PART 2

SECRETARIAT OF THE PACIFIC COMMUNITY
Demography/Population Programme

&

NAURU BUREAU OF STATISTICS

Demographic Profile of the Republic of Nauru, 1992–2002

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Summary of main indicators

	Total	Males	Females
Total enumerated population (September 2002)	**10,065**	**5,136**	**4,929**
Resident population size (September 2002)	**9,872**	**5,040**	**4,832**
Rate of annual growth (%), 1992–2002	0.3		
Rate of natural increase, 1992–2002	2.5		
Crude net migration rate, 1992–2002	-2.2		
Nauruan population size (September 2002)	**7,572**	**3,807**	**3,765**
Rate of annual growth (%), 1992–2002	1.0		
Rate of natural increase, 1992–2002	2.5		
Crude net migration rate, 1992–2002	-1.5		
Fertility	**Residents**	**Nauruans**	
Average annual number of births, 1997–2002	319	241	
Crude birth rate (CBR), 1997–2002	32.7	32.9	
Total fertility rate (TFR), 1997–2002	4.0	4.0	
Teenage fertility rate, 1997–2002	93.0	78.0	
Mean age at childbearing (MAC), 1997–2002	27.3	28.0	
General fertility rate (GFR), 1997–2002	125	129	
Migration	**Residents**	**Nauruans**	
Average annual number, 1992–2002			
Total	-218	-109	
Males	-105	-53	
Females	-113	-56	

Mortality	Residents	Nauruans	
Average annual number of deaths, 1997–2002	94	75	
Crude death rate (CDR), 1997–2002	9.6	10.2	
Life expectancy at birth, 1997–2002			
Total	55.0	52.6	
Males	52.5	49.0	
Females	58.2	56.9	
Infant mortality rate (IMR), 1997–2002			
Total	42.3	36.6	
Males	50.9	49.4	
Females	32.8	23.7	
Child mortality rate (1q5), 1997–2002			
Total	13.7	13.1	
Males	12.0	13.3	
Females	15.4	12.8	

Note: The exact time period between the 1992 and 2002 censuses amounted to 10.4 years, and this forms the basis for all growth calculations adopted here.

SUMMARY

The 2002 Nauru census recorded a total ***de facto* population** of 10,065 people, which included 193 short-term visitors. Nauru's **resident population**, defined as comprising all people who have had an established residence in Nauru for at least one year, was enumerated at 9,872. This compares to 9,600 residents in 1992, representing a small **annual population growth** of 0.27%. Nauru's **indigenous population**, totalling 7,572 people, accounted for 77% of the resident population. Compared to 6,831 Nauruans in 1992, this represents an annual growth rate of 1%. The number of non-Nauruans declined from 2,769 in 1992 to 2,300 in 2002, and includes mainly people from Kiribati, Tuvalu and the People's Republic of China.

The low overall population growth was largely the result of a high level of emigration during the intercensal period 1992–2002, with a modest decline in the number of births as a result of declining fertility and some recent changes in mortality also contributing to this process. **Migration**, however, made the single biggest contribution, with 2,270 more residents having left than entered Nauru during the intercensal period, accounting for an average annual net loss of some 218 people. Of this total net loss of some 2,270 residents, about half (-1130) represented indigenous Nauruans, with most others representing residents of Tuvaluan origin (as also reflected in the departure of several boats for Tuvalu just before the census).

The average number of **births** declined from about 337 per year during the period 1992–1997 to 319 during the period 1997–2002. The total **fertility** rate (TFR[1]) declined from 4.3 for the period 1992–1997 to about 4.0 for all residents for the period 1997–2002, amounting to 3.9 during the most recent three-year period, 2000–2002.

Based on registered number of deaths, life expectancies at birth are estimated at 52.5 and 58.2 years for resident males and females respectively. Corresponding estimates for indigenous Nauruans are even lower, with 49 years for males and 56.9 years for females, pointing to a marked deterioration in the general health status of Nauru's population in recent years.

Nauru's **infant mortality** rate (IMR) was estimated at 42.3 for the resident population and 36.6 for the Nauruan population in the period 1997–2002. This represents a substantial increase compared to the situation in the early to mid-1990s, when infant mortality rates amounted to 21.4 and 12.5 for the resident and Nauruan population components respectively.

1 Average number of births per woman. These fertility estimates are based on the number of registered births rather than census-reported births, as vital registration in Nauru is widely regarded as complete.

ABBREVIATIONS

ASFR	age-specific fertility rate
CBR	crude birth rate
CDR	crude death rate
GFR	general fertility rate
IMR	infant mortality rate
MAC	mean age at childbearing
TFR	total fertility rate

1. INTRODUCTION

Drawing from 2002 and 1992 Nauru census data and vital registration records from the same period, the principal aim of this report is to provide a demographic analysis of recent Nauru population developments. This includes:

- a situational profile of current fertility, mortality and migration features;
- an analysis of recent developments;
- a set of medium-term population projections (2002–2027); and
- a brief discussion on likely impacts of some of these patterns and developments on wider social and economic development issues.

The small size of Nauru's population, and the random fluctuations of demographic events in this context, make it difficult to calculate meaningful demographic indicators such as rates, ratios or percentages on an annual – let alone a quarterly or monthly – basis, e.g. crude birth or death rates, fertility rates, infant mortality rates, and life expectancies at birth. This is because those age groups more prominently affected than others by specific demographic events can be or become so small that random demographic events (like births and deaths) can seriously distort annual (quarterly, monthly) accounts, and thus provide a very misleading picture.

To rule out the distorting impact of such chance events, it is recommended to always use period averages (1992–1997 and 1997–2002), as employed throughout this report[2].

Recent economic difficulties experienced by Nauru pose serious challenges to making meaningful assumptions about likely future demographic developments (particularly as regards migration), which has obvious implications for any long-term population estimates and forecasts. Hence, the population projections contained in this report ought to be treated with care.

The report compares, where possible, levels and trends of demographic indicators between the total resident and indigenous Nauruan populations – the difference between both categories comprising mainly I-Kiribati, Tuvaluan and Chinese residents.

2 Given the time gap of 10.4 years between the 1992 (April) and 2002 (September) censuses, data for 1997 appear in both the 1992–1997 and the 1997–2002 averages.

2. POPULATION GROWTH

Population dynamics refer to the processes in a population that lead to its growth or decline. The three demographic components of a population's dynamic are fertility, mortality and migration, which counterbalance each other. While fertility leads to growth, mortality leads to a decrease of the population. Migration can be either a growth factor or, as in recent years in Nauru, can lead to a slowing of population growth.

The most basic way of describing population growth is simply calculating the difference in population size at two different points in time.

The total enumerated population of Nauru increased by only 146 people between 1992 and 2002, from 9,919 in 1992 to 10,065 in 2002. This is an increase of 1.5% during the intercensal period, and represents an average annual rate of growth of 0.14% (Table 1).

Table 1: Population change between 1992 and 2002

	Population size		Population change		Average annual rate of growth (%)
	1992	2002	Number	%	
Total population	9,919	10,065	146	1.5	0.14
Resident population	9,600	9,872	272	2.8	0.27
Nauruans	6,831	7,572	741	10.8	0.99
Non-Nauruans	2,769	2,300	-469	-16.9	-1.78

Note: Time between 1992 and 2002 censuses was 10.4 years.

The resident population of Nauru – those whose usual residential address has been in Nauru for at least one year – was 9,872 at the time of the 2002 census, representing an increase of 272 since the 1992 census. This represents an increase of 2.8% between 1992 and 2002, with an average annual rate of growth of 0.27%.

The indigenous Nauruan population grew by 1% annually and increased from 6,831 to 7,572 people between 1992 and 2002, representing an increase of 741 or 10.8%.

Apart from the Nauruan population, which makes up 77% of all residents, the resident population includes mainly people from Kiribati (903), the People's Republic of China (367), Tuvalu (241), Fiji (168) and Australia (154). This non-Nauruan population component decreased from 2,769 to 2,300 between 1992 and 2002, and its proportion of the total resident population declined from 28.8% to 23.3% during the intercensal period.

As mentioned earlier, population growth defines the change in a country's population as the result of births, deaths and migration.

Natural increase defines population growth in terms of births and deaths, with growth occurring in a given time period when births exceed the number of deaths. If deaths exceed the number of births, growth is negative and the population declines.

Natural increase = births - deaths

However, population growth is also shaped by migration. Migrants are those people who come into the country to settle or seek residency and who are referred to as *immigrants*, and those who leave a country seeking residence elsewhere and who are referred to as *emigrants*. The term 'net migration' refers to the sum of immigrants minus emigrants.

Overall population growth is thus represented as the sum total of natural increase plus net migration, as highlighted in what is commonly known as the *balancing equation*:

Population growth = natural increase + net migration (immigration - emigration)

In Nauru, a total of 3,398 births and 855 deaths were registered in the 10.4-year intercensal period of 1992–2002, and it is assumed that almost all were births and deaths of Nauru residents, as few visitors either have a baby or die in Nauru. Subtracting the number of deaths from the number of births yields a *natural increase* of 2,543 people for this period (3,398 - 855 = 2,543). In other words, had no migration occurred between 1992 and 2002, or had net migration been zero, Nauru's resident population in 2002 would have totalled 12,143 (resident population in 1992 = 9,600 + 2,543).

Despite this natural increase of 2,543 people, the resident population has only increased marginally, from 9,600 to 9,872, between 1992 and 2002, showing a net gain of only 272 during the intercensal period – which suggests migration has played a major role in Nauruan population dynamics in recent years. Applying the balancing equation can provide us with a crude estimate of net migration during the intercensal period: applying all the known components to this equation (1992–2002 overall population growth, plus the actual natural increase), as illustrated in Step 1 below, and solving this equation by isolating 'net migration' (Step 2), points to a net migration of 2,271 people between the two censuses.

Population growth$_{1992–2002}$ = natural increase + net migration (immigration - emigration)

Step 1: (272) = (2,543) + net migration
Step 2: Net migration = 272 – 2,543
Net migration = -2,271

In other words, between 1992 and 2002 about 2,271 more Nauruan residents left the country than established residence there, resulting in a net migration averaging 218 persons per year (Table 2a).

The most basic demographic measures referring to births and deaths are the *crude birth rate (CBR)* and the *crude death rate (CDR)*. They refer to the number of births and deaths in a given year for 1,000 people and are normally calculated by simply dividing the number of births and/or deaths of a given year by the (mid-year) total population size of that year, multiplied by 1,000. For small populations such as Nauru it is advisable to use multi-year averages, as the random fluctuations of annual events can be considerable with very small numbers. Therefore, rates should be calculated as an average of several years. In this report, we have reported 1992–1997 and 1997–2002 averages.

In this case, the CBR and CDR are calculated by dividing the average annual number of births and deaths of the intercensal period 1992–2002 by the mid-period population size of the intercensal period [((resident population in 1992 = 9,600) + (resident population in 2002 = 9,872)) /2 = 9,736].

An annual average of 325 births during the period 1992–2002 translates into an average CBR of 33.4 [(325/9,736)*1,000], and an average of 82 deaths during the same period results in an average CDR of 8.4 [(82/9,736)*1,000].

Subtracting the CDR (8.4) from the CBR (33.4) yields a *rate of natural increase* of 25 per 1,000 or, expressed in the more frequently used percentage term, 2.5% per year. This means if it had not been for migration, Nauru's resident population would have grown at an annual rate of 2.5%, which would see the population double in about 28 years.

Applying all corresponding rates during the intercensal period to the balancing equation would yield an annual *crude net migration rate* of -2.23%.

Population growth$_{1992–2002}$ = natural increase + net migration (immigration - emigration)

0.27% = 2.5% + net migration rate
Net migration rate = 0.27 - 2.5%
Net migration rate = **-2.23%**

Applying the same calculations of birth, death and migration rates for the Nauruan population yields the results shown in Tables 2b and 3, with Figure 1 and Appendix Table 1 illustrating comparative CBRs and CDRs for resident and indigenous Nauruan populations.

Table 2a: Number of births and deaths, estimated net migrants and overall population change for the resident population, 1992–2002

	Total number	Average annual number	Rate*	
	1992–2002[a]	1992–2002	1992–2002	
Births	3,398	325	33.4	CBR
Deaths	855	82	8.4	CDR
Net migrants	-2,271	-218	-22.3	Migration rate
Overall change	**272**	**26**	**0.27**	Average annual rate of growth

[a] Intercensal period 1992–2002 is 10.44 years; period total number of births and deaths has been calculated by multiplying the average annual numbers by 10.44 years, the exact time between the two censuses.

* Based on mid-period population size.

Table 2b: Number of births and deaths, estimated net migrants and overall population change for the Nauruan population, 1992–2002

	Total number	Average annual number	Rate*	
	1992–2002[a]	1992–2002	1992–2002	
Births	2,550	244	33.9	CBR
Deaths	676	65	9.0	CDR
Net migrants	-1,133	-109	-15.1	Migration rate
Overall change	**741**	**71**	**1.0**	Average annual rate of growth

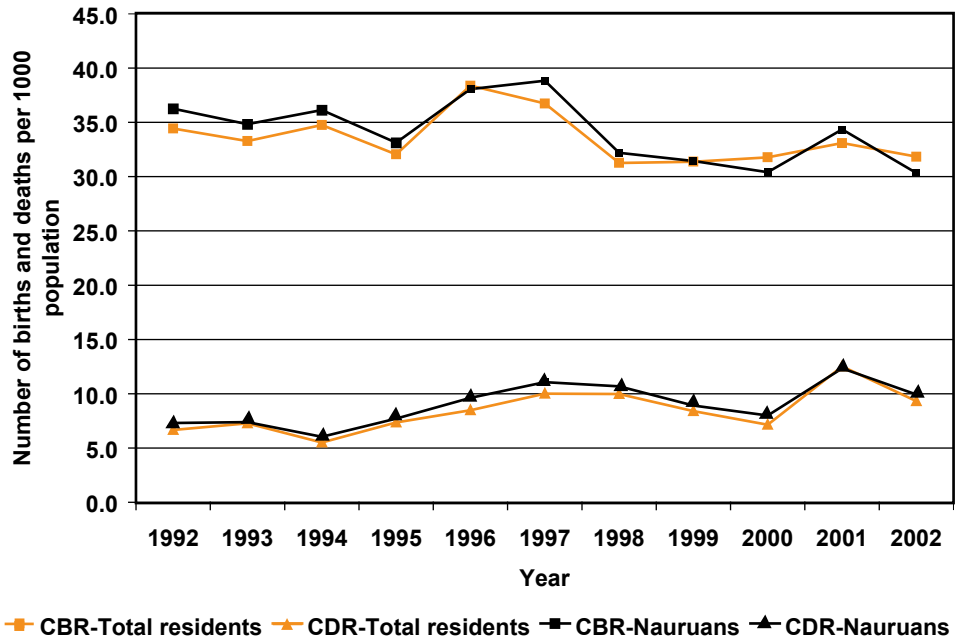
[a] See comments in Table 2a.

* See T able 2a

Table 3: Comparison of the average annual number of births and deaths, and natural increase, of the periods 1992–1997 and 1997–2002

	1992–1997			1997–2002		
	Births	Deaths	Natural increase	Births	Deaths	Natural increase
Residents	337	73	264	319	94	226
Nauruans	253	57	196	241	75	167

Figure 1: CBR and CDR, total resident and Nauruan population, 1992–2002



3. FERTILITY

Fertility refers to the reproductive behaviour of a population, relating to the number of live births women have had.

The most frequently used measure of fertility, CBR, relates the number of births in a given year to the mid-year population of that year.

$$\textbf{CBR} = \frac{\text{No. of births in year}}{\text{Mid-year population}} \times 1{,}000$$

With CBR not representing a true fertility measure as it considers the total population as the main reference population ('denominator') rather than the one population group that gives birth (women in their reproductive years), the general fertility rate (GFR) provides some improvement in that it relates the number of births in a given year to the mid-year population of women of childbearing age.

$$\textbf{GFR} = \frac{\text{Births in year}}{\text{Mid-year female population aged 15–49}} \times 1{,}000$$

While introducing some controls for age and sex as it relates births only to those at risk of having these births, there is still room for considerable variation in demographic composition of the same population over time, or between different populations. This happens when, for example, one district (A) has few women of childbearing age (such as when most women are under 20 or over 50 years of age), compared to another district (or the same population at a different time) that has a more balanced population distribution and that subsequently features a higher GFR than district A simply because more women live there who are in their main reproductive years.

The only way to properly allow for such variations over time or between different populations is to ***standardise fertility***. This means examining fertility behaviour in particular age groups. The age-specific fertility rate (ASFR) relates the number of births to women of a particular age group in a specific year to the mid-year population of all women belonging to that age group (Table 5), with the total fertility rate (TFR) combining these different age-specific rates into one single indicator telling us how many children a woman would give birth to, on average, during her reproductive life if she were to progress through her childbearing years conforming to the ASFRs of a given year.

Data from the vital registration system and data gathered during the census are compared and evaluated against each other.

During the 2002 census women older than 15 years of age were asked:

- how many live births they had ever had;
- how many of those were still living at the time of the census; and
- the date of their last birth, and whether or not that child was still alive.

Unfortunately these questions were only asked of Nauruan women and excluded the non-Nauruan resident population, which comprised 23% of the resident population.

Based on the 2002 census data, the total number of children ever born to Nauruan women aged 15 years and older was 4,483 (Table 4). Out of the total of 1,989 women aged 15 years and older, 1,169 (59%) were reported to have given birth to at least one child, and 40% (798) had not had a child. Of all women who had children, most had between one and three; 48 women had more than 10.

The average number of children ever born to all women (average parity) was 2.25 children per woman. The average parity increases with the age of women. While the 15–19-year-old women had on average only 0.17 children (every sixth woman had one child), women aged 45–49 had 4.6 children.

Crude fertility measures

During the 2002 census, Nauruan women reported 192 births during the one-year period before the census (24 September 2001 to 23 September 2002), and the average age of women at the birth of their last child was 27.4 years. The *general fertility rate (GFR)* is the number of births per year per 1,000 women aged 15–49 years. Dividing the reported number of 192 births during the year before the census by the enumerated Nauruan women aged 15–49 gives a GFR of 96.5. This compares to a GFR of 150 in 1992.

Fertility estimates derived from registration data are much higher than corresponding information available from the 2002 census, as reflected in much lower reported numbers of births during the year before the census (192), compared to data available from Nauru civil registration records covering the same period (235). Under these circumstances it seems futile to calculate fertility rates and indicators based on census information, especially as it is based on information referring to just a single year (the census year 2002). With annual vital events (like births and deaths) likely to vary considerably from year to year, multi-year averages should be relied upon to calculate more robust demographic indicators.

Fortunately the Nauru vital registration system is fairly complete and reliable, so a more in-depth analysis of fertility (levels and patterns) can be based on its data.

Table 4: Nauruan females 15 years and older by number of children ever born alive, 2002

Age of women	Number of women	Number of children ever born													Average parity
		0	1	2	3	4	5	6	7	8	9	10	NS	Total	
15–19	467	396	54	7	2	1	0	0	0	0	0	0	7	78	0.167
20–24	393	185	104	53	35	9	2	0	0	0	0	0	5	361	0.919
25–29	280	76	37	56	47	31	19	7	4	1	0	0	2	587	2.096
30–34	225	45	25	31	36	18	23	17	16	6	2	4	2	711	3.160
35–39	239	42	21	19	28	27	21	17	22	29	8	5	0	971	4.063
40–44	219	29	20	24	20	22	21	18	11	19	10	23	2	1,007	4.598
45–49	166	25	12	15	14	11	23	12	12	15	7	16	4	768	4.627
Total	**1,989**	**798**	**273**	**205**	**182**	**119**	**109**	**71**	**65**	**70**	**27**	**48**	**22**	**4,483**	**2.254**

Source: Nauru Population Census 2002

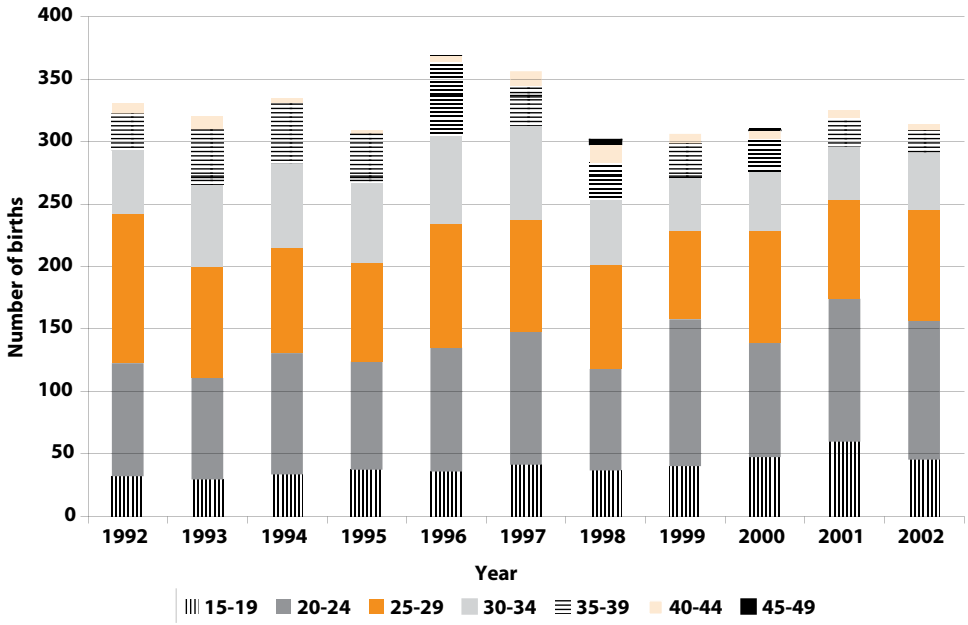
Table 5: Reported number of children born during the 12 months before the 2002 census, ASFR, TFR and MAC

Age of women	Number of women	Number of children born during year prior to the census	ASFR
15–19	467	33	0.071
20–24	393	71	0.181
25–29	280	41	0.146
30–34	225	31	0.138
35–39	239	12	0.050
40–44	219	4	0.018
45–49	166	0	0.000
Total	**1,989**	**192**	**0.604**
TFR			**3.0**
GFR			**96.5**
MAC			**27.3**

Source: Nauru Population Census 2002

Between 1992 and 2002 the number of annual births did not change significantly (Figure 2, Appendix Table 2), although the average number of births for the period 1992–1997 (337 births) was slightly higher than the corresponding annual average for 1997–2002 (319). Considering that the number of women of childbearing age increased between 1992 and 2002, an overall decline in fertility can be ascertained.

Figure 2: Number of registered births by age of mother, 1992–2002



Source: Registration of births by age of mother, Bureau of Statistics, Nauru

ASFR, TFR and MAC

As indicated earlier, the most widely used measure of fertility is based on age-specific fertility. Based on the enumerated number of women by age in the 1992 and 2002 censuses, the number of women by age of each intercensal year can be estimated. Together with the annual registered numbers of births by age of mother (Figure 2 and Appendix Table 2), the calculation of the ASFR and TFR is a straightforward exercise (number of births by age of mother, divided by the number of women by age).

Figure 3 and Appendix Table 3 compare the average ASFR of the period 1992–1997 to the period 1997–2002. They show that there was a fertility decline mainly among older women, especially those aged 30–39 years. Fertility rates of women aged 25 years and younger, and of women older than 40, remained virtually unchanged. While women aged 20–24 and 25–29 reported the highest numbers of births during the period 1992–1997, it was women aged 20–24 who reported most births during the period 1997–2007. This resulted in an ASFR of 0.237, the highest of all age groups, which means there were 237 births to 1,000 women in this age group. Forty-five children were born to the 483 women aged 15–19 years, resulting in a teenage ASFR of 0.093, indicating 93 births per 1,000 young women in this age group, or one in 10, reflecting one of the highest contemporary ASFRs in the region.

The estimated TFR for every year between 1992 and 2002 is shown in Figure 4. Until 1997, the average number of children per woman was well above four. Since the peak period in 1996/1997, it appears that the TFR declined to below four children per woman. The average TFR for the period 1992–1997 was 4.3, which compares to a TFR of 4.0 for the period 1997–2002 (Appendix Table 3). However, the TFR of the years 1998–2002 was consistently between 3.8 and 3.9.

The TFR of the Nauruan population has declined even more sharply in recent years, from 4.6 during 1992–1997 to 4.0.

In conjunction with decreasing fertility rates, the average age at childbearing decreased by about 0.8 years during the period 1992–2002 (Figure 5). While the MAC stood at 28.1 years during the years 1992–1997, it decreased to 27.3 during the period 1997–2002. As shown earlier, it was especially older women who showed a reduction in their fertility rates, resulting in the declining average age at childbearing.

The MAC of Nauruan women (28.0) was slightly higher than that of the total resident population.

Figure 3: ASFR – average of the periods 1992–1997 and 1997–2002

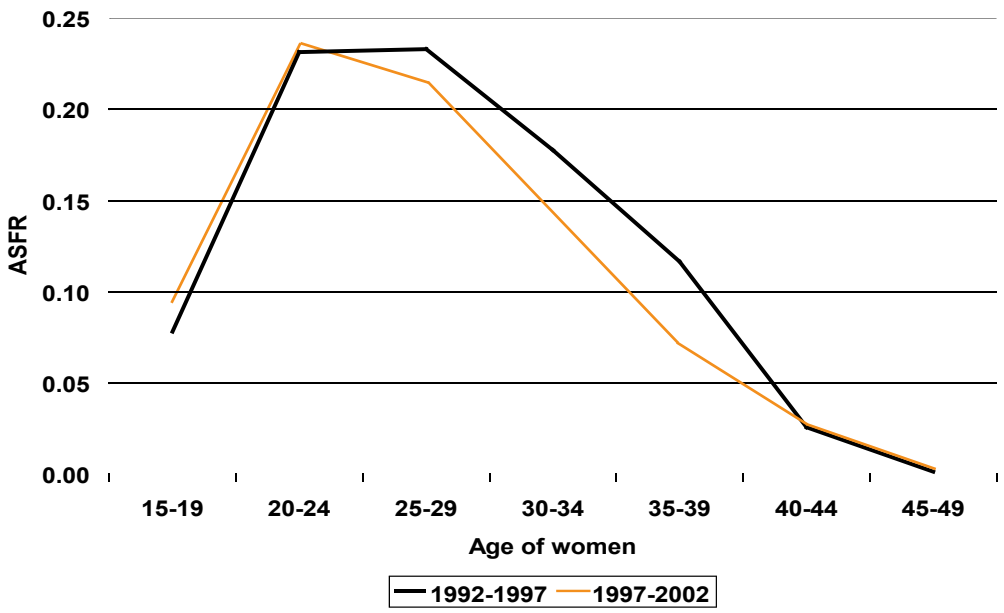


Figure 4: TFR, 1992–2002

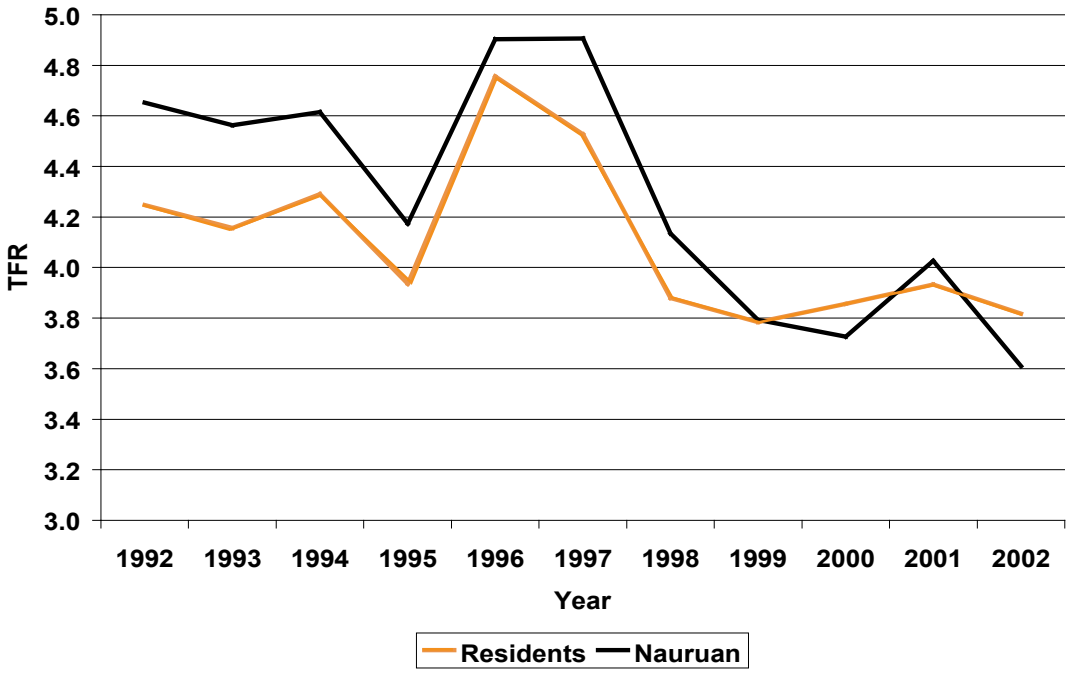
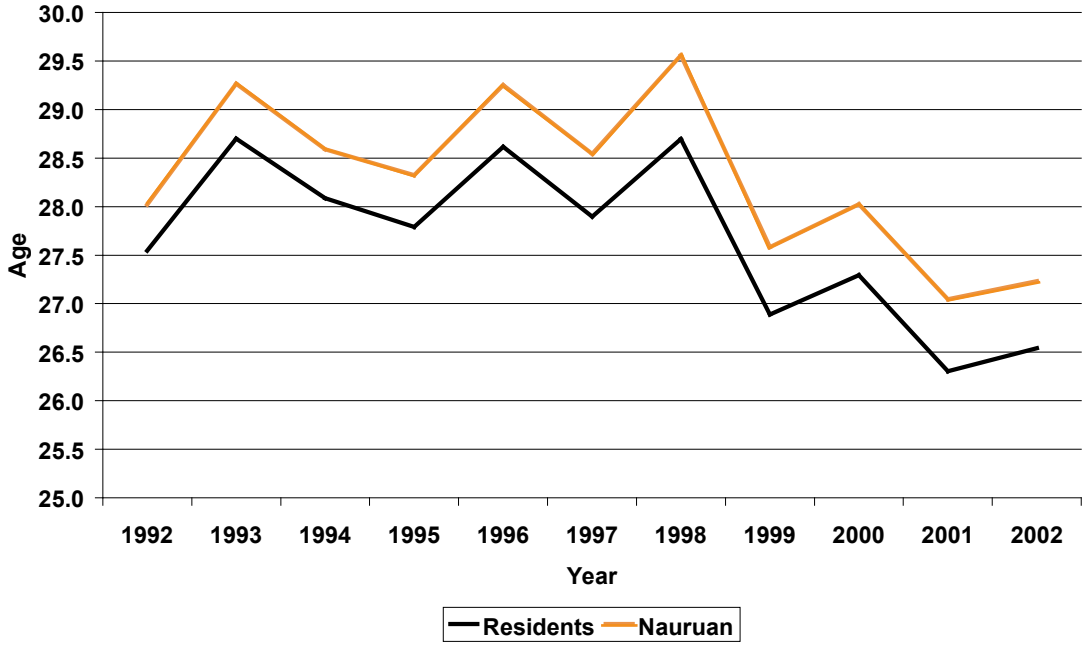


Figure 5: MAC, 1992–2002



4. MORTALITY

The incidence of death reveals a lot about a population's standard of living and its general state of health. For example, *infant mortality* and *life expectancy at birth* are widely used as indicators of the overall development status of a country.

The *mortality* of a population depends on various factors, including:

- demographic composition of the population, i.e. age and sex distribution;
- the quality and utilisation of health and medical services such as immunisation programmes, maternal and child health care, primary health care, etc.;
- environmental conditions and availability of infrastructure such as housing, water supply, sanitation and waste disposal;
- exposure to risk factors, such as abuse of alcohol and tobacco;
- work-related dangers;
- exposure to events outside individual control, such as natural disasters and war; and
- socio-economic status.

The 2002 census questions relating to mortality were:

1. the number of children ever born and still alive; and
2. whether the father and mother of the respondent were still alive.

As with fertility, these questions were asked only of the Nauruan population.

From all children born to women 15 years and older (4,483), 94.1% (4,218) were still alive and 265 had died (Table 6). The proportion of surviving children decreased with the age of women. While more than 97% of all children ever born to women 15–19 were still alive, only 92.3% of children born to women aged 45–49 were still alive.

Table 6: Nauruan female population 15 years and older by number of children ever born, number of children still alive and number of children dead, 2002

Age of mother	Number of children ever born alive			Number of children still alive			Proportion of children ever born still living		
	Boys	Girls	Both	Boys	Girls	Both	Boys	Girls	Both
15–19	32	46	78	32	44	76	100.0	95.6	97.4
20–24	180	181	361	165	177	342	91.7	97.8	94.7
25–29	311	276	587	297	269	566	95.5	97.5	96.4
30–34	364	347	711	340	325	665	93.4	93.7	93.5
35–39	502	469	971	473	445	918	94.2	94.9	94.5
40–44	534	473	1,007	492	450	942	92.1	95.1	93.5
45–49	379	389	768	343	366	709	90.5	94.1	92.3
Total	**2,302**	**2,181**	**4,483**	**2,142**	**2,076**	**4,218**	**93.1**	**95.2**	**94.1**

Source: Nauru Population Census 2002

The proportion of surviving females was higher than that of males. While 95.2% of all female children born were still alive, only 93.1% of all male children were.

In general, the proportion of surviving children decreases continuously by age of mother. This is not the case in Nauru because of the very small data set involved, which is not sufficient to calculate reliable infant and child mortality indicators. As a consequence, and as in the case with fertility, mortality estimates have to rely on Nauru's vital registration system, which records deaths by age and sex. These data can be used to directly calculate a life table from data of deaths by five-year age groups. Because the possibility of random fluctuations is high when dealing with very small numbers, as is the case with the Nauru data, it is imperative to work with multi-year averages to derive meaningful indicators.

Adult mortality estimates can be obtained by using orphanhood data from the last census, acquired from the questions on survival of parents, classified by five-year age groups of respondents (Table 7).

Comparing data on the survival of parents, 78.2% of the interviewed population reported that their mother was still alive, compared to only 64.2% with their father still alive. The difference has to be partly explained by the fact that mothers are usually younger than fathers (their spouses).

Table 7: Number and proportion of father and mother still alive by five-year age groups, 2002

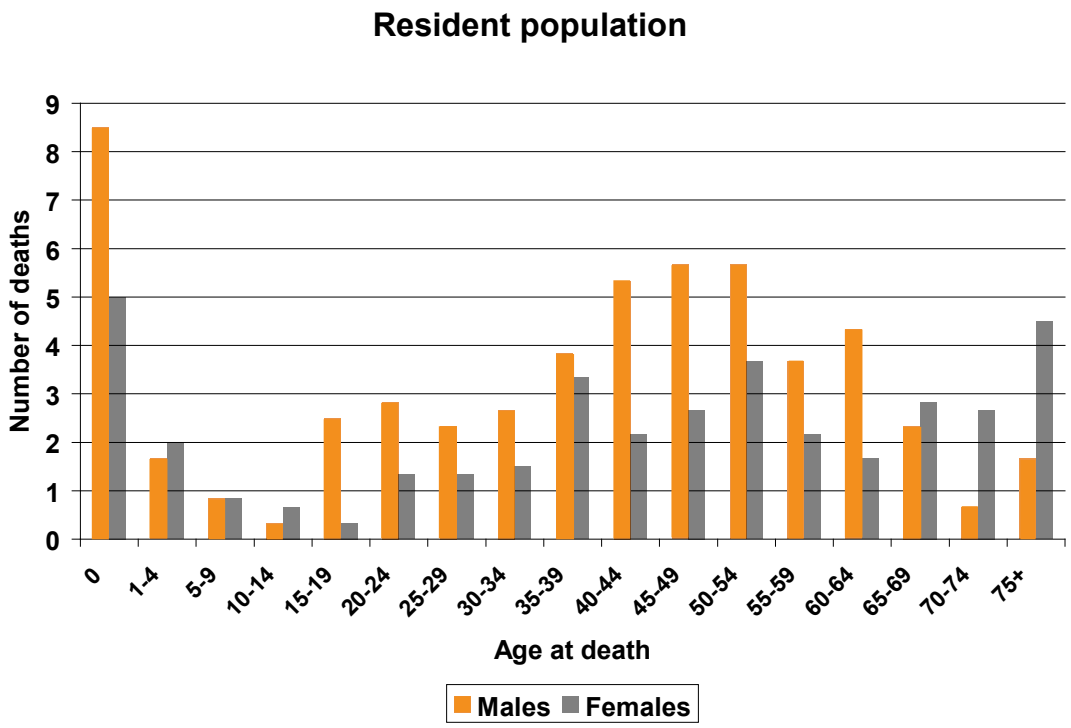
Age group of respondent	Father		Mother		Proportion still alive	
	Alive	Dead	Alive	Dead	Father	Mother
0–4	942	60	998	8	94.0	99.2
5–9	967	95	1,044	25	91.1	97.7
10–14	864	138	954	51	86.2	94.9
15–19	663	234	837	63	73.9	93.0
20–24	512	291	701	106	63.8	86.9
25–29	311	263	453	125	54.2	78.4
30–34	210	256	300	167	45.1	64.2
35–39	128	326	222	234	28.2	48.7
40–44	74	313	140	249	19.1	36.0
45–49	35	260	74	220	11.9	25.2
50–54	13	177	43	147	6.8	22.6
55–59	5	69	5	68	6.8	6.8
60–64	2	56	7	51	3.4	12.1
65–69	0	47	1	46	0.0	2.1
70+	0	55	0	55	0.0	0.0
Total	**4,726**	**2,640**	**5,779**	**1,615**	**64.2**	**78.2**

Figure 6 shows the average number of registered deaths by age and sex for the period 1997–2002.

As was shown in Section 2 (Figure 1 and Appendix Table 1), the average CDR for the resident population was calculated at 9.6 for the period 1997–2002. This compares to a CDR of 7.6 for the period 1992–1997. The corresponding CDRs for the Nauruan population were slightly higher, with 8.2 for 1992–1997 and 10.2 for 1997–2002.

From annual death registration data (Appendix Table 4), average numbers of deaths by age and sex were calculated for the years 1992–1997 and 1997–2002 (Figure 6). Age-specific death rates, *M(x)-values*, are calculated by dividing the annual average number of deaths of one period by the estimated mid-period population by age and sex (Appendix Table 5), with these values (Figure 7) forming the basis for calculating separate *life tables*[3] for the male and female resident populations (Appendix Tables 6a and 6b), and for male and female Nauruan populations (Appendix Tables 7a and 7b)[4].

Figure 6: Average annual number of registered deaths by age and sex, 1997–2002

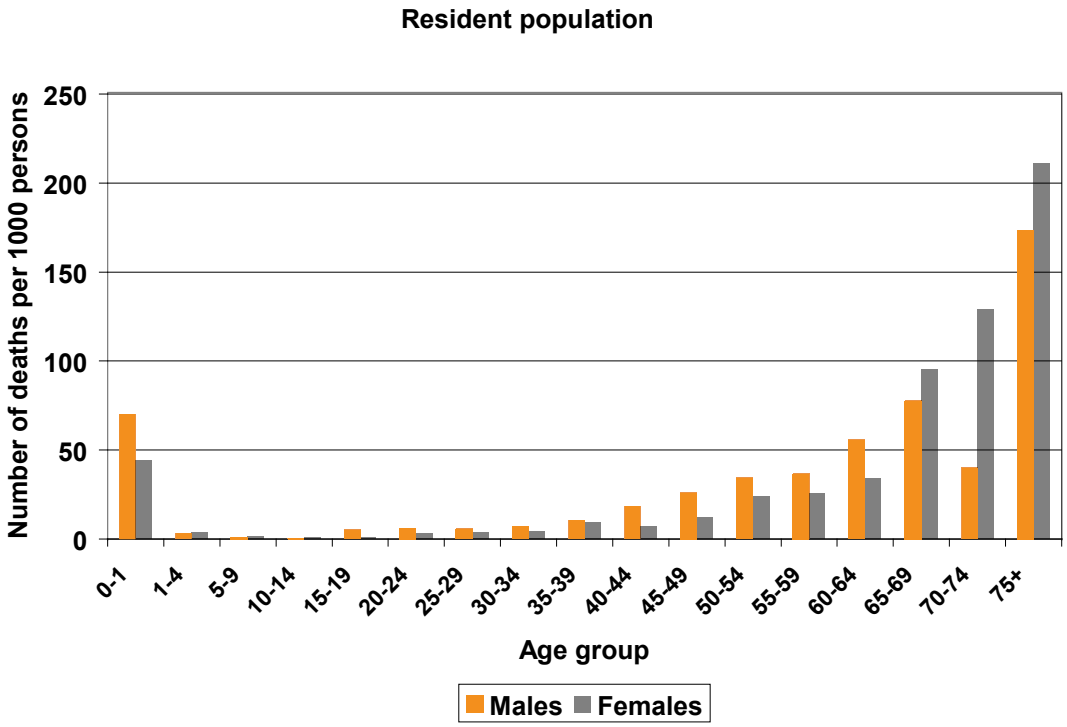


Source: Registration of deaths by age and sex, Bureau of Statistics, Nauru

3 A brief description of life tables is given on page 104.

4 The procedure 'LTPOPDTH' of the software programme PAS of the US Census Bureau was used for the calculations of the respective life tables.

Figure 7: Estimated age-specific central death rates [M(x)] of the total resident population, average of years 1997–2002



Life expectancy at birth for males and females has been estimated at 52.5 and 58.2 years respectively. The difference in life expectancy of almost six years in favour of females is consistent with the fact that 42% more male than female deaths were reported during the period 1997–2002 (329 male deaths were registered compared to 232 female deaths). It is also consistent with data on widowhood, which can be used as an indication of the number of male and female spouses who have died. Considerably higher numbers of widowed females than males were reported in the 2002 census. While only 19% of all males 60 years and older were widowed, 61% of females of the same age group were; 40% of all males 65 years and older were widowed compared to 77% of females of the same age group. These trends are also consistent with orphanhood data, showing a significantly higher number of surviving mothers than fathers (Table 7).

Life expectancy of the Nauru resident population decreased by an average of four years during the period 1992–2002 (Table 8), amounting to 59.1 years during the period 1992–1997; the corresponding value for the period 1997–2002 was 55. For males life expectancy decreased from 56.3 to 52.5, and for females from 62.4 to 58.2. For indigenous Nauruans the changes were even more dramatic, with values declining from 55.8 to 52.6; for Nauruan males it decreased from 52.2 to 49 years, and for Nauruan females from 59.9 to 56.9 years.

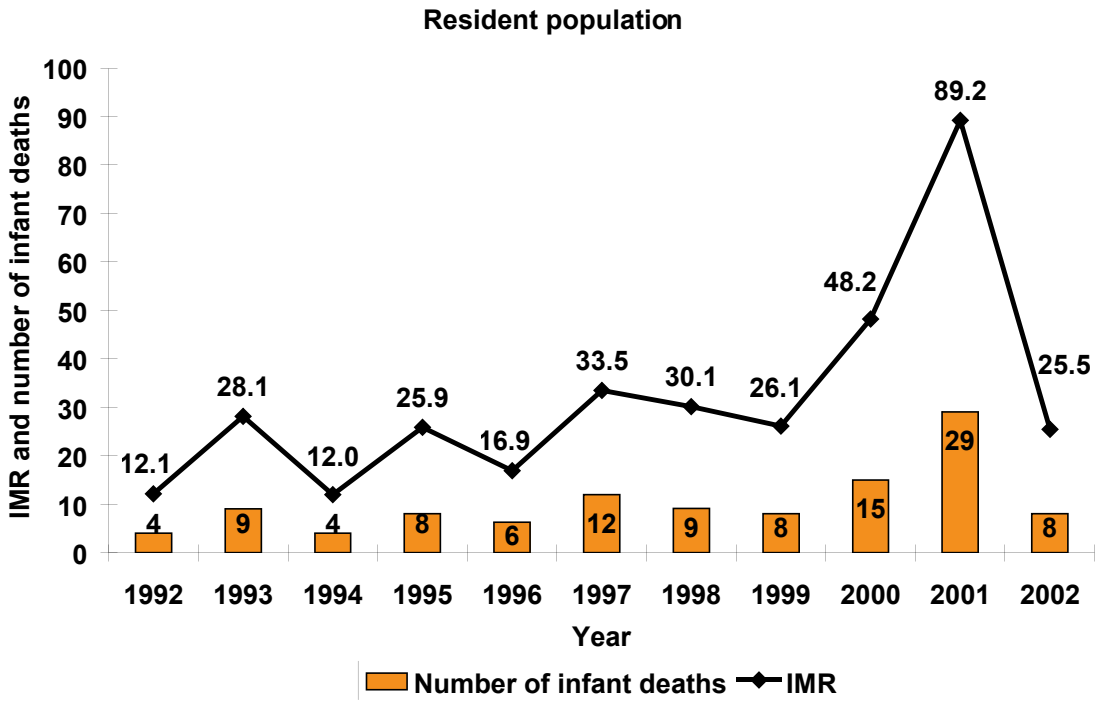
Table 8: Life expectancies by sex, total resident and Nauruan population, 1992–2002

	1992–1997		1997–2002		1992–2002	
	Residents	**Nauruans**	**Residents**	**Nauruans**	**Residents**	**Nauruans**
Males	56.3	52.2	52.5	49.0	54.7	50.8
Females	62.4	59.9	58.2	56.9	60.2	58.3
Total	**59.1**	**55.8**	**55.0**	**52.6**	**57.2**	**54.3**

The *infant mortality rate (IMR)* is the most common and basic measurement of early age mortality. It measures the number of deaths of under-one-year-old children in relation to 1,000 births in a given time interval (usually a calendar year). During the period 1997–2002, 81 infant deaths were recorded (Figure 8). During the same period, 1,916 births were registered. Dividing the number of infant deaths by the number of births results in an average IMR of 42.3 for the period 1997–2002 (Table 9). Male infant mortality was; with 50.9 per 1,000, considerably higher than female infant mortality, with 32.8 infant deaths per 1,000 live births. The IMR of the Nauruan population was, with 36.6, slightly lower than that of the total resident population (non-Nauruans).

Generally, the data show a considerable increase in the number of infant deaths and corresponding IMRs during the period 1992–2002, highlighting that the incidence of infant deaths (N=81) in recent years (1997–2002) nearly doubled when compared with the number of infant deaths (N=43) for the period 1992–1997, when the IMR stood at 'only' 21.3 for the total resident population (compared to 42.3 in 1997–2002) and 12.5 for the Nauruan population, compared to a three-times increase in recent years!

Figure 8: Number of registered infant deaths and IMR, 1992–2002



Source: Registration of deaths, Bureau of Statistics, Nauru

Table 9: Number of registered infant deaths, number of births, and IMR by sex, total resident and Nauruan population, 1992–2002

	1992-1997			1997-2002			1992-2002		
	M	F	T	M	F	T	M	F	T
				Infant deaths					
Residents	20	23	43	51	30	81	64	48	112
Nauruans	8	11	19	36	17	53	39	26	65
				Births					
Residents	1047	975	2,022	1,002	914	1,916	1,870	1,712	3,582
Nauruans	791	726	1,517	729	718	1,447	1,380	1,307	2,687
				Infant mortality rate (IMR					
Residents	19.1	23.6	21.3	50.9	32.8	42.3	34.2	28.0	31.3
Nauruans	10.1	15.2	12.5	49.4	23.7	36.6	28.3	19.9	24.2

Child mortality, or the probability of dying between age 1 and exact age 5, was estimated at about 13.7 deaths per 1,000 persons in that age group (Table 10). Between 1997 and 2002, 49 deaths of children aged between 1 and 4 years were recorded: 23 boys and 26 girls.

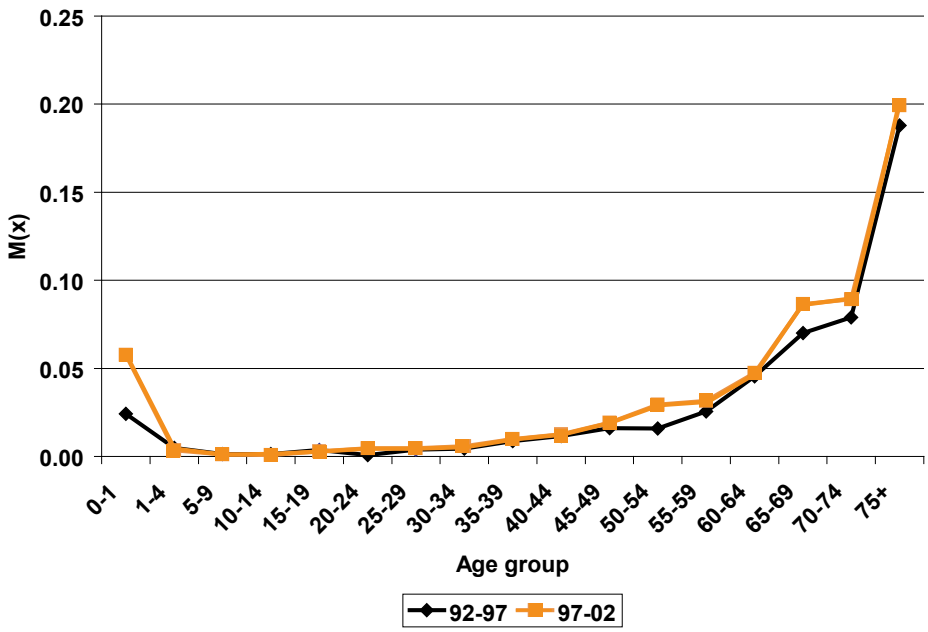
Sometimes mortality indicators can be estimated by calculating the proportion of persons, by sex and age group, who have survived from one census to the next (cohort survival). As was shown earlier, Nauru is influenced by a significant amount of migration and the available methodologies are not suitable, as it would be impossible to establish whether a person has died or migrated.

Table 10: Mortality indicators, total resident and Nauruan population, 1997–2002

Indicator	All residents			Nauruans		
	Total	Males	Females	Total	Males	Females
Life expectancy at birth, E(0)	55.0	52.5	58.2	52.6	49.0	56.9
Infant mortality rate (IMR)	42.3	50.9	32.8	36.6	49.4	23.7
Child mortality rate (4q1)	13.7	12.0	15.4	13.1	13.3	12.8
Under-five mortality (q5)	**56.0**	**62.9**	**48.2**	**49.7**	**62.7**	**36.5**

In conclusion, comparing estimated age-specific death rates, *M(x)*, for the period 1992–1997 with those of 1997–2002, it becomes clear that the decline in mortality rates is due to an increase of both early-age mortality and adult mortality (Figure 9).

Figure 9: Comparison of age-specific death rates, *M(x)*, of the total resident population, 1992–1997 and 1997–2002



5. INTERNATIONAL MIGRATION

Migration is the movement of people across a certain *boundary* for the purpose of establishing a new residence. Alongside fertility and mortality, migration is the third component of population change.

When movements traverse national boundaries or borders, we speak of international migration and refer to people involved in this movement as *immigrants* (people moving into a country) or *emigrants* (people leaving a country). When the movement of people occurs within a country, such as between islands, districts or villages, we speak of internal migration and refer to people involved in this process as *in-migrants* or *out-migrants*. As movement usually involves mobility in both directions, the term *net migration* describes the actual impact of migration on a particular population. It shows the net effect of immigration and emigration on a particular population and is usually defined in terms of an increase/decrease per 1,000 people in a given area, or as an annual growth rate in percentage.

Apart from this spatial consideration, *time* plays a major role in the analysis of migration. Someone coming for a short visit is not a migrant – he or she is a visitor. *Intent* is also of crucial importance, as a visitor can turn into a migrant if deciding to stay for a longer time; for example, if a sudden job opportunity emerges. Along the same lines, a person intending to migrate may turn into a visitor if, for example, the expected job opportunity does not materialise and the person decides to return to his or her place of departure.

The consideration of *time* and *intent* alongside obvious spatial phenomena highlights two key challenges when it comes to measuring migration: whether or not a particular person qualifies as a migrant can only be established after a certain period of time, in order to establish whether the arriving or departing person qualifies as a visitor or a migrant. One year has emerged as the most frequently used benchmark in censuses worldwide.

The Nauru census contained two questions related to migration:
1. place of birth; and
2. how long (number of months/years) the person had resided in Nauru.

The question regarding length of residence was only asked of the non-Nauruan population.

One in five residents (21.4%) indicated that they were born overseas, whereas most indigenous Nauruans (95.6%) reported that they were born in Nauru (Table 11); only 333 Nauruans were born overseas, mainly in Australia (142). Of the 2,113 residents born overseas, the vast majority originated from neighbouring Kiribati (43%) and Tuvalu (11%)[5], and the People's Republic of China (17%).

5 This number would have been higher had it not been for several hundred Tuvaluans returning to Tuvalu just before the 2002 census.

Regarding *length of residence*, 30% (N=700) of the non-Nauruan resident population reported having lived in Nauru for less than five years, of which 216 people reported having moved to Nauru between one and two years prior to the census; a further 30% reported having lived in Nauru between five and nine years, and 29% reported having lived in Nauru for more than 10 years (Appendix Table 8)[6].

Table 11: Total resident and Nauruan population by place of birth, 2002

	All residents			Nauruans		
Place of birth	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
Nauru	7,724	3,906	3,818	7,227	3,636	3,591
Kiribati	903	417	486	37	11	26
Tuvalu	241	138	103	11	2	9
Australia	154	89	65	142	81	61
New Zealand	24	16	8	13	9	4
Fiji	168	98	70	64	34	30
Solomon Islands	30	22	8	12	6	6
Philippines	77	50	27	0	0	0
PR China	367	210	157	2	1	1
Republic of China	12	7	5	0	0	0
Hong Kong	6	6	0	0	0	0
India	12	8	4	0	0	0
Other	119	56	63	52	20	32
Not stated	35	17	18	12	7	5
Total	**9,872**	**5,040**	**4,832**	**7,572**	**3,807**	**3,765**
Total overseas-born	2,113	1,117	996	333	164	169
Born overseas (%)	21.4	22.2	20.6	4.4	4.3	4.5

As discussed earlier (Tables 2a and 2b), about 2,270 more Nauru residents left than arrived in Nauru during the intercensal period. About 1,100 more indigenous Nauruans left than arrived during the same period. These figures represent crude migration estimates, derived from the balancing equation.

Comparing 1992 and 2002 census populations by five-year cohorts, and taking the registered number of births and deaths by age and sex into consideration, it can be shown that it was foremost the young population who left Nauru during the intercensal period (Figure 10a and Appendix Table 9a): more than half (52.6%) of all migrants were younger than 15 years of age, and a further 13% were aged between 15 and 19 years. Another 19% were 40–59 years old.

6 Eleven per cent did not answer the question on length of residence.

With the bulk of net migration affecting children (0–14) and adults (40–59), totalling 72% of all migrants, and a further 13% referring to teenagers (15–19) who would have finished their education and/or continued their education or looked for work overseas, two distinct contemporary migration patterns seem to emerge from Nauru:

- families leaving Nauru and returning home (mainly to Kiribati and Tuvalu), as also illustrated in the classic *migration-shape* age pyramid shown in Figure 10a; and
- 'normal' movement of young people looking to further their education/work overseas.

All in all, there were about equal numbers of male and female migrants.

Figure 10a: Population pyramid of resident net migrants, 1992–2002

Comparing Figures 10a and 10b highlights completely different migration patterns between total residents and indigenous Nauruans. The proportion of children is significantly higher for the total resident population than for the Nauruan population, and the proportion of young adults (20–39 age group) is very small amongst the total resident population. The explanation for this pattern is that there was a net surplus of non-Nauruans in the age group 20–39, particularly 25–29-year-old males, who contributed to this peculiar pattern (Figure 10c).

The compilation of annual migration estimates and more detailed migration analyses should be a fairly straightforward exercise, with Nauru authorities recording all arriving and departing passengers at Nauru's one international airport. However, it appears that arrival and departure cards are not consistently completed and/or collected from all arriving and departing passengers, and the prevalence of regular power cuts in recent years has disrupted the (timely) computerisation of customs data, including the number of arriving and departing passengers. These factors have posed a serious threat to the compilation of timely and reliable migration records.

Figure 10b: Population pyramid of Nauruan net migrants, 1992–2002

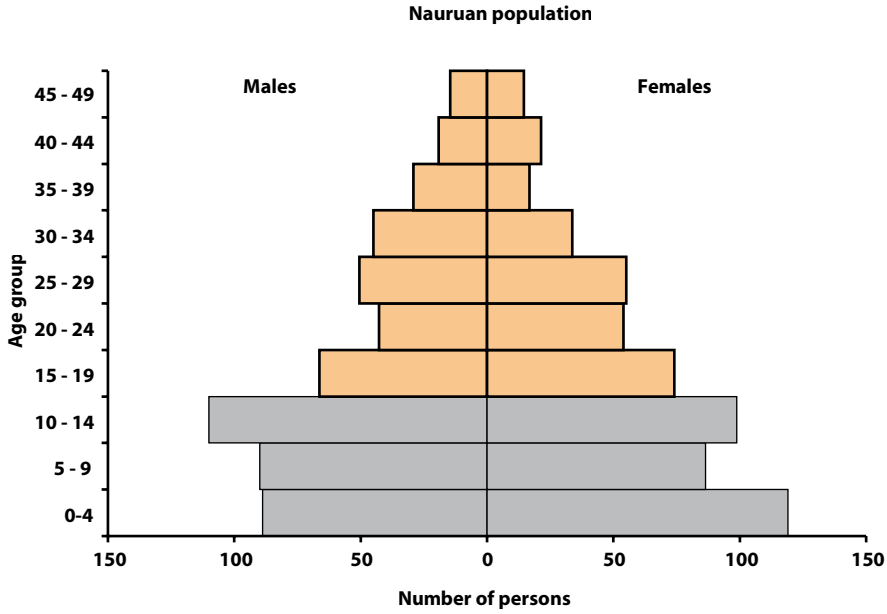
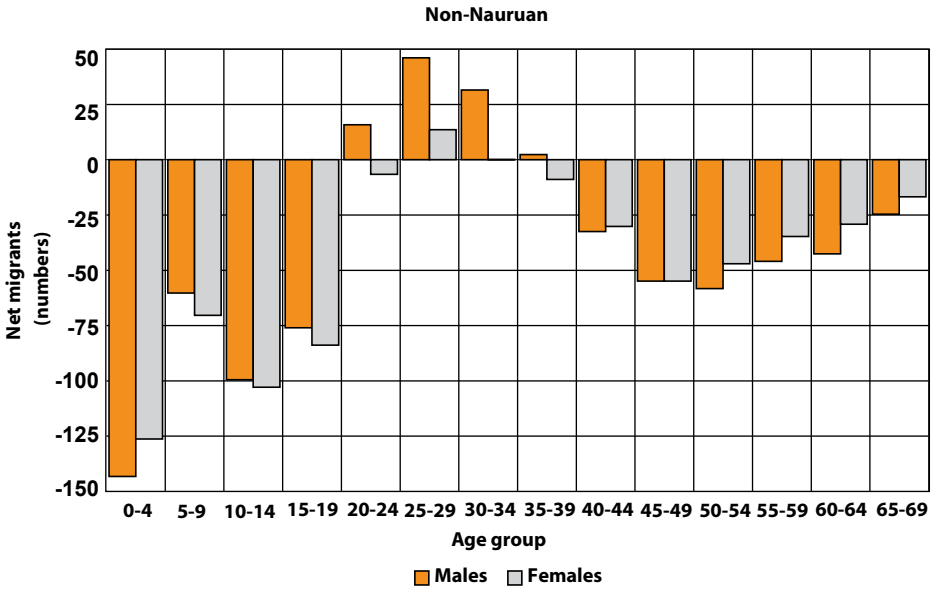


Figure 10c: Non-Nauruan net migrants, 1992–2002



6. POPULATION PROJECTIONS

In formulating socio-economic development plans, population variables have to be considered in conjunction with economic and social conditions. For governments to cater effectively for the specific needs of different population groups at different points in time, it is important that planners and policy-makers gain an idea of what their population might look like in the future. The appropriate method for doing this is to provide a series of population scenarios, in order to anticipate changes in the population's size and characteristics.

The starting point for any projections is a reliable age–sex distribution of a population – in this case it is the Nauru 2002 census age and sex distribution of the total Nauru resident population – and information on fertility, mortality and migration.

The *cohort–component method* was used to compute the population projections presented here. This procedure simulates population changes as a result of changes in the components of growth: fertility, mortality and migration. Based on past information, 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 that people die according to their sex and age, that women have children, and that some people change their 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[7].

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.

Given the relatively high level of negative net migration (that is, far more residents leaving Nauru over the past 10 years than moving/returning to Nauru), which is not sustainable in the long run, much care is advised when interpreting these population projections. It is important to highlight that population projections are not forecasts suggesting what is going to happen in the future; population projections are meant to provide policy-makers and planners with *'what-if scenarios'* – that is, information about what future populations will look like under given assumptions. These projections are not meant to suggest that the assumptions will materialise (e.g. certain fertility, mortality and migration patterns and developments will eventuate); they merely suggest that certain population outcomes will definitely happen if specific fertility, mortality and migration trends eventuate/prevail in the coming years. While fertility and mortality are relatively stable, which means that dramatic changes usually do not occur overnight, migration patterns and trends can change suddenly and dramatically, particularly in societies exposed to sudden or sustained economic and political uncertainties such as those currently prevailing in Nauru.

7 *Population Analysis with Microcomputers*, Volume I, Presentation of Techniques, by Eduardo E. Arriaga and Associates, US Bureau of the Census, 1995, pp.309–310.

6.1 Projection assumptions

To gain a better understanding of Nauru's future population situation, several projections have been prepared, covering a 25-year period from 2002 to 2027. While some readers may question the wisdom of undertaking projections in the current context of political and economic uncertainties, it needs to be re-emphasised that the main purpose of these projections is to provide planners and policy-makers with credible future population scenarios that are based on current knowledge and thus may assist in formulating policies and plans aimed at contributing to equitable and sustainable social and economic development for Nauru.

The following demographic inputs were used for the projections.

Base population

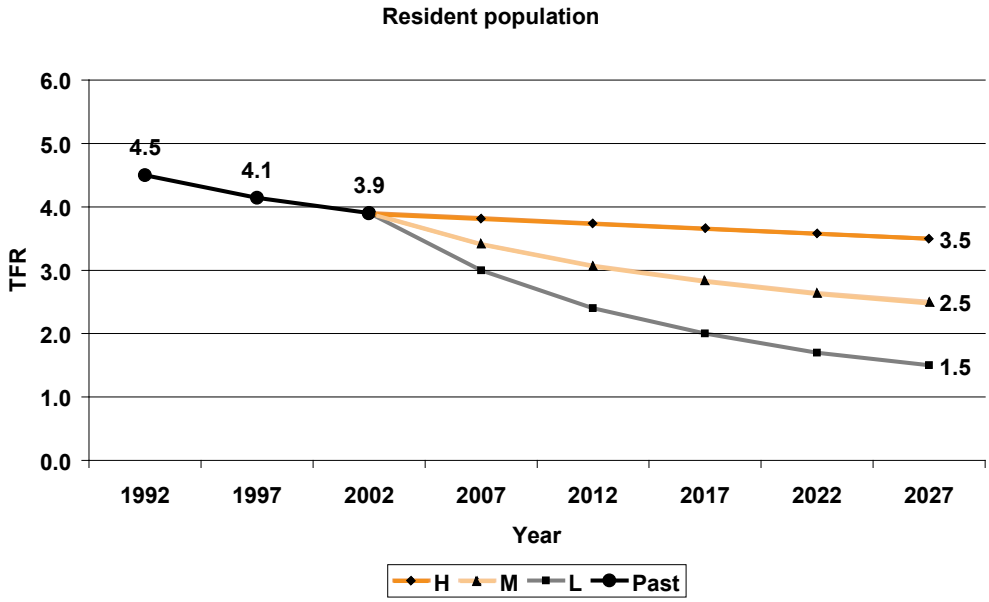
2002 census age and sex distribution of the resident population (Appendix Table 10).

Fertility

Current TFR (3.9) and associated ASFRs, as described in Section 3, were used as starting points, with three different assumptions made about future fertility developments (Figure 11):

- Assumption 1: High fertility – Fertility decreases slightly from its current level to 3.5 in 2027
- Assumption 2: Medium fertility – Fertility decreases to 2.5 in 2027, and resembles exactly the intermediate level between the high fertility assumption and the low fertility assumption
- Assumption 3: Low fertility – Fertility decreases to 1.5 in 2027

Figure 11: Fertility assumptions for projections, 2002–2027



Mortality

Normally, population projections assume a rising trend in life expectancy for males and females according to the United Nations working models for mortality improvement as described in *World Population Prospects* (United Nations, 1995, p.144). However, such an assumption is clearly unrealistic for Nauru, since life expectancies there have actually declined during the recent intercensal period, 1992–2002.

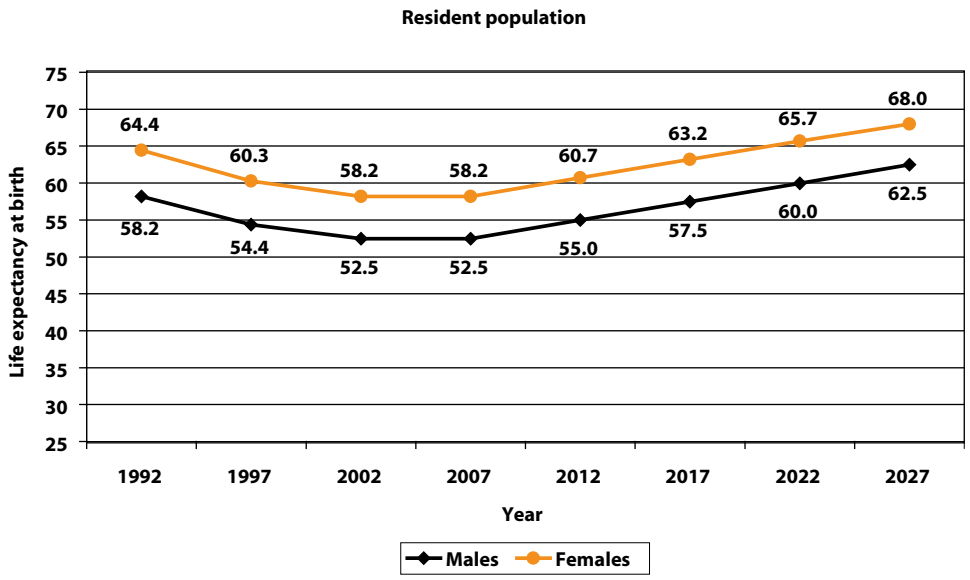
Hence, life expectancies at birth E(0) of 52.5 years and 58.2 years, for males and females respectively, are used as the starting point for the projections in 2002. These estimates are based on the number of registered deaths by age and sex of the years 1997–2002, as outlined in Section 4.

- Assumption

  For the purpose of these projections we assume, perhaps optimistically, that current life expectancies will not further decrease but remain stable at 1997–2002 levels for the first five-year projection period, 2002–2007, before they start to improve slightly, as outlined in Figure 12. Life expectancies are then assumed to reach 62.5 and 68 years in 2027 for males and females respectively[8].

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

Figure 12: Mortality assumption (life expectancy at birth) for projections, 2002–2027



8 According to the UN's software package MORTPAK3.0 (procedure COMPARE), the Far East Asian Model of the UN's model life tables is most similar to the observed age structure of mortality.

Migration

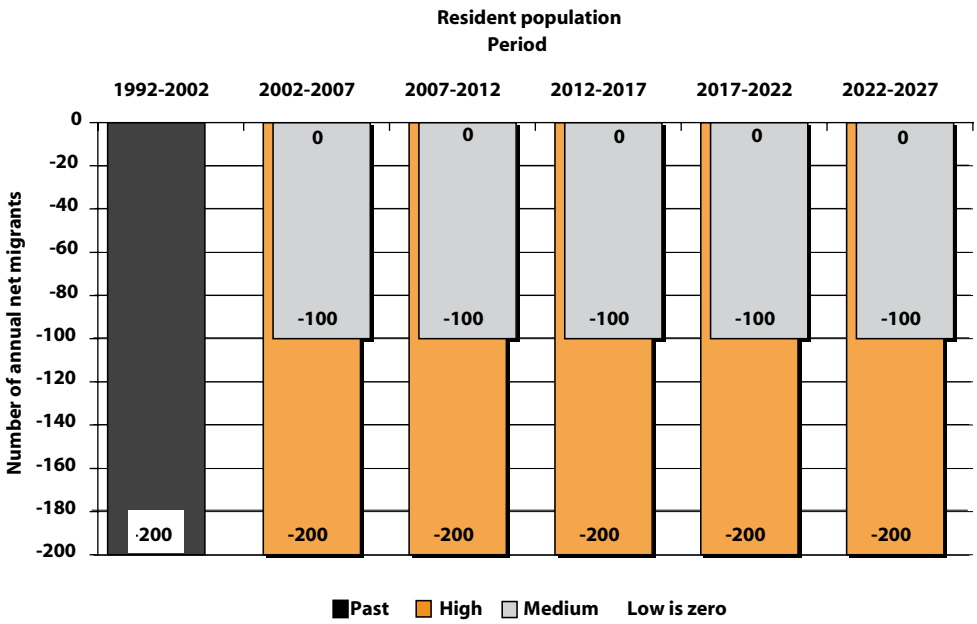
Making meaningful assumptions about future migration developments provides the single greatest difficulty for undertaking population projections, as many of the social and economic parameters shaping migration patterns depend largely on countries' overall social, economic and political developments. These can fluctuate widely, as Nauruans have experienced first hand during the past 20 years, and are notoriously hard to predict.

In the past, Nauruans were not known for migrating to other countries like other Pacific Islands peoples did, but this might have changed during the last few years. As has been shown in Section 2, about 2,270 more people left Nauru than established residence there during the years 1992–2002, resulting in an annual average net migration of -218.

The estimated pattern (percentage distribution by age and sex) of net migrants of the resident population of the intercensal period 1992–2002 has been used as the base for the projection scenarios (Section 5, Figure 10a and Appendix Table 9a), which are based on three different migration assumptions (Figure 13):

- Assumption 1: High migration – Estimated level of annual net migration of the period 1992–2002 of -200 persons per year is kept constant for the entire projections period 2002–2027
- Assumption 2: Medium migration – Estimated annual net migration of the period 1992–2002 for the entire projections period is half of that used in Assumption 1 (-100)
- Assumption 3: Zero migration – Net migration is assumed to be zero for the entire projections period

Figure 13: Migration assumptions for projections, 2002–2027



6.2 Projection results

The combination of these three different fertility and migration assumptions, with one prevailing mortality assumption, results in nine scenarios, of which only three are described in detail (the high, medium and low population variants). The different scenarios highlight the impact of different levels of fertility on the one hand and the impact of migration on the other (Table 12).

Table 12: Resident population size in the year 2027 according to nine projection scenarios (combination of three different fertility and migration assumptions)

		Migration assumption		
		Zero	**Medium (-100)**	**High (-200)**
Fertility assumption (TFR 2002–2027)	Slow decline **(3.9 → 3.5)**	**16,665 (high population growth variant)**	13,394	10,077
	Medium decline **(3.9 → 2.5)**	15,210	**12,147 (medium population growth variant)**	9,031
	Fast decline **(3.9 → 1.5)**	13,555	10,711	**7,827 (low population growth variant)**

Scenario 1 (high population growth variant)

- *High fertility:* The estimated current TFR of 3.9 will slightly decrease to 3.5 until 2027.
- *Mortality:* After the period 2002–2007 of stagnating life expectancies, the estimated level of life expectancy at birth will gradually increase, from 52.5 years and 58.2 years for males and females to 62.5 years and 68.0 years respectively in the year 2027.
- *Zero migration:* Net migration is assumed to be zero.

Scenario 2 (medium population variant)

- *Medium fertility:* The estimated TFR of 3.9 in 2002 will gradually decrease to 2.5 in the year 2027.
- *Mortality:* Same as Scenario 1.
- *Medium migration:* The high level of negative net migration of the period 1992–2002 of -200 people per annum is reduced to -100 people per annum for the entire projections period 2002–2027.

Scenario 3 (low population variant)

- *Low fertility:* The estimated TFR of 3.9 in 2002 will decrease to 1.5 in the year 2027.
- *Mortality:* Same as Scenarios 1 and 2.
- *High migration:* The high level of negative net migration of the years 1992–2002 will continue for the entire projections period 2002–2027.

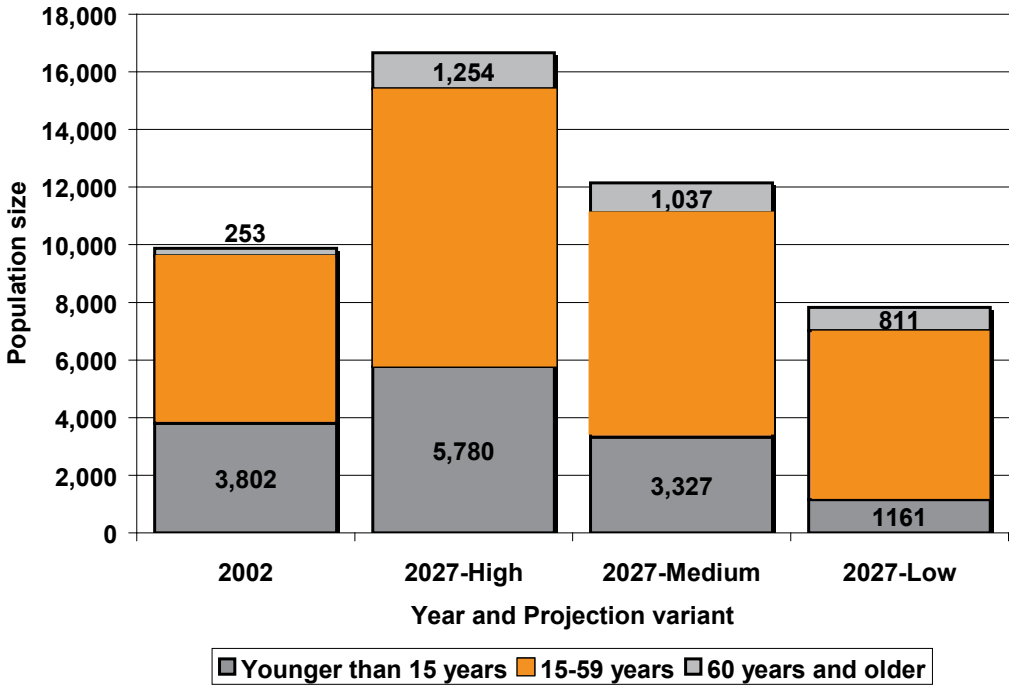
Tables 12 and 13 and Figure 14 feature the comparative results of the various projections, highlighting the differential impact on population size, growth and structure as a result of fertility and migration assumptions made.

Table 13: Population indicators in 2027 according to three projection variants

Indicator	2002 population	2027 population		
		High variant	Medium variant	Low variant
Median age (years)	20.7	29.0	28.5	35.5
Dependency ratio (15–59)	69.7	73.0	56.1	33.7
Annual growth rate 2001–2021	0.3*	2.1	0.8	-0.9
Sex ratio	104.3	102.8	103.5	106.8

*1992–2002 growth rate

Figure 14: Population size by broad age groups in 2027, according to three projection variants



Scenario 1: High population growth variant

- Under the assumption of near-constant fertility, and the assumption that net migration will be zero, Nauru's resident population will increase to 16,665 people in the year 2027 (Table 12 and Figures 14 and 15).
- The population under 15 years of age will increase by 1,978, from 3,802 in 2002 to 5,780 in 2027, and the working-age population (15–59 years) will increase by 3,814, from 5,817 in 2002 to 9,631 in 2027.
- The *dependency ratio* will increase only slightly from 69.7 to 73.0 during the same period, because of only a very modest change in the dependent age groups (younger than 15, older than 59), from 41% of the total population in 2002 to 42% in 2027, combined with an equally small decrease in the working-age population, from 59% of the total population in 2002 to 58% in 2027.
- The *median age* of the population, however, will increase from 20.7 to 29.0 years.

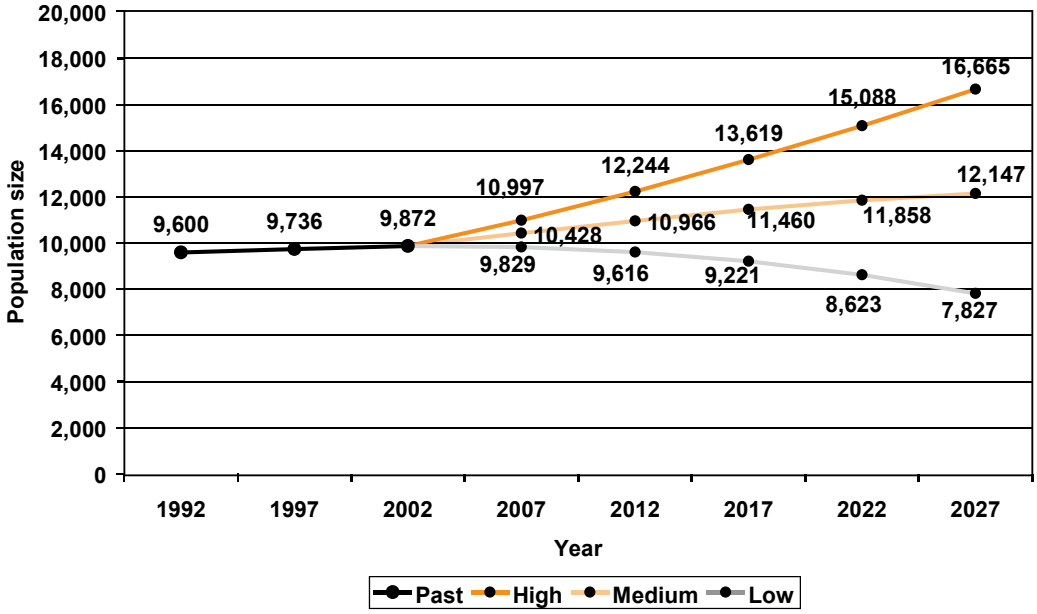
Scenario 2: Medium population growth variant

- Based on the assumption that fertility will decrease from its current level of 3.9 to 2.5 in the year 2027, and the number of net migrants will gradually decrease from its current high level of -200 people annually to -100 during the period 2002–2027, the population is expected to increase to 12,147 people in the year 2027.
- The overall number of children (0–14) will decrease from 3,802 in 2002 to 3,327 in 2027 (-475), and the working-age population will increase from its current level by 1,966 people to 7,783 people in 2027.
- The *dependency ratio* will decrease to 56.1 as a result of a proportional increase of the working-age population (from 59% in 2002 to 64.1% in 2027), and a proportional decrease of the population 15 years and younger (from 38.5% to 27.4%).
- The *median age* of the population will again increase, by almost eight years, from 20.7 to 28.5 years.

Scenario 3: Low population growth variant

- If fertility decreases from its current level of 3.9 to 1.5 in the year 2007, and the number of net migrants remains at its current level of -200 people per year, Nauru's resident population will decrease to 7,827 people in 2027.
- The number of children will be 1,161 – less than a third of the current number (3,802) – whereas the working-age population will more or less remain at its current size at 5,855.
- The *dependency ratio* will decrease quite substantially from the current 69.7, to 33.7 in 2027. This is the expected result of a marked proportional increase in Nauru's resident working-age population, with three in four Nauru residents in this age group, and a decrease in the population younger than 15 years, from 38.5 to 15%.
- These developments will see a significant ageing of the population, reflected in the *median age* rising to 35.5 years, with 10% of the total population expected to be older than 60 years of age in the year 2027.

Figure 15: Future population trend according to three projection variants, 2002–2027



General comments

Table 12 highlights that the impact of fertility on Nauru's population dynamics, particularly future population growth, is less pronounced than that of migration.

All three scenarios have the following characteristics in common:

- the population will be stable or increase until the year 2007;
- the working-age population in 2027 will be higher than in 2002;
- the population 60 years and older will proportionally and in absolute numbers increase; and
- the median age of the population will increase considerably.

Although the *low population growth variant* projection assumptions may seem drastic, it needs to be pointed out that this variant assumes migration rates that are the same as those of the intercensal period 1992–2002, and that fertility has already declined to below a TFR of two in many parts of the world (including New Zealand and Australia).

Population changes close to those presented in Scenario 2 (*medium population growth variant*), appear to be the most likely outcome because:

- the relatively high level of fertility is expected to decline, although slowly, as it has in the recent past and is furthermore expected to do so based on historical worldwide observations of countries with a similar level of fertility. Therefore, the *high population growth variant*, with the assumption of a near-constant high level of fertility, seems to be an unlikely outcome.
- On the other hand, a more rapid fertility decline is not expected to occur because it seems

'uncharacteristic' for Pacific Islands populations. Hence, the *low population growth variant*, assuming a continued fast fertility decline, appears an equally unlikely outcome.

- While it is impossible to predict future migration patterns and levels, the *medium population growth variant* assumption appears to be the most realistic because the high levels of -200 people per annum of the period 1992–2002 were the result of many Tuvaluans and I-Kiribati leaving Nauru just before the census, and an already diminished 'pool' of potential migrants is not conducive to such sustained high negative future net migration rates. On the other hand, continued economic uncertainties as experienced on Nauru may well be conducive to continued negative migration rates for years to come.

7. IMPLICATIONS OF DEMOGRAPHIC TRENDS

7.1 Population dynamics

Fertility

Without current levels of negative migration, fertility levels of four live births per woman and a high rate of natural population growth of 2.5% per annum would see Nauru's population double in just over one generation (28 years).

Should the government wish to promote a reduction in fertility rates, provisions need to be put in place for easier access to family health and planning services that are accessible to both males and females. This would include improving the awareness, knowledge, acceptability, availability and degree of satisfaction of family planning methods and services, especially amongst men and women of childbearing age and adolescents, in order to raise the level of contraceptive usage. This would involve information and counselling services available in all villages through well-trained community workers.

Declining fertility (a reduced number of children per woman) will have the following impact on the population and on development planning and policies:

- a decreasing natural growth rate;
- Nauru's population becoming older (as it reduces the proportion of children); and
- a gradual decline in the number of schoolchildren and, in the medium-to-long term, less pressure on the labour market with fewer school leavers looking for employment.

Mortality

From studies on the level of mortality presented in this profile, it seems that life expectancy at birth, especially for males, has been decreasing and is very low. This unfortunate situation could be counteracted by intensifying health advocacy/public health awareness campaigns promoting healthier lifestyles, as the low overall life expectancy seems to be caused by a growing prevalence of lifestyle diseases such as diabetes, combined with high alcohol consumption, smoking and little exercise.

Furthermore, concerted efforts should be undertaken to improve infant, child and maternal health care programmes, leading to better overall child care, as it is difficult to understand such high infant mortality rates in an environment like Nauru, which does not experience the climate, health conditions (e.g. vector-borne diseases), physical environment, inaccessibility to health services and general communication problems that are prevalent in high IMR Pacific countries such as Solomon Islands, PNG, Vanuatu and Kiribati.

Improved mortality rates mean healthier people living longer lives. The following efforts should be made to continue working towards this goal:

- improve infant, child and maternal health by improving primary health care programmes;
- expand programmes of immunisation;

- provide a hygienic and safe living environment;
- promote healthy nutrition;
- advocate a general healthy lifestyle, including regular physical exercise; and
- discourage smoking and excessive alcohol consumption.

International migration

Nauru's low population increase during the period 1992–2002 was mainly due to high levels of negative net migration that almost counterbalanced Nauru's natural growth. If the current economic situation prevails, this trend will most likely continue in the near future.

It is important to improve migration statistics to be able to maintain an up-to-date population register for planning purposes. This requires reliable compilation of arrival and departure information from all incoming and outgoing passengers, with minimum information requirements concerning data about age, sex and nationality.

7.2 Crosscutting development issues

Health

The health status of each individual and his/her family members is probably the most important concern people have. Therefore, the availability, utilisation and affordability of quality health and medical services are major issues in people's decisions on where to live.

While it cannot be expected that certain special health care facilities will be available to a small and remote population such as Nauru's (because the low number of cases prohibit the operation of state-of-the-art health services that would include the employment of specialists and the purchase and maintenance of expensive equipment), provisions need to be in place to ensure a system of efficient referrals to the nearest health facilities. Also, regular visits of overseas medical specialists are a useful way to meet people's health needs, demands and expectations.

A large concentration of inhabitants in certain districts, for example in Denigomodu at Location, can lead to overcrowded households, which could be the cause of health problems due to poor sanitation, hygiene and sewerage facilities.

Due to Nauru's economic crisis in recent years, some households and families might not be capable of sustaining an acceptable, healthy lifestyle and may need the extra attention of the government or community, since overcrowded, unhealthy living environments will affect everybody in the long run. In particular, the following minimum housing conditions should be ensured: availability of and access to safe and clean water, public electricity and hygienic waste disposal.

The foremost consequence of improved mortality is healthier people living longer lives. As the low life expectancy of the Nauruan population – currently the lowest of all Pacific Island

countries – is predominantly a result of high adult mortality rates, especially amongst men, and also very high infant mortality rates, health promotion should play a far more prominent role in the government's and its development partners' development agendas.

Education

The educational level of a population is a key indicator of the development and quality of life of 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, and 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 better economic performance.

In this regard, it is of benefit that young people leave the country to study at higher educational institutions overseas. However, these people need to be assured of suitable employment in Nauru after completing their education, otherwise it will be difficult to entice them to return.

The Nauruan Government should be concerned about the relatively high level of dropouts, as only a proper education can provide the country with the skilled labour force it needs to maintain or even lift its current living standard. A higher level of education (tertiary level) should be encouraged as much as possible, as this will provide a better yield of workers for the future – people who are able to specialise in areas needed for Nauru's employment requirements.

The government might want to consider re-establishing deterrents against truancy, such as the liaison officers of the past. More emphasis could be placed on broadening the range of subjects and activities offered to make education (and enrolment) more attractive. More well-qualified teachers are urgently required: a student–teacher ratio of 32 at one Nauru secondary school is not conducive to providing a quality learning environment, even less so in the context of high dropout rates at this level.

Changes in Nauru's demographic structure will affect the proportion and size of its school-age population. As outlined by the Medium Variant projection, if the level of fertility does not decrease rapidly, the school-age population will increase from about 2,220 pupils aged 5–15 years in 1992 to over 3,000 by the year 2012. Considering that the average student–teacher ratio is 21, this increase in school-age population will require increased financial commitment to support more teachers, classrooms and learning materials. Some 40 additional teachers and classrooms will be required by 2012 just to maintain current student–teacher ratios.

Students should be encouraged to achieve as advanced an education as possible, as better-educated people have the knowledge to care well for themselves and their families, communities and countries. In general, better-educated people usually have fewer and healthier children and earn a higher income than people with a lower educational background.

Economic activity

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.

Migration movements depend on economic opportunities in Nauru and overseas, and socio-economic developments in Nauru are very much interwoven with developments overseas.

With the government and the Nauru Phosphate Corporation being the main employers in Nauru, any dramatic developments in these two sectors will have serious social and economic consequences. With a downsizing of the public sector expected to occur in the near future in the context of the government's social and economic reform programme, and employment opportunities in the phosphate industry also not expected to increase any further, the government faces a considerable challenge in providing alternative employment opportunities for its growing working-age population.

In Nauru, where the income of the population is mainly derived from outside sources such as trust funds, fishing rights, phosphate royalties etc., which need to be redistributed among the people, a fast-growing and larger population will place increased pressure on these limited resources and lower the average standard of living in the long run if alternative sources of income cannot be found.

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, political parties and community leaders are aware of the needs and aspirations of the people of their country so they can effectively provide for the specific needs of the population and the different population sub-groups. Governments need to be aware of their country's population structure, population processes and socio-economic characteristics in order to plan for an adequate standard of living, and for proper provision and distribution of goods and services.

APPENDIX TABLES

Appendix Table 1: Registered number of births, deaths and infant deaths, and estimated CBR, CDR and IMR, total resident and Nauruan population, 1992–2002

Year/ Period	RESIDENTS							NAURUANS						
	Mid-year/ period population	Births	Deaths	Infant deaths	CBR	CDR	IMR	Mid-year/ period population	Births	Deaths	Infant deaths	CBR	CDR	IMR
1992	9,602	331	64	4	34.4	6.7	12.1	6,841	248	50	0	36.3	7.3	0
1993	9,613	320	70	9	33.3	7.3	28.1	6,891	240	51	3	34.8	7.4	12.5
1994	9,628	335	53	4	34.8	5.5	12.0	6,946	251	42	2	36.1	6.0	8.0
1995	9,645	309	71	8	32.1	7.4	25.9	7,004	232	54	3	33.1	7.7	12.9
1996	9,666	371	82	6	38.4	8.5	16.9	7,067	269	68	4	38.1	9.6	14.9
1997	9,691	356	97	12	36.7	10.0	33.5	7,135	277	79	7	38.8	11.1	25.3
1998	9,718	304	97	9	31.3	10.0	30.1	7,207	232	77	6	32.2	10.7	25.9
1999	9,749	306	82	8	31.4	8.4	26.1	7,284	229	65	3	31.4	8.9	13.1
2000	9,783	311	70	15	31.8	7.2	48.2	7,367	224	59	10	30.4	8.0	44.6
2001	9,821	325	123	29	33.1	12.5	89.2	7,455	256	92	21	34.3	12.3	82.0
2002	9,862	314	92	8	31.8	9.3	25.5	7,549	229	75	6	30.3	9.9	26.2
1992–2002	9,736	326	81.9	10	33.4	8.4	31.4	7,202	244	64.7	6	33.9	9.0	24.2
1992–1997	9,637	337	72.8	7.2	35.0	7.6	21.4	6,975	253	57.3	3.2	36.2	8.2	12.5
1997–2002	9,766	319	93.5	13.5	32.7	9.6	42.3	7,326	241	74.5	8.8	32.9	10.2	36.6

Appendix Table 2: Registered number of births by age of mother, resident and Nauruan population, 1992–2002

RESIDENTS														
Age of mother	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**TOTAL**	**1992–1997**	**1997–2002**
15–19	32	29	33	37	36	41	37	40	47	60	45	438	209	270
20–24	91	81	97	87	99	107	81	118	92	114	111	1,078	562	623
25–29	120	89	84	79	99	90	84	71	90	79	89	974	561	503
30–34	51	65	68	64	70	75	51	43	47	43	45	623	393	304
35–39	29	44	48	40	59	32	30	27	26	23	18	377	253	156
40–44	8	11	4	3	6	12	14	8	7	6	5	84	42	53
45–49	0	0	0	0	1	0	4	0	1	0	0	7	1	5
NS	0	0	0	0	0	0	3	0	0	0	0	3	0	3
TOTAL	**331**	**320**	**335**	**309**	**371**	**356**	**304**	**306**	**311**	**325**	**314**	**3,583**	**2,022**	**1,917**

NAURUANS														
Age of mother	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**TOTAL**	**1992–1997**	**1997–2002**
15–19	24	22	25	28	26	32	28	30	34	47	33	329	157	204
20–24	68	61	73	65	72	83	62	88	66	90	81	809	422	470
25–29	90	67	63	59	72	70	64	53	65	62	65	730	421	379
30–34	38	49	51	48	51	58	39	32	34	34	33	467	295	230
35–39	22	33	36	30	43	25	23	20	19	18	13	282	189	118
40–44	6	8	3	2	4	9	11	6	5	5	4	63	32	40
45–49	0	0	0	0	1	0	3	0	1	0	0	5	1	4
NS	0	0	0	0	0	0	2	0	0	0	0	2	0	2
TOTAL	**248**	**240**	**251**	**232**	**269**	**277**	**232**	**229**	**224**	**256**	**229**	**2,687**	**1,517**	**1,447**

Appendix Table 3: Comparison of estimated ASFR and TFR based on number of registered births, 1992–1997 and 1997–2002

TOTAL RESIDENTS						
Age group of women	Estimated mid-period number of resident women*		Average annual number of registered births		ASFR	
	1992-1997	1997-2002	1992-1997	1997 - 2002	1992-1997	1997-2002
15 - 19	445	483	35	45	0.078	0.093
20 - 24	405	438	94	104	0.232	0.237
25 -29	401	388	94	84	0.233	0.216
30 - 34	368	355	65	51	0.178	0.143
35 - 39	361	364	42	26	0.117	0.071
40 - 44	275	309	7	9	0.026	0.028
45 - 49	167	219	0	1	0.001	0.004
Total	**2,423**	**2,555**	**337**	**319**		
CFR					**139**	**125**
MAC					**28.1**	**27.3**
TFR					**4.3**	**4.0**

NAURUANS						
Age group of women	Estimated mid-period number of resident women*		Average annual number of registered births		ASFR	
	1992-1997	1997-2002	1992-1997	1997 - 2002	1992-1997	1997-2002
15 - 19	380	437	26	34	0.069	0.078
20 - 24	301	360	70	78	0.234	0.217
25 -29	280	282	70	63	0.250	0.224
30 - 34	245	234	49	38	0.200	0.164
35 - 39	230	238	32	20	0.137	0.083
40 - 44	151	194	5	7	0.035	0.034
45 - 49	74	126	0	1	0.002	0.005
Total	**1,661**	**1,871**	**253**	**241**		
CFR					**152**	**129**
MAC					**28.7**	**28.0**
TFR					**4.6**	**4.0**

* Estimated based on age-specific growth rates of female population between 1992 and 2002 censuses

Appendix Table 4: Number of registered deaths by age and sex, 1992–2002

	1992			1993			1994			1995			1996			1997			1998			1999			2000			2001			2002		
Age group	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
0	3	1	4	2	7	9	2	2	4	4	4	8	2	4	6	7	5	12	3	6	9	7	1	8	10	5	15	19	10	29	5	3	8
1–4	1	1	2	1	0	1	2	7	9	4	4	8	5	2	7	4	3	7	2	4	6	3	1	4	0	0	0	1	0	1	0	4	4
5–9	2	0	2	1	0	1	0	1	1	0	2	2	2	0	2	2	1	3	0	1	1	0	3	3	1	0	1	0	0	0	2	0	2
10–14	1	0	1	2	0	2	2	0	2	1	1	2	1	0	1	0	1	1	0	0	0	0	1	1	0	1	1	1	1	2	1	0	1
15–19	2	2	4	3	1	4	0	0	0	3	2	5	2	1	3	3	0	3	5	0	5	2	0	2	4	0	4	1	1	2	0	1	1
20–24	0	0	0	1	0	1	1	0	1	1	1	2	0	0	0	0	0	0	2	2	4	4	1	5	3	2	5	4	3	7	4	0	4
25–29	2	0	2	4	1	5	3	0	3	2	0	2	3	0	3	3	1	4	1	1	2	1	0	1	5	1	6	4	2	6	0	3	3
30–34	3	2	5	1	1	2	0	1	1	1	1	2	2	2	4	4	2	6	3	2	5	1	0	1	3	0	3	1	3	4	4	2	6
35–39	5	6	11	2	0	2	3	1	4	5	1	6	6	3	9	2	3	5	4	3	7	6	3	9	6	0	6	3	6	9	2	5	7
40–44	1	5	6	5	1	6	2	1	3	1	1	2	8	2	10	6	6	12	4	3	7	7	2	9	1	0	1	11	1	12	3	1	4
45–49	3	1	4	1	2	3	3	3	6	5	0	5	4	3	7	8	1	9	6	5	11	5	2	7	3	2	5	5	3	8	7	3	10
50–54	1	4	5	3	1	4	5	0	5	4	2	6	2	0	2	3	2	5	6	2	8	6	3	9	8	3	11	5	10	15	6	2	8
55–59	4	1	5	5	0	5	2	1	3	2	2	4	4	2	6	4	2	6	6	4	10	4	3	7	0	2	2	2	1	3	6	1	7
60–64	5	4	9	1	4	5	2	3	5	2	5	7	2	0	2	6	1	7	4	2	6	3	2	5	0	1	1	7	3	10	6	1	7
65–69	3	0	3	2	4	6	2	1	3	4	0	4	6	1	7	2	3	5	6	4	10	3	1	4	0	0	0	1	4	5	2	5	7
70–74	0	0	0	4	1	5	1	1	2	1	3	4	4	0	4	1	2	3	1	2	3	1	2	3	0	4	4	0	3	3	1	3	4
75+	0	1	1	4	5	9	1	0	1	0	2	2	4	5	9	3	6	9	0	3	3	1	3	4	1	4	5	4	3	7	1	8	9
Total	36	28	**64**	42	28	**70**	31	22	**53**	40	31	**71**	57	25	**82**	58	39	**97**	53	44	**97**	54	28	**82**	45	25	**70**	69	54	**123**	50	42	**92**

Appendix Table 5: Estimated total resident and Nauruan population by age and sex, mid-period 1997–2002

Age group	Total residents			Nauruans		
	Males	Females	Total	Males	Females	Total
0–1	121	113	234	116	108	223
1–4	550	515	1,065	446	412	858
5–9	724	665	1,389	568	532	1,099
10–14	622	563	1,185	516	482	998
15–19	476	483	959	427	437	864
20–24	469	438	907	395	360	756
25–29	402	388	790	306	282	588
30–34	368	355	722	241	234	475
35–39	363	364	727	219	238	457
40–44	288	309	597	165	194	359
45–49	217	219	436	109	126	235
50–54	164	152	316	72	94	165
55–59	100	85	185	41	39	80
60–64	78	49	126	32	32	64
65–69	30	30	60	22	27	49
70–74	17	21	37	12	16	28
75+	10	21	31	9	18	27
Total	**4,997**	**4,769**	**9,766**	**3,695**	**3,631**	**7,326**

Appendix Table 6a: Abridged life table based on deaths and population: total resident males, 1997–2002

Age (x)	nMx	nqx	lx	ndx	nLx	5Px	Tx	ex
0	0.0702	0.0666	100000	6660	94899	0.9308	5247037	**52.5**
1	0.0030	0.0120	93340	1122	370503	0.9879	5152138	55.2
5	0.0012	0.0057	92218	529	459767	0.9958	4781636	51.9
10	0.0005	0.0027	91689	245	457830	0.9857	4321868	47.1
15	0.0053	0.0259	91443	2370	451292	0.9722	3864038	42.3
20	0.0060	0.0298	89073	2651	438740	0.9708	3412746	38.3
25	0.0058	0.0286	86423	2472	425932	0.9679	2974006	34.4
30	0.0073	0.0356	83950	2990	412276	0.9566	2548074	30.4
35	0.0106	0.0514	80960	4164	394391	0.9305	2135798	26.4
40	0.0185	0.0885	76796	6796	366992	0.8952	1741406	22.7
45	0.0261	0.1226	70000	8583	328546	0.8605	1374414	19.6
50	0.0345	0.1587	61418	9749	282717	0.8369	1045868	17.0
55	0.0368	0.1683	51669	8697	236602	0.7968	763151	14.8
60	0.0559	0.2450	42972	10530	188534	0.7198	526549	12.3
65	0.0781	0.3267	32442	10599	135712	0.7316	338015	10.4
70	0.0400	0.1819	21843	3973	99282	0.5092	202303	9.3
75	0.1735	1.0000	17870	17870	103021		103021	5.8

Appendix Table 6b: Abridged life table based on deaths and population: total resident females, 1997–2002

Age (x)	nMx	nqx	lx	ndx	nLx	5Px	Tx	ex
0	0.0441	0.0426	100000	4260	96497	0.9514	5819284	**58.2**
1	0.0039	0.0154	95740	1474	379208	0.9877	5722786	59.8
5	0.0013	0.0062	94266	589	469859	0.9939	5343578	56.7
10	0.0012	0.0059	93677	553	467004	0.9953	4873720	52.0
15	0.0007	0.0034	93124	321	464818	0.9907	4406716	47.3
20	0.0030	0.0151	92803	1401	460512	0.9839	3941898	42.5
25	0.0034	0.0170	91402	1557	453115	0.9810	3481386	38.1
30	0.0042	0.0209	89844	1880	444524	0.9673	3028270	33.7
35	0.0092	0.0448	87965	3937	429983	0.9603	2583747	29.4
40	0.0070	0.0345	84028	2895	412904	0.9534	2153764	25.6
45	0.0122	0.0591	81133	4797	393674	0.9144	1740860	21.5
50	0.0241	0.1138	76337	8684	359973	0.8833	1347186	17.6
55	0.0255	0.1199	67653	8115	317976	0.8626	987212	14.6
60	0.0341	0.1572	59538	9360	274290	0.7392	669236	11.2
65	0.0950	0.3838	50178	19256	202750	0.5769	394946	7.9
70	0.1287	0.4870	30922	15058	116964	0.3914	192197	6.2
75	0.2109	1.0000	15864	15864	75232		75232	4.7

Appendix Table 7a: Abridged life table based on deaths and population: Nauruan males, 1997–2002

Age (x)	nMx	nqx	lx	nDx	nLx	5Px	Tx	ex
0	0.0519	0.0498	100000	4983	95943	0.9457	4898134	**49.0**
1	0.0034	0.0133	95017	1268	376903	0.9892	4802192	50.5
5	0.0009	0.0044	93749	412	467718	0.9962	4425289	47.2
10	0.0006	0.0032	93338	301	465936	0.9849	3957571	42.4
15	0.0055	0.0270	93037	2508	458912	0.9700	3491636	37.5
20	0.0067	0.0332	90528	3004	445133	0.9686	3032723	33.5
25	0.0060	0.0295	87525	2585	431160	0.9601	2587590	29.6
30	0.0104	0.0506	84939	4296	413957	0.9366	2156430	25.4
35	0.0160	0.0768	80643	6194	387731	0.9030	1742473	21.6
40	0.0253	0.1188	74449	8842	350141	0.8463	1354742	18.2
45	0.0428	0.1933	65607	12683	296327	0.7644	1004601	15.3
50	0.0673	0.2880	52924	15244	226509	0.7406	708274	13.4
55	0.0493	0.2193	37680	8262	167745	0.7172	481765	12.8
60	0.0891	0.3643	29418	10716	120300	0.6443	314020	10.7
65	0.0826	0.3422	18702	6399	77511	0.6990	193720	10.4
70	0.0541	0.2383	12303	2932	54183	0.5337	116209	9.4
75	0.1511	1.0000	9371	9371	62026		62026	6.6

Appendix Table 7b: Abridged life table based on deaths and population: Nauruan females, 1997–2002

Age (x)	nMx	nqx	lx	nDx	nLx	5Px	Tx	ex
0	0.0264	0.0258	100000	2576	97752	0.9686	5685786	**56.9**
1	0.0032	0.0128	97424	1250	386550	0.9914	5588034	57.4
5	0.0006	0.0031	96174	301	480119	0.9950	5201485	54.1
10	0.0014	0.0069	95873	660	477716	0.9956	4721365	49.2
15	0.0004	0.0019	95213	181	475612	0.9910	4243649	44.6
20	0.0032	0.0161	95032	1525	471346	0.9832	3768037	39.7
25	0.0035	0.0176	93506	1642	463427	0.9772	3296691	35.3
30	0.0057	0.0281	91864	2584	452863	0.9605	2833264	30.8
35	0.0105	0.0513	89281	4576	434965	0.9472	2380401	26.7
40	0.0112	0.0544	84705	4607	412007	0.9319	1945437	23.0
45	0.0172	0.0827	80098	6622	383934	0.8858	1533430	19.1
50	0.0321	0.1485	73476	10912	340101	0.8320	1149495	15.6
55	0.0422	0.1909	62564	11946	282958	0.8109	809394	12.9
60	0.0412	0.1868	50619	9456	229453	0.7186	526436	10.4
65	0.0993	0.3977	41162	16372	164883	0.5265	296982	7.2
70	0.1711	0.5993	24791	14857	86811	0.3428	132100	5.3
75	0.2193	1.0000	9934	9934	45289		45289	4.6

Appendix Table 8: Non-Nauruan population by years spent in Nauru, 2002

Years spent in Nauru	Total	Male	Female
1	216	111	105
2	190	104	86
3	152	75	77
4	142	71	71
5	144	81	63
6	144	73	71
7	143	76	67
8	138	81	57
9	115	62	53
10–14	233	132	101
15–19	185	109	76
20–24	112	69	43
25+	129	68	61
Not stated	116	46	70
Blank	141	75	66
Total	**2,300**	**1,233**	**1,067**

Appendix Table 9a: Estimated total number and percentage distribution of net migrants by age and sex, total resident population, 1992–2002

Age group	Total numbers			Percentage distribution		
	Total	Males	Females	Total	Males	Females
0–4	-477	-232	-245	21.0	10.2	10.8
5–9	-307	-150	-157	13.5	6.6	6.9
10–14	-411	-210	-202	18.1	9.2	8.9
15–19	-300	-142	-158	13.2	6.3	7.0
20–24	-87	-27	-61	3.8	1.2	2.7
25–29	-46	-4	-41	2.0	0.2	1.8
30–34	-47	-13	-34	2.1	0.6	1.5
35–39	-53	-27	-26	2.3	1.2	1.1
40–44	-103	-52	-52	4.5	2.3	2.3
45–49	-139	-69	-69	6.1	3.1	3.1
50–54	-105	-58	-47	4.6	2.6	2.1
55–59	-81	-46	-35	3.6	2.0	1.5
60–64	-72	-43	-29	3.2	1.9	1.3
65–69	-41	-25	-17	1.8	1.1	0.7
Total	**-2,270**	**-1,098**	**-1,172**	**100.0**	**48.4**	**51.6**

Source: Based on 1992 and 2002 census population, and interpolation of birth cohorts

Appendix Table 9b: Estimated total number and percentage distribution of net migrants by age and sex, Nauruan population, 1992–2002

Age group	Total numbers			Percentage distribution		
	Total	**Males**	**Females**	**Total**	**Males**	**Females**
0–4	-208	-89	-119	18.4	7.9	10.5
5–9	-176	-90	-86	15.6	8.0	7.7
10–14	-209	-110	-99	18.5	9.7	8.7
15–19	-140	-66	-74	12.4	5.9	6.6
20–24	-97	-43	-54	8.5	3.8	4.8
25–29	-106	-51	-55	9.3	4.5	4.9
30–34	-79	-45	-34	7.0	4.0	3.0
35–39	-46	-29	-17	4.1	2.6	1.5
40–44	-40	-19	-21	3.6	1.7	1.9
45–49	-29	-15	-15	2.6	1.3	1.3
Total	**-1,130**	**-556**	**-574**	**100.0**	**49.2**	**50.8**

Source: Based on 1992 and 2002 census population, and interpolation of birth cohorts

Appendix Table 10: Base population for projections: 2002 census resident population by age and sex

Age group	Total	Males	Females
0–4	1,219	625	594
5–9	1,368	723	645
10–14	1,215	641	574
15–19	1,006	502	504
20–24	953	496	458
25–29	778	397	381
30–34	717	369	348
35–39	735	369	366
40–44	619	289	329
45–49	488	235	254
50–54	339	163	176
55–59	183	95	88
60–64	125	78	47
65–69	57	30	26
70–74	37	18	19
75+	33	9	24
Total	**9,872**	**5,040**	**4,832**

Note: 'Not stated' cases of the 2002 census are distributed proportionately according to the population by age.

Technical note on life tables

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 'nMx' 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 'lx' shows the number of people alive at the beginning of each age interval, starting with 100,000 at birth.

Column 'ndx' shows the number who would die within each age interval.

Column 'nLx' shows the total number of person-years that would be lived within each age interval.

Column 'Tx' 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 'ex' – the average number of years remaining for a person at a given age interval. The first value in column 'ex' represents life expectancy at birth.

Source: *The Population Reference Bureau's Population Handbook* by Arthur Haupt & Thomas T. Kane, 4th international edition, Population Reference Bureau, 1998.

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