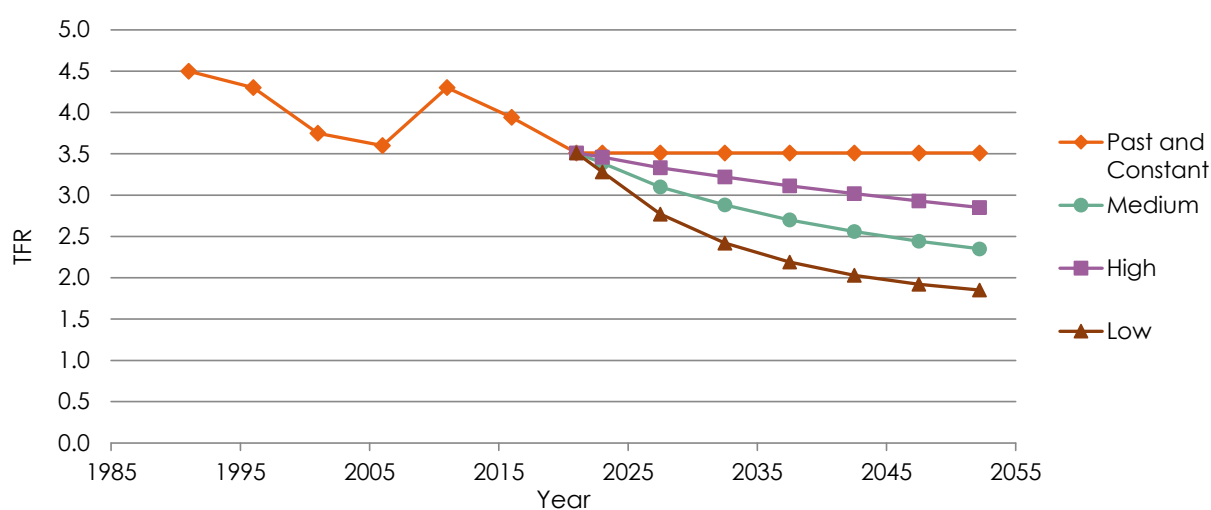
Figure 75. *Estimated past levels of fertility, and future fertility assumptions for projections, Nauru: 1991–2050*

The future TFR level of the medium fertility assumption is assumed to reach 2.0, which compares with the average TFR of 1.7 in present-day Australia, France, New Zealand and the United States. This level will be reached (by means of extrapolation) with a pace of fertility decline that is based on Nauru's past fertility trend. Although these four countries are, in a way, a reference for the countries of the Pacific region, which may provide a likely convergence point for countries like Nauru, it is not

considered likely that fertility in Nauru will decline quite to the below replacement levels currently found in these countries. The United Nations Population Division assumes a level of just under 2 by the end of the century and that is the long-term level that will also be assumed for the purposes of this projection. According to this pace, Nauru will converge to a TFR of 2.0 by the end of the century, reaching a level of 2.4 at the end of the projection period in 2050.

Therefore the various fertility scenarios were defined as follows:

- Scenario 1: Medium fertility. Fertility decreases to 2.4 in the year 2050 (as described above). The high and low fertility scenarios were built symmetrically around the medium fertility assumption.
- Scenario 2: High fertility. The high fertility scenario assumes a TFR of 0.5 higher than the medium fertility level. Therefore, the level of TFR in 2050 is 2.9.
- Scenario 3: Low fertility. The low fertility scenario assumes a TFR of 0.5 lower than the medium fertility level. Therefore, the level of TFR in 2050 is 1.9.
- Scenario 4: Constant fertility. This is a purely academic scenario, with the purpose to demonstrate what would happen to Nauru in terms of population size if the current TFR of 3.51 remains constant at this level for the entire projection period.

Although the effect of the age structure of fertility on future population sizes is less pronounced than that of the overall fertility level, scenarios 1–3 will be accompanied by variants in which the age pattern of fertility becomes older over time.

6.2.4 Sex ratio at birth

The sex ratio of birth is the number of male births per 100 female births. Available data from Nauru's vital statistics records on the number of male and female births for the period 2011–2021 point to a sex ratio at birth of 105.

6.2.5 Mortality

It is thought that, under normal circumstances (meaning in the absence of catastrophes such as wars, epidemics and major natural disasters), Nauru's health situation and mortality levels will continuously improve throughout the projection period. Even the COVID pandemic, which reached Nauru in mid-2022, is not likely to change this substantially.

The estimated life expectancies at birth (e_0) – 60.9 and 67.1 years for males and females, respectively – are used as the starting point for projections in 2021. 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, very similar (but slightly higher) to the trend projected by the UN Population Division in its 2022 Revision of *World Population Prospects*. According to this model, current estimated life expectancies gradually increase and reach 65.8 and 71.8 years in 2050 for males and females, respectively (Figure 76).

Only one assumption regarding mortality is made. The reason for this is that variations in mortality levels (multiple assumptions) usually have only a minor effect on final projection results; they also would require the production of too many different variants 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 table families. 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 United Nations Far-Eastern model resembles most closely the empirical mortality pattern for Nauru (see section 3.2).
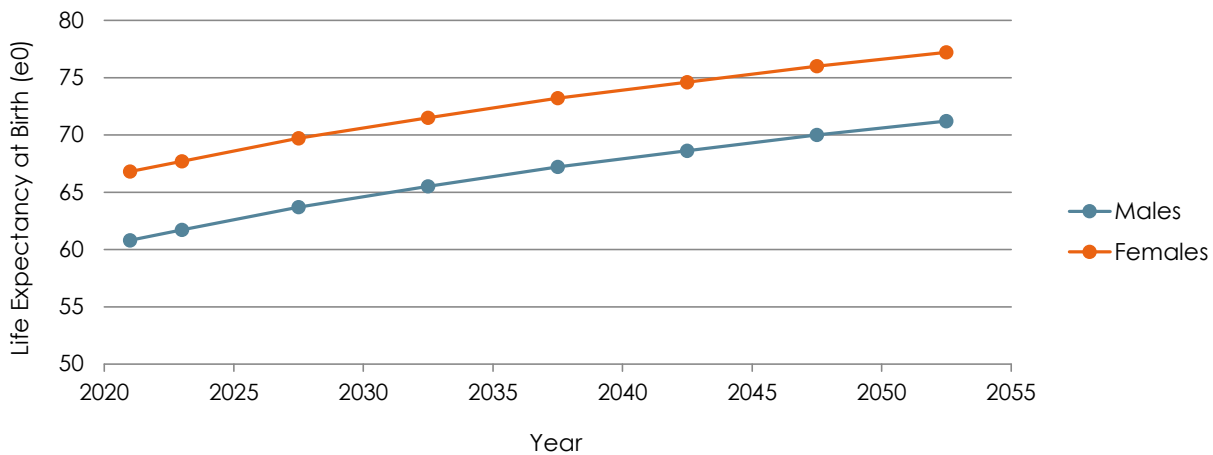
Figure 76. *Estimated current level of mortality, and future mortality assumptions for projections, Nauru: 2021–2050*

6.2.6 Migration

Making meaningful assumptions about future migration developments provides the single greatest difficulty for undertaking population projections. This is 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 and are hard to predict. Migration projections also depend on economic and political developments overseas.

Apart from these global considerations, making assumptions about migration is difficult because socioeconomic and demographic indicators usually fluctuate extensively for small populations such as Nauru's.

Nauru's recent past has shown that migration levels have been heavily dependent on the state of the country's phosphate-driven economy. It is difficult to predict when phosphate will run out, and whether its depletion will have serious consequences for Nauru's economic life as alternative sources of income may be found.

As was shown in section 3.3, at present Nauruans are not known for migrating permanently overseas in large numbers, while Nauru itself is not an immigration country either, although during the 10-year period from 2011 to 2021 net migration (immigrants minus emigrants) amounted to about -85 people annually. It was therefore decided to use two migration scenarios:

- **Scenario 1**: Migration is assumed to be zero for the entire projection period 2021–2050; and
- **Scenario 2**: Migration is assumed to be -85 people annually for the entire projection period 2021–2050. With regard to the age and sex structure of migrants, it is assumed that there will be slightly more male (-45) than female (-40) emigrants, and the age structure resembles that of a family type migration pattern, which means that it is primarily young couples aged 20–29 who migrate, sometimes with their young children aged 0–4. Specifically, this model assumes that 72% of all migration is concentrated between the ages of 15 and 40, with 11% under age 15 and 17% over age 40 and minimal differences between the sexes.
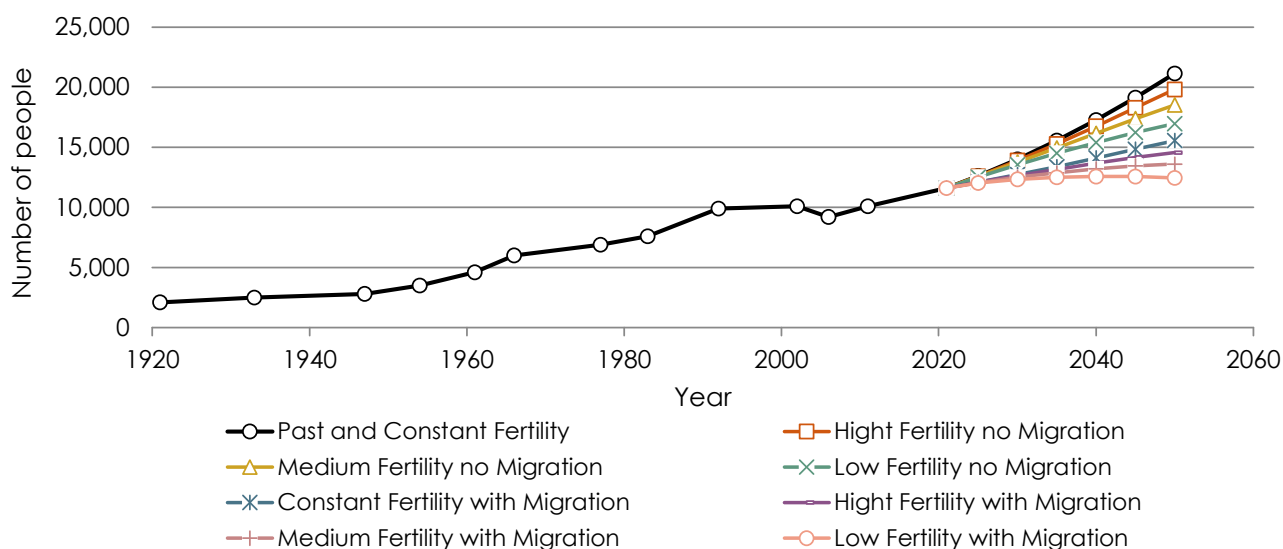
6.3 Projection results

The four fertility scenarios and two migration scenarios result in eight projections (Table 55 and Figure 77). These projections highlight the impact of different levels of fertility and the impact of migration on the population size and structure of Nauru: The higher the fertility level assumed, the higher the population outcome, and of course the population will be smaller if migration is negative (-85).

Table 55. *Population size according to eight projection variants, Nauru: 2021–2050*

	Projection variant	2021	2025	2030	2035	2040	2045	2050
No migration	Constant fertility	11,610	12,619	14,006	15,561	17,281	19,149	21,141
	High fertility	11,610	12,600	13,899	15,290	16,764	18,288	19,816
	Medium fertility	11,610	12,574	13,759	14,962	16,180	17,383	18,522
	Low fertility	11,610	12,534	13,553	14,503	15,404	16,244	16,973
Migration	Constant fertility	11,610	12,246	13,092	14,027	15,067	16,198	17,384
	High fertility	11,610	12,228	12,993	13,783	14,609	15,447	16,246
	Medium fertility	11,610	12,203	12,863	13,485	14,089	14,655	15,128
	Low fertility	11,610	12,164	12,670	13,068	13,398	13,655	13,786

The eight population projection variants are described in detail below.

1. Constant fertility-no migration variant. This projection outcome is determined by assuming that the current high level of fertility remains constant during the entire projection period, and that there will be zero net migration. This variant results in a population size of 14,000 people in 2030, and 21,100 people in 2050.
2. High fertility-no migration variant. This projection outcome is determined by applying the high-fertility assumption (slow-fertility decline), and that there will be zero net migration. This variant results in a population size of 13,900 in 2030, and 19,800 people in 2050.
3. Medium fertility-no migration variant. This projection outcome is determined by applying the medium fertility assumption (moderate fertility decline), and that there will be zero net migration. This variant results in a population size of 13,800 in 2030, and 18,500 people in 2050.
4. Low fertility-no migration variant. This projection outcome is determined by applying the low-fertility assumption (fast-fertility decline), and that there will be zero net migration. This variant results in a population size of 13,600 in 2030, and almost 17,000 people in 2050.
5. Constant fertility-plus migration variant. This is the same as variant 1, except for the fact that there is assumed to be net emigration of 85 people annually. This variant results in a population size of 13,100 in 2030, and 17,400 people in 2050.
6. High fertility-plus migration variant. This projection outcome is determined by applying the high-fertility assumption (slow-fertility decline), and that there will be net emigration. This variant results in a population size of 13,000 in 2030, and 16,2 people in 2050.
7. Medium fertility-plus migration variant. This projection outcome is determined by applying the medium-fertility assumption (moderate-fertility decline), and that there will be net emigration. This variant results in a population size of 12,900 in 2030, and 15,100 people in 2050.
8. Low fertility-plus migration variant. This projection outcome is determined by applying the low-fertility assumption (fast-fertility decline), and that there will be net emigration. This variant results in a population size of 12,700 in 2030, and almost 13,800 people in 2050.

Figure 77. *Past and future population trends according to eight projection variants, Nauru: 1921–2050*

In general the projection results show that the population will increase, regardless of which projection variant is used. The most remarkable feature of Table 44 and Figure 77 is that international migration, despite not being large in absolute terms, has a major effect on the amount of population growth to be expected, in the order of 3,500 people, with relatively small variations between the fertility scenarios. As one would expect, in relative terms this effect is greatest in the case of the low-fertility scenario where the variant without migration (scenario 4) implies a population growth of 46% until 2050, whereas the same scenario with migration (scenario 8) indicates a growth of only 19%.

Figures 78 to 89 provide the comparative results of the various projections, and highlight the differential effect on population size, growth and structure.

The projection of the school-age population (6–17 years), which is currently 3,363, depends largely on the particular projection scenario. Under three of the eight projection scenarios, the school-age population will increase. However, under the scenarios of low fertility with or without migration and medium fertility with migration it will increase slightly in the short run, but by 2030 it will start to decline slowly. In the lowest scenario, the number could actually be as low as 2,722 in 2050. At the other extreme, in the scenario of constant fertility without migration, it could be as high as 5,343. The education authorities need to be alert to fertility and migration trends, to assess which of these scenarios is most likely to be realised.
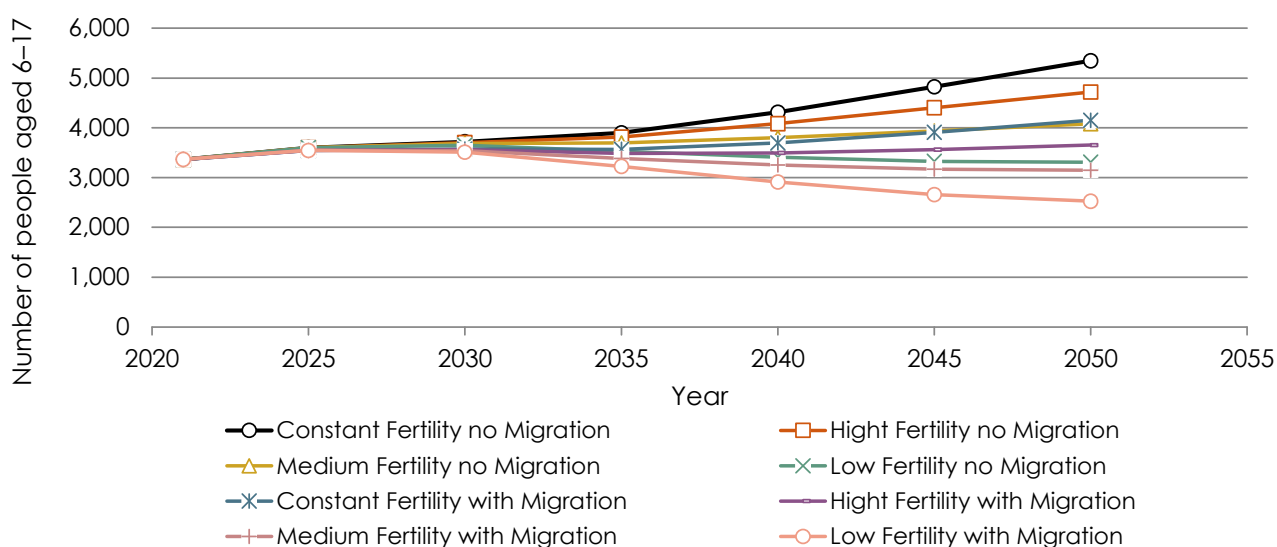
Figure 78. *School age population aged 6–17 according to eight projection variants, Nauru: 2021–2050*

The general effect on the future population structure by broad age groups can be seen in Table 55 and Figures 79 to 89.

According to all projection variants used, the size of the working age population (aged 15–59) will be considerably larger than in 2021, as well as the 'elderly' population 60+ years. Therefore the population will grow older, regardless of which projection is used, as is expressed in the median age, which will increase from 21.6 years in 2021 to over 30 years, according to the low fertility variants.

Regardless of what scenario is used, the percentage of the population under age 15 will decline, and by 2050 it will be between 24 and 34%. Also regardless of the scenario used, it is clear that the percentage of the population over age 60 will double and possibly even triple. The average percentages of annual growth will vary between 0.6% and 2.1%, depending on which of the scenarios is used. Some age groups may shrink but in absolute terms. For example, the 0–14 year age group under the low-fertility scenarios will be smaller in 2050 than in 2021.

Lower fertility results in lower dependency ratios, the lowest being 52.9% under the low-fertility scenario without migration. However, this decline is not continuous. As shown in Figure 81, depending on the particular scenario used, the 15–59 year age group will reach its maximum in either 2035 or 2040, after which it will decline in relative terms, thereby again raising the dependency ratio.

Table 56. *Population structure and indicators according to eight projection variants, Nauru: 2050*

| Migration/fertilty assumptions		Broad age groups 2050 (%)			Dependency ratio 2050	Median age 2050	Average growth rate 2021–2050
		0–14	15–59	60+			
No migration	Constant	33.6	57.5	8.9	74.0	24.4	2.1%
	High	30.5	60.0	9.5	66.8	26.4	1.9%
	Medium	27.4	62.4	10.1	60.2	28.5	1.6%
	Low	23.5	65.4	11.1	52.9	31.2	1.3%
Net emigration	Constant	34.0	56.2	9.9	78.1	24.1	1.4%
	High	30.8	58.6	10.6	70.7	26.2	1.2%
	Medium	27.7	61.0	11.4	64.0	28.4	0.9%
	Low	23.6	63.9	12.5	56.5	31.2	0.6%
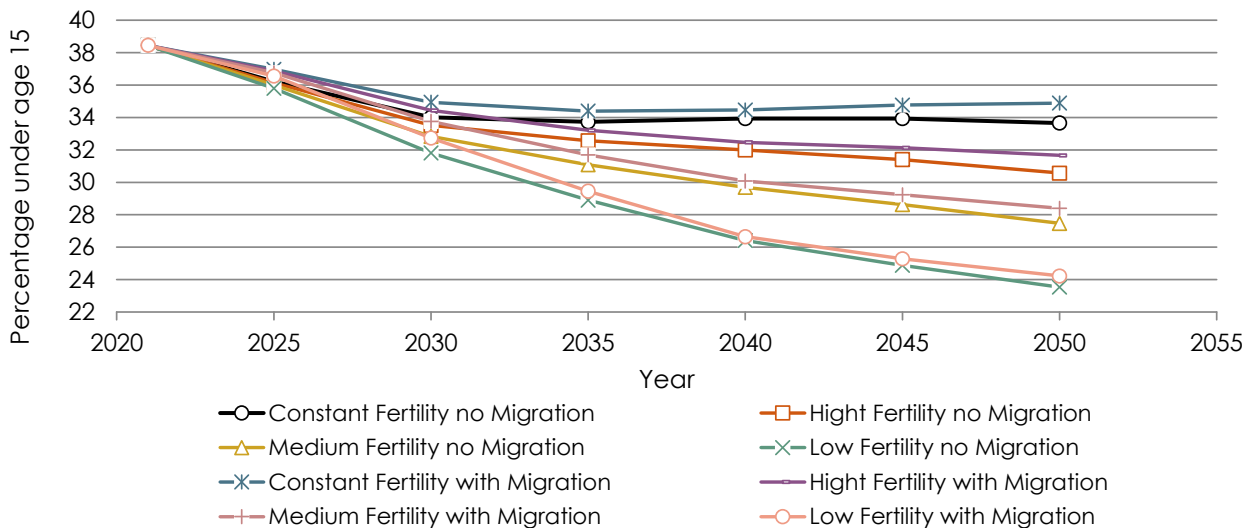
Figure 79. *Percentage of the population under age 15 according to eight projection variants, Nauru: 2021–2050*
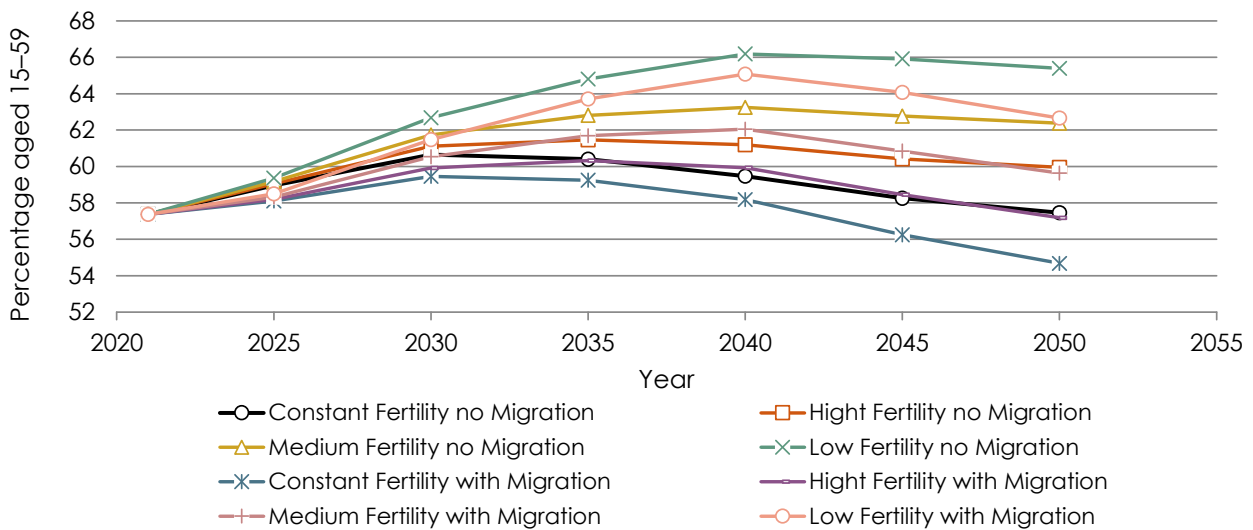

Figure 80. *Percentage of the population aged 15–59 according to eight projection variants, Nauru: 2021–2050*
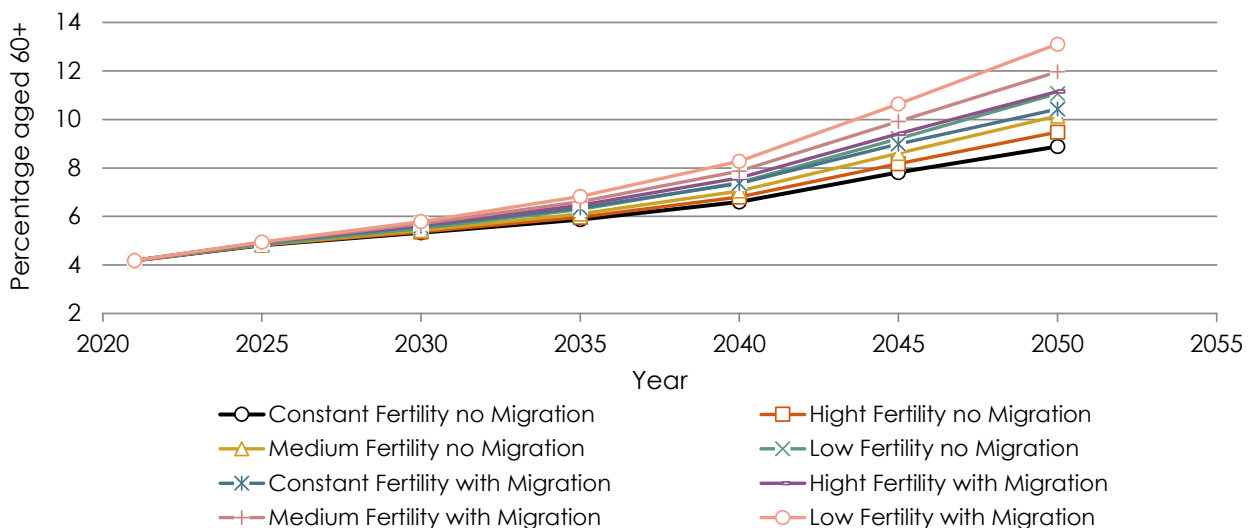

Figure 81. *Percentage of the population aged 60+ according to eight projection variants, Nauru: 2021–2050*

The effects on the population size and structure are further illustrated as population pyramids (Figures 82 to 89). The brightly coloured area represents the 2021 population size by sex and age group, and the area with faded colours represents the estimated (projected) population size in 2050, according to the eight projection variants.

Figure 82 illustrates the effect on the future population if a constant high level of the current fertility (TFR=3.5) prevails throughout the projection period, without any net migration. The population would then be 21,100 people.

The different shaped pyramids of the eight projection variants clearly illustrate the assumed fertility level on future population size and structure: the lower the assumed future fertility level, the smaller the size of the population in general and the smaller the population under age 30 in particular.
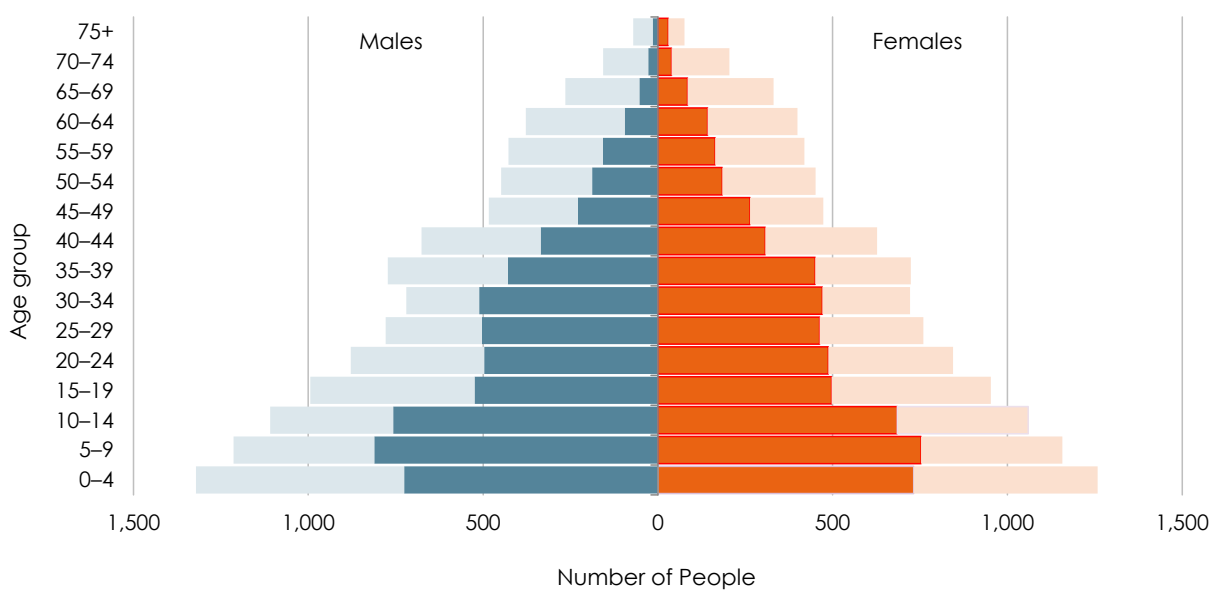
Figure 82. *Population pyramid, 'Constant fertility-no migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*
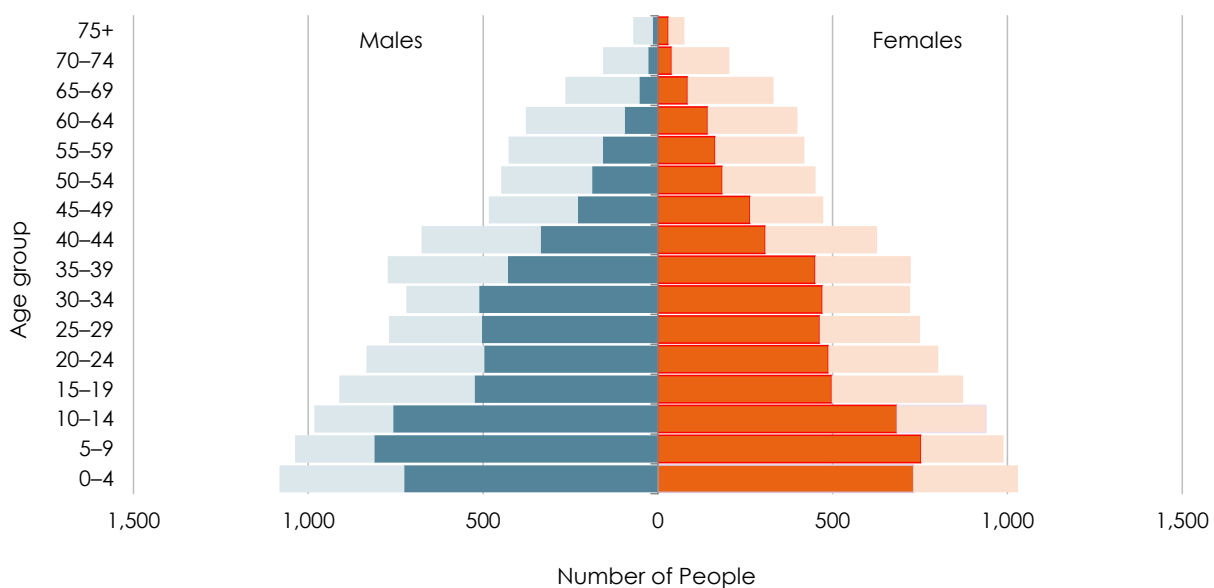
Figure 83. *Population pyramid, 'High fertility-no migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*
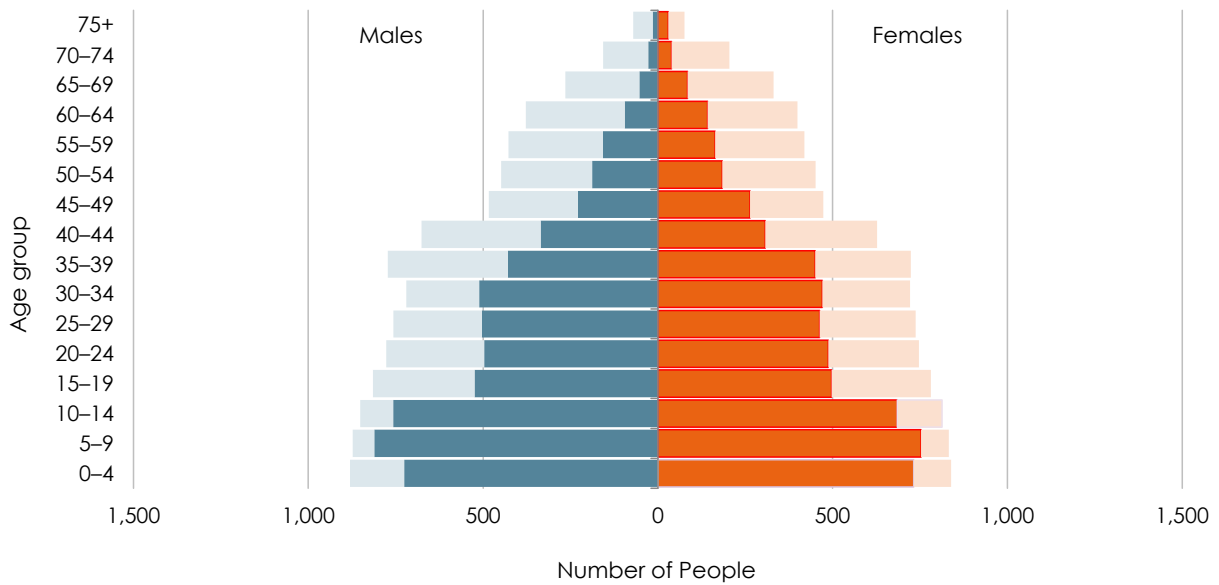
Figure 84. *Population pyramid, 'Medium fertility-no migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*

Figure 85. *Population pyramid, 'Low fertility-no migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*

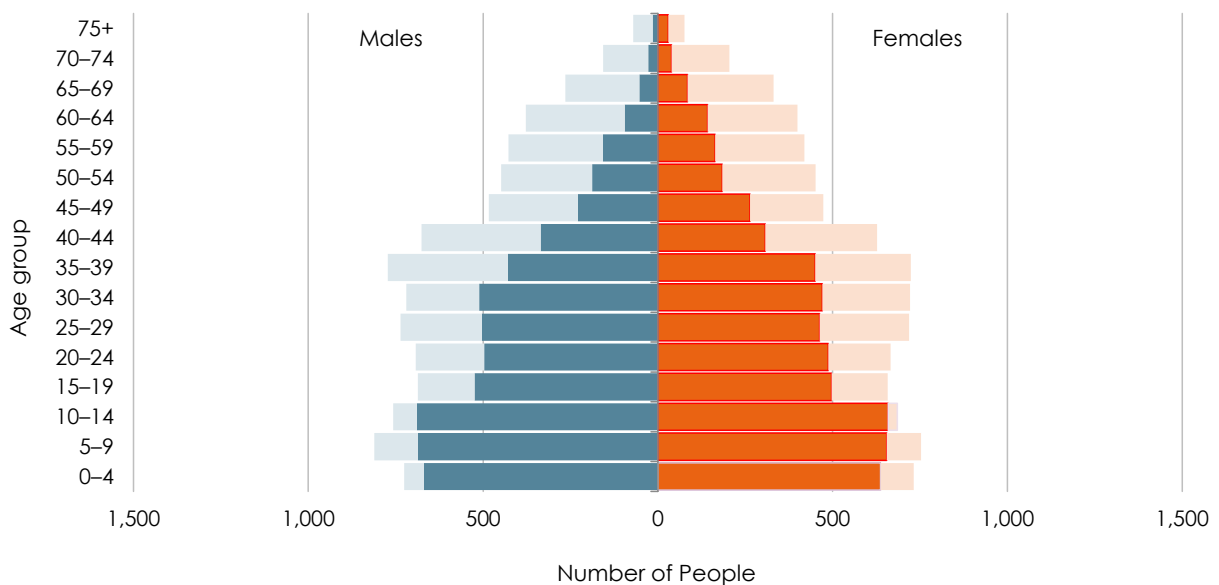**Figure 86.** *Population pyramid, 'Constant fertility-plus migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*
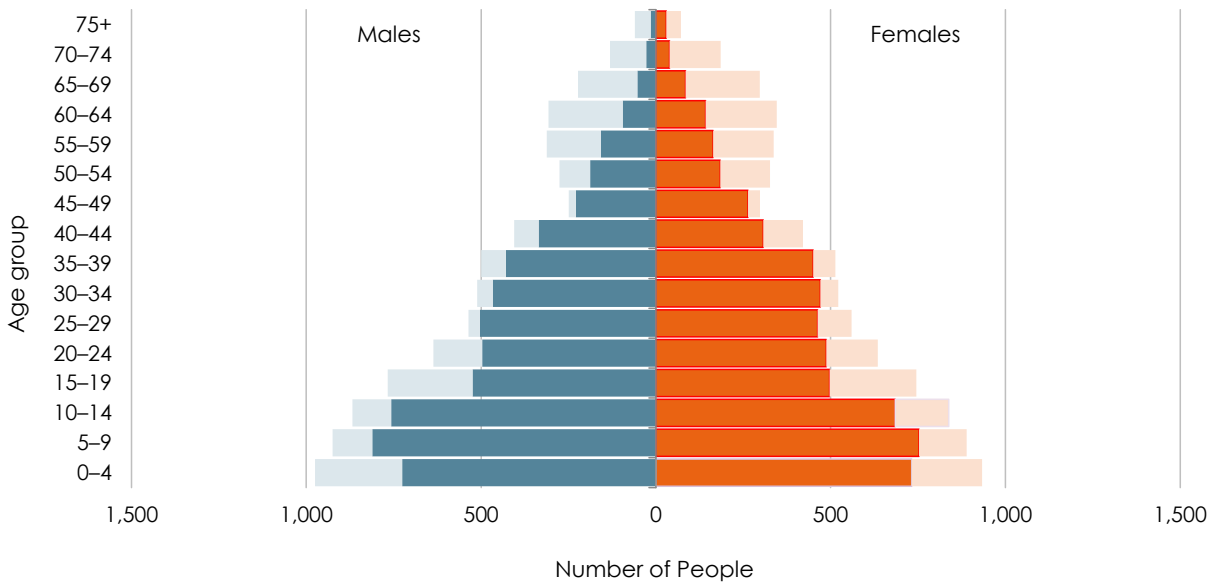

Figure 87. *Population pyramid, 'High fertility-plus migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*
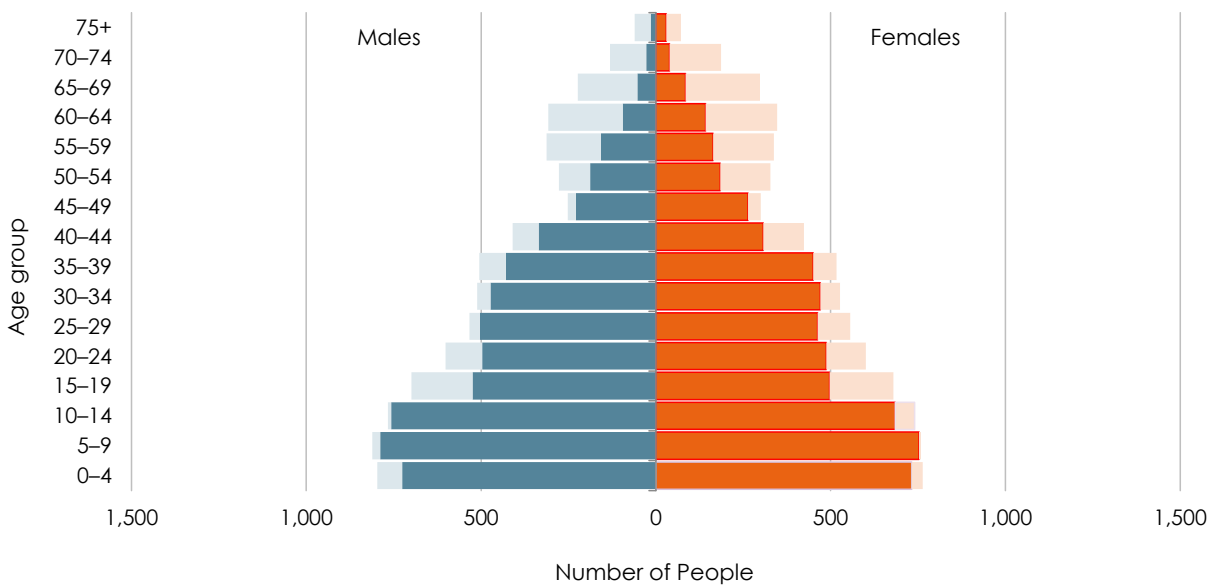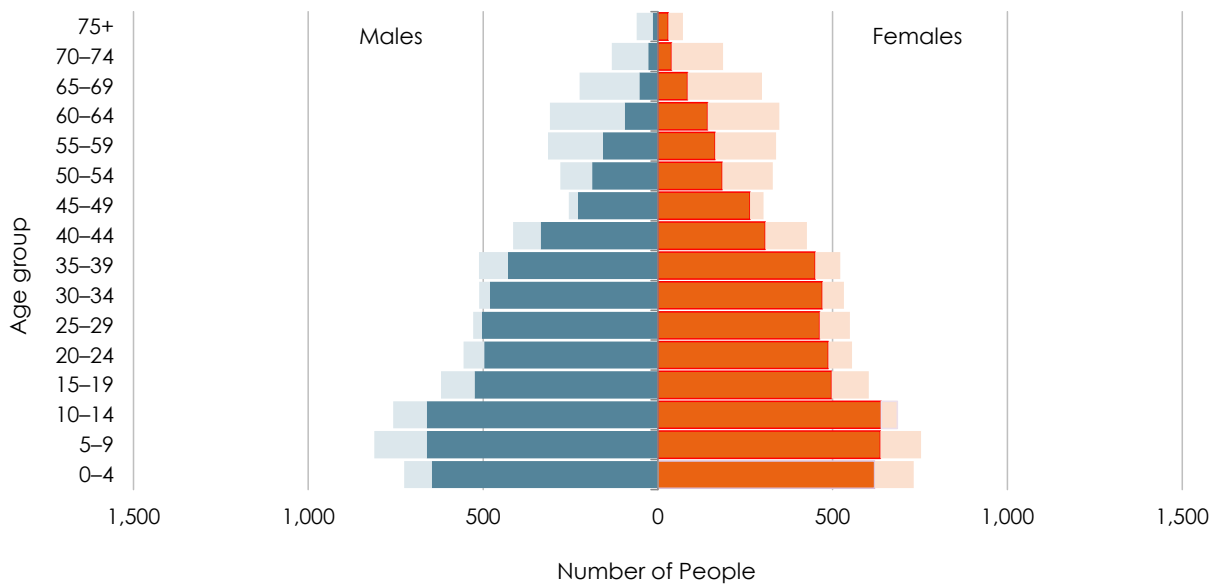
Figure 88. *Population pyramid, 'Medium fertility-plus migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*
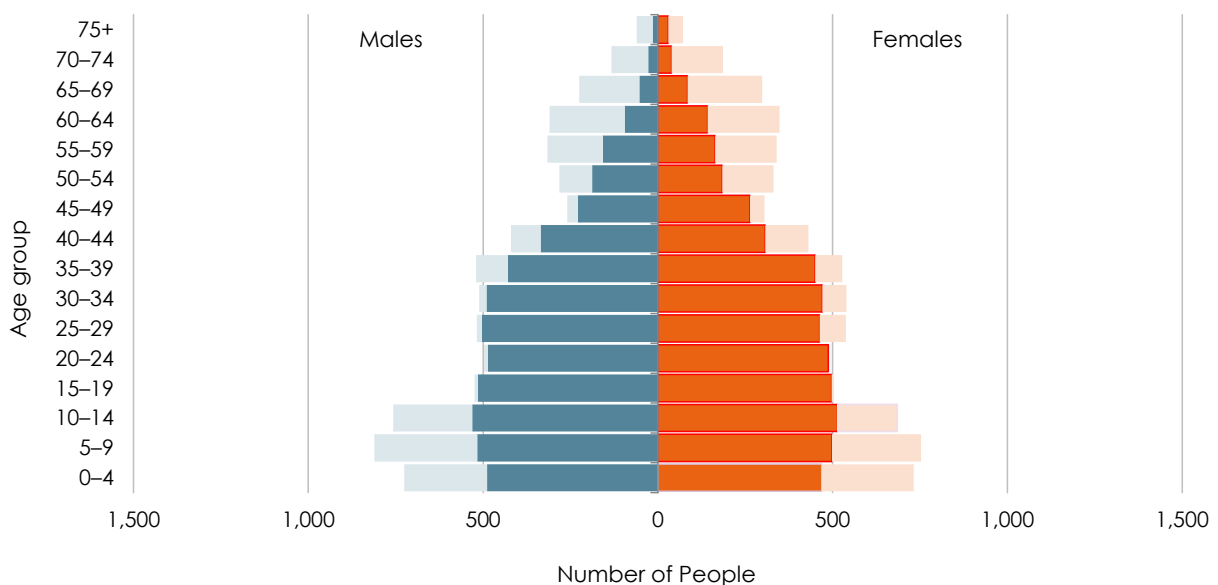
Figure 89. *Population pyramid, 'Low fertility-plus migration' variant, Nauru: 2021 (bright colours) and 2050 (faded colours)*

6.3.1 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 projection, the more uncertain the outcome. Several projection variants need to be produced, therefore, to allow users to choose 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 assumptions made.

Population changes close to those presented in the medium-variant with migration (scenario 7) appear to be the most likely outcome, for the reasons set out below.

- Based on historical worldwide observations of countries with a similar high level of fertility, the current fertility level can be expected to decline. Therefore, the high-fertility assumption with its very slow fertility decline seems to be a more unlikely outcome, and a constant high level of the current TFR of 3.5 is surely an unrealistic outcome.

- Regarding the low-fertility assumption, fertility levels (TFR) have already declined to well below 2 in many parts of the world, and it is therefore a realistic assumption to make.

- It is likely that net emigration will continue to characterise the country, particularly as population growth will increase the competition for resources and more people will be inclined to seek opportunities abroad. Under such a scenario, emigration may even increase, a possibility that was not considered here.

Another potential effect that was not considered here is a change in the age pattern of fertility. According to the census, the mean age at childbearing in 2021 was 28.3 years (27.0 according to vital statistics data for 2019–2021). Taking the most likely scenario, i.e. medium-fertility decline with net emigration, the projected population in 2050 would be 15,128. However, were the mean age of childbearing to decrease by 2.5 years over the period from 2021 to 2050, this would result in a population of 15,272. If, on the other hand, the mean age at childbearing were to increase by 2.5 years, the population would be 14,987. The differences are not large, but they are sufficient to be taken into account in future projections.

7. POLICY IMPLICATIONS OF FINDINGS

7.1 Population dynamics

7.1.1 Growth rate

Nauru's annual population growth rate during the period 2011–2021 was 1.5%, a slight decrease with respect to the 2007–2011 period, when it was 1.8%. The tendency for this growth rate is to decrease further and for Nauru to reach a maximum population size of perhaps 15,000 by mid-century, after which growth will become negative.

Nauru's population density of 554 people per km^2 is the highest in the region, and should the population indeed increase by 50%, there will be almost 800 people per km^2 by mid-century.

7.1.2 Fertility

In the absence of any significant international migration, Nauru's population growth is determined by its (high) natural growth rate. During the period 2011–2021, the average number of children per woman (TFR) decreased steadily, from 4.3 to 3.5, with some acceleration of the rate of decline after 2016. The current TFR of 3.5 is among the highest in the Pacific region, although it is lower than the UN Population Division estimates for Solomon Islands (4.0), Vanuatu (3.7) or Marshall Islands (3.7).

According to the overall fertility trend, the teenage fertility rate (the number of births to adolescent women aged 15–19) was very high: 86 or 66, depending on whether vital statistics or census estimates were used. In either case, this is currently the highest rate in the Pacific region. This should be seen as a major concern, as childbearing to teenage women poses an increased health risk to mother and child.

The government needs to do more if it wants to influence the fertility levels and ensure the well-being of mothers and their children. Such a move should be directed at policies and programmes that are geared towards the expansion and improving of family-planning services and reproductive health. No recent statistics on contraceptive prevalence are available, but the 2007 DHS found only 36% of married Nauruan women reported that they were using some form of contraception at the time of the survey.

Any government initiatives should include, but not be restricted to, the following. Firstly the inclusion of life education in the curriculum of young people, providing the basic information and support needed before childbearing age. Secondly, making family planning services for women (and their partners) of all ages available and accessible, thus empowering them to make conscious decisions about the number and spacing of their children. Additionally, the provision of such services will help to reduce the number of unwanted pregnancies, as well as safeguard partners from risks of being infected by sexually transmitted infections and HIV/AIDS.

Early age marriages should be discouraged so that childbearing for women is delayed to older ages. A teenage pregnancy is not only a social issue but a health risk to mothers and children. The most affected are the uneducated and unemployed teens. Most often, children of teenage mothers have lower educational levels, higher rates of poverty, and other poorer "life outcomes". Since teenage pregnancy usually occurs outside marriage, it often carries a social stigma. Therefore, social protection for solo parents and young mothers, which should include child support and maintenance, needs to be provided.

Many stakeholders (government and non-government organisations) are involved in teenage reproductive health strategies. They work at various levels in the community 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 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; giving better childcare; and increasing the availability of supported housing. This group must be supported and, if possible, provided with financial assistance. All this should align with the country's policy directions.

7.1.3 Mortality

Improved mortality rates mean that healthier people live longer lives. Based on data provided by Nauru's Civil Registration Office, with the corrections described in section 3 on the number of births and deaths, the infant mortality rate (IMR) was estimated at 33.1 per 1,000; 36.3 for males and 29.8 for females in the 2021 census. Overall, this is the same as in 2007–2011, with a slight improvement for males and a slight deterioration for females.

The estimated IMR of 20 compares to an IMR of 20 in Vanuatu, 23 in Fiji, 34 in PNG, about three in Australia and four in New Zealand. Consequently, as in other countries of the region, there is still room for improvement in infant and childcare in Nauru.

Estimates of mortality level presented in this report suggest that females live longer than males, on average about six years longer than males. Life expectancy at birth is estimated at 60.9 and 67.1 years for males and females, respectively. This implies an increase of about 3.5 years. Unlike what was observed in the 2011 census report, this increase was about the same for males and females.

Life expectancies for males and females in Nauru compare with life expectancies in 2021 of 84.5 years in Australia and 82.5 years in New Zealand. An average person in New Zealand or Australia lives about 20 years longer than a Nauruan. The UN Population Division estimates life expectancies at birth in 2021 for Fiji and Vanuatu at 67.1 and 70.5 years, respectively.

7.1.4 International migration

Data on arrivals and departures (including information on the time of stay) remain incomplete for detailed migration analysis. The net migration level can, therefore, only be crudely estimated by comparing the inter-census population growth with estimated rates of natural increase for the same time period. While this method provides a reasonably robust indication of net migration, planners and policy-makers require more detailed and timelier information on the demographic makeup of opposing migration streams in order to make and implement realistic policy decisions. Hence, further improvements are needed to collect and process information on age, sex and nationality of all arriving and departing passengers in Nauru.

Based on census data and vital statistics, the annual number of migrants for the period 2012–2021 was estimated at about -850 people (i.e. 850 more people departed than arrived in Nauru). The fact that this is less than in previous periods is consistent with the fact that the repatriation of I-Kiribati and Tuvaluan nationals back to their home countries, due to the crisis of the phosphate industry, is no longer a significant factor in recent migration streams.

7.1.5 Population projections

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 achieving goals in the future, knowledge about future population trends is required.

The population projection scenarios presented in this report point to a continuously growing population for Nauru during the next 30 years. The needs of this larger population size and its population subgroups should be considered in development plans in areas as diverse as health, education, employment, social welfare, special needs, environment, economic growth, climate change and disaster management to fulfill the aspirations of Nauru's communities.

According to the medium variant population projections prepared for this report, Nauru's population will increase to between 15,100 people in 2050 if current migration levels continue. However, should the population continue to grow at its current level without any significant levels of emigration, the population will be 21,100 people in 2050.

Regardless of the scenario used, the percentage of persons over 60 will increase by a factor of two or even three. This has major implications for health care, as the incidence of degenerative and other non-transmissible diseases is bound to increase in the future. The percentage of persons under 15 will decline, although less dramatically than the increase of persons over age 60, but the percentage in 2050 could be as low as 24%, compared to the present 38.5%.

The share of the working age population will first increase, reaching its peak in 2035 or 2040, after which it will start a slow decline, due to the increasing share of elderly people. Among other things, this is relevant from the viewpoint of the so-called demographic dividend, which suggests that a growing percentage of the population in the economically active ages may (although this is not always the case) promote economic growth as a result of increased savings and smaller transfers to the younger and older generations. In this regard, it is important to know that the window for a demographic dividend in Nauru will start to close in 2035 or 2040.

Growth of the school age population (6–17 years) is one of the critical planning issues facing the country as demographic trends may take the size of this population in either direction. Leaving aside the constant fertility scenario without migration, it is possible that the current population of 3,363 potential pupils will increase to about 4,700 by 2050. However, if fertility were to decline rapidly, it is also possible that the population in this age group will decline by 500–600. Planners in the education sector will need to be alert to the direction of the trend.

7.2 Cross-cutting issues

7.2.1 The environment

Nauru is a party to the international environmental agreements on biodiversity, climate change, desertification, the law of the sea and marine dumping. Careful use of terrestrial and marine resources forms the basis of a sustainable and healthy life for all Nauruans. For this reason, maintaining a healthy and sustainable living environment should be a top priority for the nation. Apart from providing a pleasant living environment, environmental conservation could lay the basis for a future tourism industry.

Because much of Nauru is a plateau with an average elevation of 36 metres, it is less vulnerable to the threat of rising sea levels than some other Pacific islands, such as Kiribati, Tuvalu and Marshall Islands. Periodic droughts are a greater environmental problem than flooding. Nevertheless, the fact that much of the population is located near the coast means that flooding does occur, particularly in the Anetan district. Rising sea levels also threaten potable water supplies and food security. In response to these trends, the government is undertaking initiatives to adapt to climate

change by moving major infrastructure, residential housing, agriculture, aquaculture and natural reserves to higher ground (inland).

This is made more difficult by Nauru's economic dependence on phosphate mining, which has left the central 80% of Nauru a wasteland. Climate change and disaster risks have a considerable impact on all sectors in relation to the realisation of children and women's rights. Phosphate dust pollution, caused by extensive phosphate mining, together with changing wind patterns and rising temperatures, pose significant health risks to children and women in Nauru. In view of the devastation caused by the phosphate mining to large parts of Nauru, mainly its interior, it is of utmost importance to continue with rehabilitating Nauru's interior landscape, so that it can be used for activities such as accommodation, recreation and agriculture. Currently, reforestation efforts are under way, but extreme soil conditions caused by high alkalinity, high phosphate levels, and low availability of potassium, manganese, iron and other essential minerals, combined with thin or damaged soils, cause low fertility.

This environmental stress is aggravated by Nauru's high population density. It is the smallest republic in the world, with an area of only 21 km^2. With a population of 11,680 in 2021, this makes for a population density of 554 persons per km^2, the highest in the Pacific region and among the highest in the world. This directly affects water and energy consumption; sewage and waste production; general infrastructure, such as roads, health and education facilities; the use of land; and the development of agriculture and marine resources.

Nauru is partnering with the Green Climate Fund to upgrade its maritime port. This partnership will directly boost Nauru's food security, local economy, commerce and life expectancy. It will be easier for shipping vessels to disembark and for local business owners to have new opportunities due to incoming merchandise.

The population appears to be well aware of the importance of environmental management. On average, households declared to receive information on these issues from at least two sources, the most important being friends and family.

There is also an increasing demand for environmental health services, such as public garbage collection, a properly functioning sewage system, availability of hygienic toilets, and protection of secure and clean water sources.

7.2.2 Renewable energy

The Nauru government confirms the national commitment to improving the sustainability of energy use through renewable energy and energy efficiency to contribute to a sustainable quality of life for all Nauruans.

Through the Nauru National Sustainable Development Strategy (NSDS) consultative process the Government of Nauru has set three ambitious targets to achieve by 2020. They are:

1. 24/7 grid electricity supply with minimal interruptions,
2. 50% of grid electricity supply from renewable energy sources, and
3. 30% improvement in energy efficiency in the residential, commercial and government sectors.

The expected outcome aimed to achieve were:[17]

- A reliable, affordable and safe power supply and services.
- A reliable and safe supply of fossil fuels.
- Universal access to reliable and affordable energy services.

17 Source: Nauru Energy Roadmap 2014–2020

- An efficient supply and use of energy.
- A significant contribution from renewable energy towards electricity supply.
- Financial sustainability of the energy sector.
- Efficient, robust and well-resourced institutions for energy planning and implementation.

A solar power generation system and sea water desalination plant were anticipated to save Nauru 60 tonnes of diesel per year, and to provide for 1.3% of the country's energy demand. This would also provide significant additional freshwater to Nauru households, which are heavily reliant on desalinated water (PIFS Press release, 2012).[18] However, according to the half-yearly report of the Nauru Utilities Corporation (NUC) for the second semester of 2021, so far only 9% of NUC's current energy demand is sourced from renewable energy, all of it from solar power (PV) installations. If private energy generation is included, the total renewable energy output for the period was 2,238 MWh, 79% of which was exported to the grid. The Asian Development Bank (ADB) has provided the government with technical assistance to prepare a Nauru power expansion plan. According to this plan, a solar PV array and battery energy storage system is to be constructed. ADB also provided support to prepare a feasibility study for the recommended Nauru Solar Power Development Project which will comprise a 6-MW solar PV.

On average, households have 1.7 sources of information on measures to increase energy efficiency. While informal information obtained from friends or family is still the most important source, radio, the internet and outreach workers also had a significant impact.

7.2.3 Households

Population growth not only contributes to an increased demand for 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 stationary, the number of households would still tend to increase when households and/or family structures break up into smaller units, often described as the transition from extended to nuclear family living arrangements.

Access to clean water, public electricity, an adequate public sewage system and waste disposal facilities should all be the minimum housing standard for Nauru's population. Specific needs are described below.

- **Dwellings**: Although the percentage of homes built more than 50 years ago has fallen since 2011, in 2021 there were still 35.8% of living quarters that were more than 50 years old. Another 21.7% were built 21–50 years ago. In particular, almost all buildings in Location (to the extent that their age is known) are more than 50 years old, which is also the case for more than 60% of dwellings in Uaboe, 55% of those in Aiwo and Ewa, and 52% of those in Yaren. Only 3.5% of dwellings were recently constructed – during the last two years before the October 2021 census. Eleven per cent of all dwellings' guttering needed replacing, and 23.8% needed repair. These percentages were particularly high in Uaboe (63.2%) and Baitsi (51.9%). In 11.4% of dwellings the downpipes needed repair and in 4.1% they needed to be replaced.
- **Water supply**: More than 70% of households reported that their water supply dried up sometimes or even frequently. The households with the most unreliable water supply were located in Ijuw (89.2%), Anibare (86.4%), Anabar (83.9%), and Meneng (80.7%). During periods of drought, 33.1% of households relied on groundwater, 22.7% depended on neighbours and relatives, and 12.6% used desalinated sea water. Desalinated sea water was used most

---

18 IISD SDG Knowledge Hub (2012). PIFS announces PEC funding for Nauru solar energy and desalinization plant. http://sdg.iisd.org/news/pifs-announces-pec-funding-for-nauru-solar-energy-and-desalinization-plant/

frequently in Ewa (31.7%), Denigomodu (30.0%) and Location (29.9%). Almost half (48.6%) of households in the country received their drinking water from a tanker truck and/or desalination plant. Another 36.5% used a rain catchment, while only 8.0% had access to piped water inside or outside the home, and 3.0% used a communal tank. The overwhelming majority (96.3%) of households in Nauru had some form of water storage. The majority (75.9%) of these tanks can hold between 3,000 and 10,000 litres of water. Very few (2.9%) had a capacity of less than 3,000 litres. A fair number of households (21.2%) had large storage tanks, with a capacity of more than 10,000 litres. These were particularly common in Ewa (49.4%). In Location, almost all (94.3%) of storage tanks were relatively small (3,000–5,000 litres). Most households (56%) did not use underground water. It was used most in Yaren (80.6% of households), Uaboe (79.8%) and Boe (79.6%).

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, accessibility, use and affordability of good quality health care and medical services are major concerns. At present, the government spends about 11% of its budget on health care. A partnership with the World Health Organization (WHO) resulted in the National Health Strategic Plan of 2018–2022, an attempt to revive Nauru's healthcare system. This plan will implement high immunisation coverage; improve mental health; monitor the drinking-water quality; strengthen systems that protect people from HIV, STIs and tuberculosis; and create a national plan to increase life expectancy in Nauru.

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 needs are met. The health situation in Nauru correlates with Nauru's social and economic circumstances. In recent years, there has been slow economic growth, which has reduced unemployment. Slowly but surely, people are starting to decrease their alcohol and tobacco consumption and choose a healthier lifestyle. Extreme levels of heart disease, and type 2 diabetes and obesity are improving, thus boosting life expectancy. For a developing country, Nauru's mortality rate from bacterial diarrhoea, HIV, influenza, pulmonary fibrosis and malaria is low or non-existent.

The Government of Nauru provides health services under a relatively centralised system based around the Republic of Nauru Hospital (RONH), combined with some clinical outreach. This centralised health service delivery model has been able to achieve excellent coverage for some aspects of health service delivery and considerable achievements have been made by the Department of Health. For example, Nauru continues to maintain community-based maternal and child health care programmes. As a result, childhood vaccination rates are close to 100%, and almost all births take place in the RONH under the care of a skilled birth attendant.

A lack of human resources (training and expertise) in the work force in Nauru's health sector is dependent on expatriate specialist staff for positions that require post-secondary education and training and short-term consultancy contracts, leading to fluctuations in the quality and coverage of services provided. According to World Bank data, in 2015 Nauru has 1.3 physicians per 1,000 population. Reportedly, this number has increased slightly in recent years.

The geography of Nauru, in particular its remoteness and transportation constraints, could constitute a barrier to access key services, such as specialised medical care abroad, but the RONH offers basic medical and surgical care, along with radiological, laboratory, pharmacy and dental services. The Nauru Public Health Centre offers treatment for diabetes and other obesity-related diseases but patients who require additional treatment travel to Australia.

As shown in this report, there have been improvements in infant and child mortality and in life expectancy in general. Nevertheless, infant and child mortality need to be further reduced by improving infant, child and maternal health through primary health care programmes and the expansion of immunisation programmes. In part, this can also be achieved by improving the quality of drinking water and by providing a safe and healthy living environment.

7.2.5 Disabilities

Nauru is a signatory to a United Nations convention to uphold the rights of people with disabilities and is therefore obliged to: "Promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities and to promote respect for their inherent dignity."[19]

In the 2021 census, 224 people reported a severe disability in Nauru and 73 declared being unable to perform at least one function. These people constitute a vulnerable and disadvantaged group in need of specialised medical assistance. The fact that only three out of the 73 people with a total disability in at least one function were economically active suggests that the government and community groups should do more to meet their obligation as stated above. Further special facilities and resources in schools and work places are required to cater for the special needs of people with disabilities, and specialised education facilities are needed in the provinces.

7.2.6 Education

The education 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 and higher productivity.

An education system should provide universal access to good quality, basic education for all children and improved access to relevant and demand-oriented community, technical, vocational, and tertiary education and training.

According to the 2011 Education Act, it is now compulsory to provide full enrolment opportunity to all children aged 7–18 in an educational institution on an equitable basis and achieve 100% enrolment rate for primary education.

Almost 90% of the population over age 15 is literate, with a higher literacy rate for women (92.6%) than for men (86.5%). This, however, is lower than in 2011, when 96.5% of the population over age 15 was literate. Also, the literacy rate in the 15–24 year age group was lower (87.2%) than the rate for the total population over age 15, which suggests a deterioration of educational standards. The same is suggested by the decline of school attendance rate in the 7–12 year age group, which was 97.3% in 2011 but only 81.1% in 2021.

Moreover, while the vast majority (93.7%) of the population spoke Nauruan, literacy in Nauruan was substantially lower than literacy in general: 52.4% versus 79.7% for the population over age five. This is an improvement compared to 2011, but in order to preserve the indigenous and very

---

19 Convention on the Rights of People with Disabilities. Adopted by the 61st Session of the UN General Assembly, December 13, 2006.

rare Nauruan language, there is still more work to be done in the teaching of reading and writing the Nauruan language.

7.2.7 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.

A high percentage (67.0%) of Nauru's population aged 15+ was economically active (in the labour force) and, of the economically active population, 88.1% were employees for wages or salaries, with almost no difference between males and females. This is a considerable improvement compared to 2011, which is consistent with the fact that, after the economic collapse of 2007, when GDP fell by almost 23%, the period from 2011 to 2021 was characterised by considerable growth – almost 7% per year on average.

A total of 242 people were categorised as being unemployed, resulting in a total unemployment rate of 5.0%; 4.9% for males and 5.2% for females. This, too, is a considerable improvement over the situation in 2011. The youth unemployment rate of the population aged 15–19, which in most populations is considerably higher than that of the total population over age 15, was 21%.

According to projection results presented in this report, the working age population will increase substantially during the next 10 years. After that, the increase will depend much on fertility and migration trends. The private and public sector needs to absorb an increasing number of job seekers in future and are encouraged to collaborate in developing innovative strategies that will promote economic diversification and growth.

7.2.8 Income substitution/generation

Agriculture and fisheries have been identified as priority sectors for development in view of their direct link to and role in improving nutrition and food security. However, after years of mining, the only fertile areas are in the narrow coastal belt and the land surrounding Buada lagoon.

The difficult economic situation in Nauru has resulted in an emergence of critical thought on sustainable livelihoods. A major concern of both the government of Nauru and the donor community is the worsening food security situation faced by the country. Also, the will to till the soil, plant crops and raise livestock has largely disappeared from the general population, as have most of the fertile soils, through phosphate mining. Inadequacy of bore water and frequent droughts mean that availability of water is also a limiting factor for agricultural production. Currently very few food crops are grown; most food items are imported and only limited varieties of fruit trees and vegetables are cultivated.

In 2021, only 5.2% of households were engaged in growing food crops and 4.9% in growing fruits. Fishing was the most common activity (29.6%), followed by noddy bird catching (9.5%) and raising livestock (7.9%). All these activities were undertaken mostly for household consumption, although some products were also marketed. By comparison, in 2011 more than half the households were engaged in fishing of some kind, be it fishing or collecting seafood on the ocean flat, the reef flat, the ocean (deep sea), the reef, or net fishing.

7.2.9 Communication and internet use

Existing research in telecommunications suggests that access to the internet and mobile phone usage can increase economic growth, attract foreign investment, improve market efficiencies, increase accessibility to health and education and empower women and others.

The telecommunication sector is presumed to provide new opportunities and frontiers across the businesses, social, economic and political arenas. An improvement in the infrastructure and facilities of telecommunications will have a direct effect on the well-being of individuals in the country.

According to the census, there has been a great expansion of internet access and mobile phone use. In 2021, 80.7% of households had an internet connection and 98.4% had a mobile phone. Almost three quarters of households had a TV. By contrast, in 2011 only 28% of households were connected to the internet. A properly functioning internet system:

- offers online educational/learning opportunities (through, for example, the "one laptop per child programme");
- makes medical advice available to medical staff in remote areas;
- provides information, news and entertainment to the general public; and
- facilitates tourism operators and businesses.

In response to questions on sources of information about energy efficiency and climate change, both the internet and radio proved to be important sources, although in both cases the primary information channel was through friends and family.

7.2.10 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 socio-economic 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 the general population and the sub-groups in the country in order to effectively provide for their specific needs. The government needs to know about its country's population structure, population processes and socio-economic characteristics in order to plan for an adequate standard of living, and for a proper provision and distribution of goods and services.