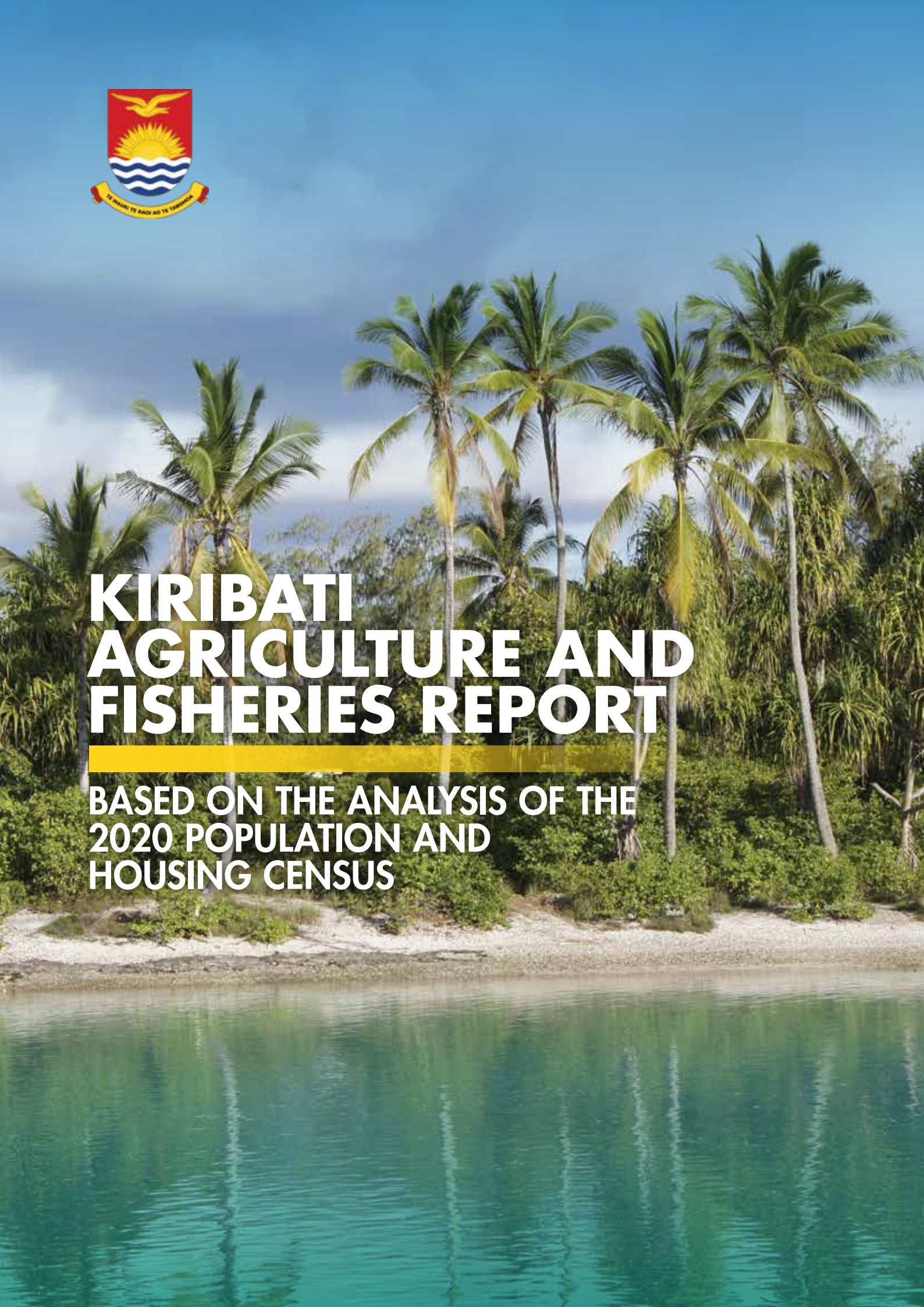

KIRIBATI AGRICULTURE AND FISHERIES REPORT

BASED ON THE ANALYSIS OF THE 2020 POPULATION AND HOUSING CENSUS

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Foreword

The 2020 Population and Housing Census of Kiribati was the 14th census conducted in Kiribati since the first in 1931, and follows on from the previous 2015 Census. Census enumeration began on the 7th November 2020 and captured detailed demographic information for every province, district, island and village in the Republic of Kiribati.

This analytical report provides important agricultural data collected by integrating some key agricultural questions on the Population and Housing Census in 2020, including issues of cropping and livestock activities as well as household fishing and handicraft activities.

The report is supplemented by agriculture-related information collected in the 2010 and 2015 Population and Housing Censuses and the 2019 Kiribati Household Income and Expenditure Survey (HIES).

Statistically sound data and information is fundamental in accounting for the full potential of the country and its population, understanding developmental opportunities, as well as vulnerabilities particularly in measuring a country's progress towards sustainable development and the eradication of hunger, malnutrition and poverty. It is hoped that planners, policy-makers, the business community and Non-Governmental Organizations will make good use of the report to formulate policies that will improve the social and economic developments of Kiribati.

The 2020 Census was made possible with the financial contribution of the Government of Kiribati and Development partners and organisations and the technical support provided by the UNPFA and Secretariat of Pacific Communities (SPC or Pacific Community). The SPC assisted with the development of the electronic questionnaire, training for the main fieldwork, field collections of the census using CAPI (Computer Assisted Personal Interview) technology, data processing and the census tabulations.

I would like to express the deep appreciation to the following: Ms Xiangjun Yao (FAO Sub Regional Coordinator for the Pacific) for her support for the project and activities under which this report is funded, and Ms Rasmiyya Aliyeva (FAO Statistician for the Pacific) for coordinating the project and publication process. Many thanks to Mr David Brereton, an International Consultant, who was engaged by FAO to prepare this report and to the Pacific Community Statistics for Development Division, especially Mr Olivier Menaouer, for the amazing work in processing and tabulating the data needed for the analysis.

This report was funded through the FAO Technical Cooperation Program project TCP/SAP/3705 and GCP/KIR/009/GFF.

The 2020 Kiribati Population and Housing Census would not have been successfully delivered without the active support of the leaders of each Island and the people of Kiribati in completing the census, and the fine efforts of the National Statistics Office staff and contract workers.

Aritita Tekaieti (Mrs)
Republic Statistician

Abbreviations

ACIAR	Australian Centre for International Agricultural Research
ADB	Asian Development Bank
ALD	Agriculture and Livestock Division
A$ or AUD	Australian Dollars (currency)
CAPI	Computer-assisted personal interviewing
EA	Enumeration Area
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GoK	Government of Kiribati
HIES	Household Income and Expenditure Survey
Km	Kilometers
KNSO	Kiribati National Statistics Office
Mi	Miles
NCDs	Non-communicable Diseases
PHC	Population and Housing Census
Rural Islands	Includes all islands other than South Tarawa, Betio and Kiritimati Islands
SDG	United Nations Sustainable Development Goals
UNPFA	United Nations Population Fund Activities
Urban Islands	Includes South Tarawa, Betio and Kiritimati Islands

EXECUTIVE SUMMARY

Background

This report provides an analysis of the agricultural data derived from the 2020 Kiribati Population and Housing Census (hereafter referred to as the Census), which was conducted on 7th November 2020.

The Census questionnaire included a number of specific agriculture questions, which allowed the classification of households engaged in agriculture and its sub-sectors (cropping, livestock, fishing and handicrafts), the level of agricultural activity, type of crops planted, types of livestock raised, fisheries and handicraft activities. Also included were questions relating to cutting of trees for house building and household waste problems.

In general, the information gathered from the agricultural questions provides an assessment of the current state of the agriculture sector in Kiribati, including information on the characteristics of the households engaged in the agriculture sector and its subsectors.

The report is supplemented by agriculture-related information collected in the 2010 and 2015 Population and Housing Censuses where available and information from the 2019 Kiribati Household Income and Expenditure Survey (HIES).

Details of the analysis are presented in different chapters. The first chapter is an introduction that describes the current state of the agriculture sector and an overview of its contribution to the Kiribati economy. Chapter 2 broadly discusses agriculture households, with more detailed subsector analysis presented in Chapters 3 to 6. Chapter 7 discusses household demographics and employment data, Chapter 8 discusses environment issues and impacts of climatic and natural disaster events on Kiribati households, Chapter 9 provides commentary on the wealth index and food security while the final chapter discusses the main findings, conclusions and recommendations from the Census.

About Kiribati

Kiribati is a Micronesian island nation located in the central Pacific Ocean consisting of 32 atolls and one raised coral island. The country has a physical land size of 811 square kilometres (313 square miles), dispersed over 3.5 million square kilometres (1.35 million square miles) of ocean.

The terrain is mostly low-lying coral atolls surrounded by extensive reefs, with a total coastal area of 1,143 km. The atolls extend about 3,900 km (about 2,400 mi) from east to west and about 2,100 km (about 1,300 mi) from north to south straddling the equator.

The majority of the atolls are barely more than six metres above sea level and surrounded by barrier reefs creating picturesque lagoons for fishing, snorkelling, scuba diving, swimming and other water sports.

The capital, South Tarawa, is about half way between Hawaii and Australia.

Kiribati is one of the world's poorest countries. It has few natural resources. Commercially viable phosphate deposits were exhausted at the time of independence in 1979.

Agriculture, along with forestry and fishing, contributed 26.2% to the GDP of Kiribati (KNSO, 2020 preliminary).

Many of the working population are involved in subsistence agriculture. The soil in Kiribati is considered amongst the most infertile in the world, being young, shallow and alkaline, limiting conventional agricultural methods. The country has developed a sustainable farming system based on the traditional method of te bwabwai pits, which involves an extensive composting technique using pits dug to a depth of between one and eight metres and then filled with compost.

The most common agricultural livestock are pigs and chickens, largely raised under a subsistence production system, partly due to the size of the islands. In 2018 agricultural land accounted for 42% of total land area.

The main crops produced in Kiribati include copra, coconut, breadfruit, bananas and vegetables including cassava, sweet potato and cabbage. Copra continues to be Kiribati's main agricultural export with 623 tonnes exported in 2020 with an export value of A$353,000 (KNSO, 2020 preliminary estimate). This was well down on the 7,260 tonnes (valued at A$6.3 million) exported in 2017.

2020 Population and Housing Census Findings

The 2020 Kiribati Population and Housing Census estimated a total population of 119,438 people and 20,354 households across Kiribati. This represented increases of 8.4 percent in the population count and 14.5 percent in the number of households compared with results from the previous Population and Housing Census conducted in 2015. Females accounted for 51 percent of the total population.

Slightly over 41 percent of the nation's population were aged 17 years and under, 45 percent were aged 18 years to 49 years, and 14 percent were aged 50 years and over.

Kiribati's capital city and most populated island is South Tarawa. Located on a separate islet at the extreme southwest of South Tarawa is Betio, the country's main port and largest township in South Tarawa. Combined, South Tarawa and Betio accounted for 9,444 households (46 percent of all households) and a reported population of 63,072, or almost 53 percent of the nation's population.

The largely subsistence nature of Kiribati's agricultural sector is evidenced by the number of households in the Census who reported undertaking some form of agricultural activity. Of the 20,354 total households, 15,467 (76 percent) reported some type of agricultural activity, including livestock raising (reported by 68 percent of all households), crop growing (44 percent), fishing activity (47 percent) and handicrafts (22 percent). Many households undertake a combination of these activities, including mixed farming (both cropping and raising livestock), cropping and/or raising livestock as well as fishing etc.

These numbers were considerably higher on several of the Outer Islands, where over 85 percent of households reported engaging in agricultural activities of some kind. Understandably, on the more densely populated South Tarawa and Betio, where the population density is 4,000 people per square kilometre, there was less reporting of cropping households (34 percent of households) and livestock raising (57 percent of households).

The following table provides a summary of the key findings on population, households and the agriculture sector from the 2020 Census.

TABLE 1
Kiribati and Agriculture Sector at a Glance: 2020

Total Number of Households	20 354 households	
Population	**Number**	**Percentage**
Total	119 438	
Male Population	58 904	49%
Female Population	60 534	51%
Median age of population	22 years	
• Median age of Male Population	21 years	
• Median age of Female Population	24 years	
Population Distribution (age groups)	**24 years**	**Percentage**
0–9 years	29 693	25%
10–19 years	23 527	20%
20–44 years	44 381	37%
45–59 years	14 194	12%
50 years +	7 643	6%
	Number	**Percentage**
Households Engaged in Agriculture	15 467	76%
Male-headed Households engaged in Agriculture	11 616	75%
Female-headed Households engaged in Agriculture	3 851	25%
Heads of Households Engaged in Agriculture - Level of Education Attained	**Number**	**Percentage**
No qualification	382	3%
Primary school	2 044	13%
Lower Secondary school	6 707	43%
Upper Secondary school	5 536	35%
Tertiary	978	6%
Crop Production	**Number**	**Percentage**
Households engaged in crop production	8 979	44%
Male-headed Households engaged in crop production	6 814	76%
Female-headed Households engaged in crop production	2 165	24%
Households Engaged in Crop Production by Main Crop Type Grown	**Number**	**Percentage**
Coconut	6 715	33%
Breadfruit	5 202	26%
Pumpkin	4 175	21%
Banana	4 162	20%
Babai	3 901	19%
Kumala (Sweet Potato)	2 266	11%
Cabbage	2 096	10%
Cassava	1 682	8%

Total Number of Households	20 354 households	
Households Engaged in Cutting Toddy	**Number**	**Percentage**
Number of Households engaged in cutting Toddy	2 704	13%
Livestock Raising	**Number**	**Percentage**
Households engaged in livestock raising	13 811	68%
Male-headed Households engaged in livestock raising	10 487	76%
Female-headed Households engaged in livestock raising	3 324	24%
Households raising Livestock and Livestock numbers	**Number**	**Number of livestock**
Local Pigs	13 407	39 548
Cross-breed Pigs	1 108	1 959
Local Chickens	4 052	44 026
Cross-breed Chickens	179	1 849
Ducks	33	68
Other	250	409
Households Engaged in Fishing Activities	**Number**	**Percentage**
Number of Households fishing	9 663	47%
Number of Households fishing in lagoons	4 874	24%
Number of Households fishing in lagoon flat	3 829	19%
Number of Households fishing in ocean	2 858	14%
Number of Households fishing in reef flat	4 100	20%
Number of Households fishing in outer reef	1 574	8%
Number of Households fishing in other locations	138	1%
Households Engaged in Handicrafts	**Number**	**Percentage**
Number of Households engaged in handicrafts	4 406	22%
Households engaged in Forestry	**Number**	**Percentage**
Number of Households cutting trees for house building	9 764	48%
Main activity of agriculture or fishing		
Number of Household Members aged over 15 years whose main activity was agriculture or fishing	5 307	7%

SOURCE: 2020 Census

CHAPTER 1
AN OVERVIEW OF THE AGRICULTURE SECTOR IN THE KIRIBATI ECONOMY

1.1 Overview

Kiribati is a Micronesian island nation located in the central Pacific Ocean consisting of 32 atolls and one raised coral island. The country has a physical land size of 811 square kilometres (313 square miles), dispersed over 3.5 million square kilometres (1.35 million square miles) of ocean.

The terrain is mostly low-lying coral atolls surrounded by extensive reefs, with a total coastal area of 1,143 km. The atolls extend about 3,900 km (about 2,400 mi) from east to west and about 2,100 km (about 1,300 mi) from north to south straddling the equator.

Kiribati is one of the world's poorest countries and has few natural resources. Commercially viable phosphate deposits were mined and profitably exported from the turn of the 20th century but were exhausted at the time of independence in 1979.

The national income of Kiribati is determined more by earnings from abroad including fishing licenses, remittances of Kiribati seamen and investment earnings from the Kiribati Sovereign Wealth Fund than the domestic production of good and services. Private sector development is constrained by the small size and scale of the economy, the high cost of doing business and the country's widely dispersed population.[1]

Other economic sectors namely, agriculture and public administration and defence, account for 26% and 20% of Gross Domestic Product (GDP) respectively in 2020 (KNSO, 2021).

Kiribati's key exports are limited to coconut products and fish, with exports of these products valued at A$11.3 million in 2020, or 83 percent of the country's total export value of A$13.5 million. Due to its limited natural resource base, the country is highly dependent on imports. Kiribati's trade deficit is relatively high and was estimated at A$144.8 million in 2020.

Food imports in 2020 were valued at A$58.4 million, accounting for almost 37 percent of the nation's total imports of A$158.3 million.[2]

Most of the economic activity of Kiribati takes place in the capital, South Tarawa.

Physically, Kiribati has some of the world's smallest islets, but also has - in Kiritimati (Christmas Island) - the world's largest atoll. The nation is facing numerous economic, social, demographic and environmental challenges, but the greatest challenge is the tyranny of distance. The country has limited natural resources and, for those natural resources it does possess (e.g. fisheries), it has insufficient capacity to exploit them for maximum national benefit.

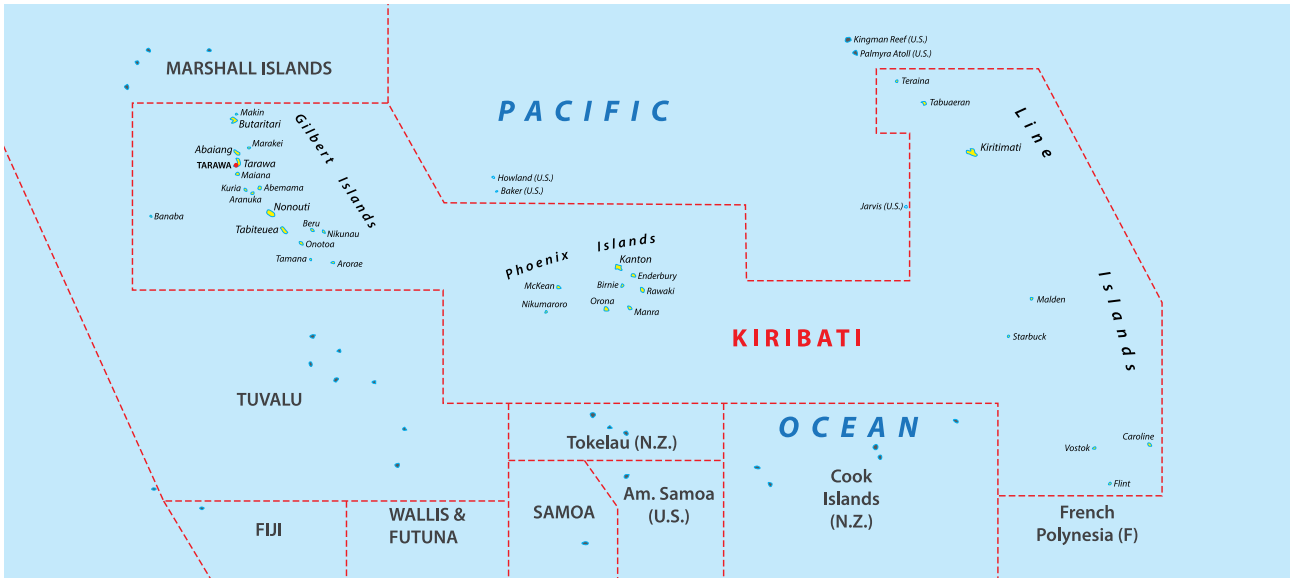
GDP per capita is one of the lowest amongst the Pacific Island nations and with limited exports and rising costs of imports the country runs a trade deficit. The heavy dependence on imported staple foods (such as rice and flour), coupled with rising global food prices poses a serious threat to both Kiribati's food and nutrition security. Average annual household income is about A$16,700 and an estimated 46 per cent is spent on food, which constitutes the single largest expenditure group.[3]

1 Kiribati Agriculture Strategy, 2020-2030.

2 International Trade Statistics (Kiribati National Statistics Office, 2021).

3 Household Income and Expenditure Survey (HIES), (Kiribati National Statistics Office, 2019).

FIGURE 1
Map of Kiribati



SOURCE: ShutterStock/Rainer Lesniewski

Increased urbanization on South Tarawa due to migration of population from the outer islands is accentuating social issues and environmental problems. A high priority for the government is to provide sustainable livelihood opportunities on the outer islands. As a low low-lying atoll nation, adaptation to the impacts of climate change is being mainstreamed into national development policy.

Agriculture and fisheries are vital for food security, sustainable livelihoods and for national economic growth.

Kiribati is estimated to need 50 percent more food by 2030 to feed its growing population. Extreme weather conditions and rising sea levels threaten agriculture production and livelihoods. Overfishing and unregulated commercial development is reducing costal fisheries and marine stocks. It is estimated that 25 percent of children under five are underweight; 38 percent of men and 54 percent of women, 20 years and above, are obese.[4]

Due to increasing populations in several Pacific island countries and the impacts of climate change on reef fisheries, it is estimated that Fiji, Kiribati, Samoa and Vanuatu are among some of the countries where coastal fisheries will not be able to meet the fish supply needed by 2035. It has been estimated that Kiribati will require an additional 9,000 tonnes of fish to meet domestic demand.[5]

The scope and goals of the *Kiribati Agriculture Strategy 2020-2030* are to ensure the integrated development of agriculture to bring about meaningful actions and positive transformational change at the community level across Kiribati, not only in terms of increased agricultural production and outputs, but also improved incomes and livelihood, nutrition, health, and living standards.

Given its size, land is scarce in Kiribati. In most island countries of the South Pacific there is customary land, i.e. land held in accordance with traditional customs of indigenous people of those islands (USP, 2012). Around 37 percent of Kiribati's total land area is under customary land ownership and the remaining is state land, including all islands in the Line and Phoenix Group which are owned by the Government of Kiribati (GoK).

In Kiribati, the effects of climate change are already being felt. Some of the observed changes that will continue to have an impact on agriculture production include increase in air temperatures, changes in rainfall patterns, increased incidence of extreme weather events, and sea level rise through saltwater inundation of groundwater and the limited soil available. All these climate impacts are disrupting and impeding agricultural production in particular the rising sea level which is reducing available land for agriculture and human occupation.

4 Kiribati Agriculture Strategy, 2020-2030.

5 ACIAR 'Improving community-based aquaculture in Fiji, Kiribati, Samoa and Vanuatu', 2019.

Another environmental issue that can affect agriculture production include water pollution due to poor waste management. Raising of domestic animals near water sources, and lack of appropriate waste management at farm levels threaten to pollute the water table. In the outer islands, limited water availability can lead to competition for water supply between crop and livestock production, and household use. Kiribati is already experiencing water scarcity in some islands. This risk is further exacerbated due to a growing population. There is therefore a critical link between improvements in water management, such as rainwater harvesting systems, and increased agricultural production.

In 2018, it was estimated that available agriculture land was 42 percent of the nation's total land, compared to 53 percent in 1964. This equates to an estimated 34,000 hectares of land for agriculture.[4] The forest area in Kiribati is estimated to be 11.8 square kilometres (1,180 hectares) or less than 1.5 percent of total land area.[6]

Livestock production in the country is mainly at subsistence level, with pigs and free-range chicken being the main livestock raised. Most households on the outer islands keep a few pigs and a number of local chickens. Opportunities for import substitution through improved livestock management and production is a key strategic objective for the agriculture department. A decisive factor determining increased livestock production is the cost of animal feed since such feed has to be imported. Further experimentation with local feed materials and appropriate animal breeds is warranted. Improvement of local breed of pigs and chicken through breeding and introduction of improved breeds is a priority.

Traditional knowledge for fishing, farming, and care for domestic and wild plants and animals has declined over time. Traditional forms of food preparation and preservation are largely unknown to young people. The result has been a decline in the application of traditional agriculture practices and in the consumption of traditional and local produced foods. Today, most of the atolls are dependent on imported foods which, compared to local produce, are mostly inferior in nutritional quality. This has contributed to a rapid increase in the level of NCDs (Non-communicable Diseases) including diabetes, heart disease, stroke, obesity, dental disease, and cancer.[7]

Aquaculture is seen as another important area for further development to enhance employment and income opportunities. Export oriented aquaculture will continue to face stiff competition from countries with low production costs and efficient transportation links to major markets. There is already a body of knowledge available in the country on mariculture production and commercial aspects of such operations. The major task is developing models that can translate this knowledge, including ongoing research and experimentation, to the community level. A clear strategic programme for development which is well coordinated and has strong private sector involvement needs to be implemented. Innovative financing solutions for budding entrepreneurs need to be considered; including credit guarantee schemes coupled to business and technical skills training.[8]

1.2 Agriculture Sector Contribution to Kiribati's Gross Domestic Product

In 2020, agriculture, forestry and fishing, contributed A$68.8 million (or 26.2 percent) to the GDP of Kiribati (KNSO,2021 preliminary). In the past decade the Agriculture and Forestry sub-sector's value contribution to Kiribati's GDP increased steadily to a peak of A$52.7 million in 2017 and preliminary estimates have this at just under A$45 million in 2020 (Figure 2). It decreased almost 25 percent in 2018 largely due to a slump in copra-based exports, including copra, crude oil and copra meal, but has again seen growth of 0.8 percent and 12 percent in 2019 and 2020 respectively (Figure 3).

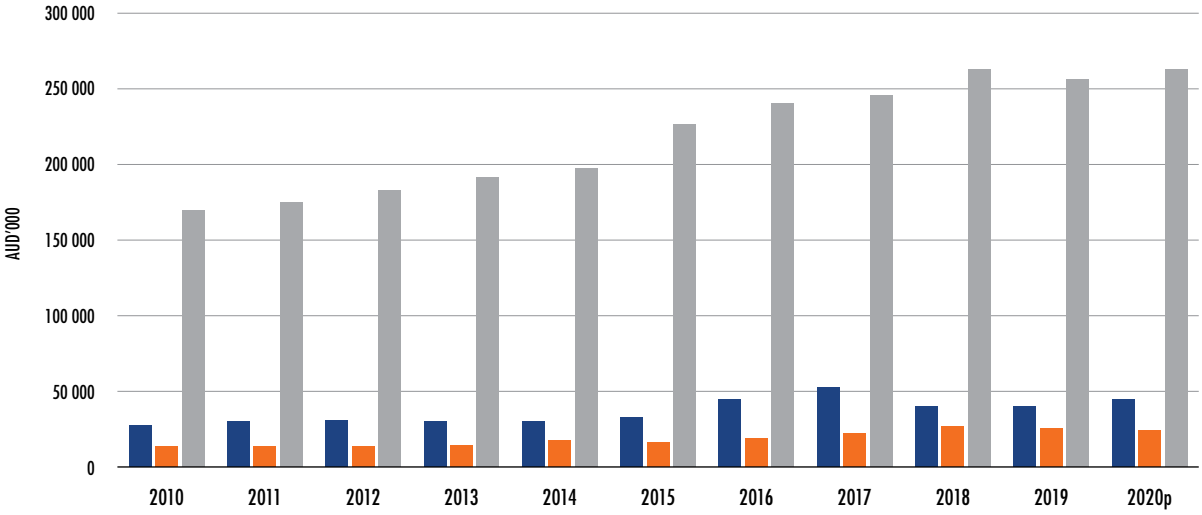
The Fishing industry's GDP contribution remained fairly consistent between 2010 and 2013 before increasing by over 20 percent in 2014. It fell back slightly in 2015 but soon recovered with gains in excess of 17 percent in each of the next three years. The past two years have seen slight reductions with a preliminary estimate of almost A$24 million in 2020, or 9 percent of the country's total GDP (Figures 2 and 3).

6 World Bank Country Profile, 2020.

7 Kiribati Agriculture Strategic Plan 2013-2016, Agriculture and Livestock Division (ALD), 2013.

8 FAO Situation Analysis and Agriculture Sector Overview (https://www.fao.org/fileadmin/user_upload/sap/docs/Kiribati.pdf).

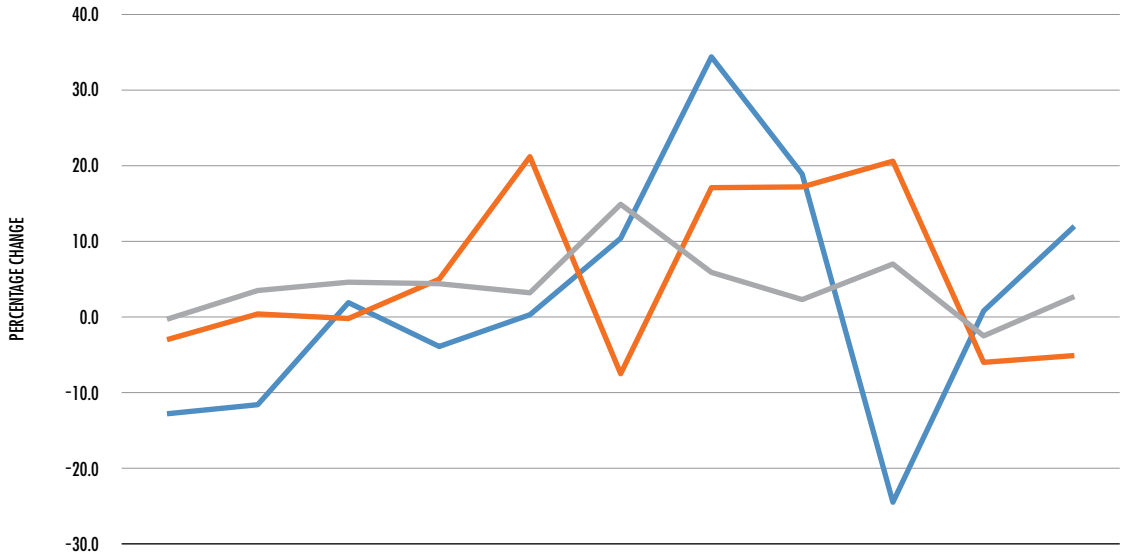
FIGURE 2
GDP at current prices, Kiribati (2010–2020)



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020p
Agriculture and forestry	27 254	30 408	30 977	29 762	29 847	32 961	44 303	52 672	39 775	40 098	44 914
Fishing	13 705	13 763	13 737	14 430	17 491	16 184	18 944	22 207	26 792	25 179	23 898
Total GDP	169 308	175 156	183 145	191 158	197 320	226 674	240 131	245 553	262 635	255 960	262 883

Note: 2020p means preliminary data for 2020
SOURCE: KNSO National Accounts, 2021

FIGURE 3
Annual Percentage Change in GDP, Kiribati (2010–2020)



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020p
Agriculture and forestry	-12.2	11.6	1.9	-3.9	0.3	10.4	34.4	18.9	-24.5	0.8	12.0
Fishing	-3.0	0.4	-0.2	5.0	21.2	-7.5	17.1	17.2	20.6	-6.0	-5.1
GDP at market prices	-0.3	3.5	4.6	4.4	3.2	14.9	5.9	2.3	7.0	-2.5	2.7

SOURCE: KNSO National Accounts, 2021

1.3 Agriculture Exports and Imports

Kiribati's key exports are limited to coconut products and fish, with exports of these products valued at A$11.3 million in 2020, or 83 percent of the country's total export value of A$13.5 million. Due to its limited natural resource base, the country is highly dependent on imports. Kiribati's trade deficit is relatively high and was estimated at A$144.8 million in 2020.

Food imports in 2020 were valued at A$58.4 million, accounting for almost 37 percent of the nation's total imports of A$158.3 million.[9]

1.4 Agricultural Employment

According to the Census results, there were 76,521 persons of working age (15 years old and over) (64 percent of the total population) in Kiribati in 2020.

Of these, 30,267 persons (40 percent) were employed, including 7,029 workers (23 percent) who reported their main industry as Agriculture, forestry and fishing. This ranked the industry second behind the Wholesale and retail trade industry with 8,816 workers (29 percent) with the next highest being the Public Administration and Defence industry with 4,380 workers (14 percent).

Of the 7,029 workers reported in the Agriculture, forestry and fishing industry in 2020, 85 percent were males and the average (mean) age was one of the youngest of all industries at 36 years (Table 2 and Figure 4).

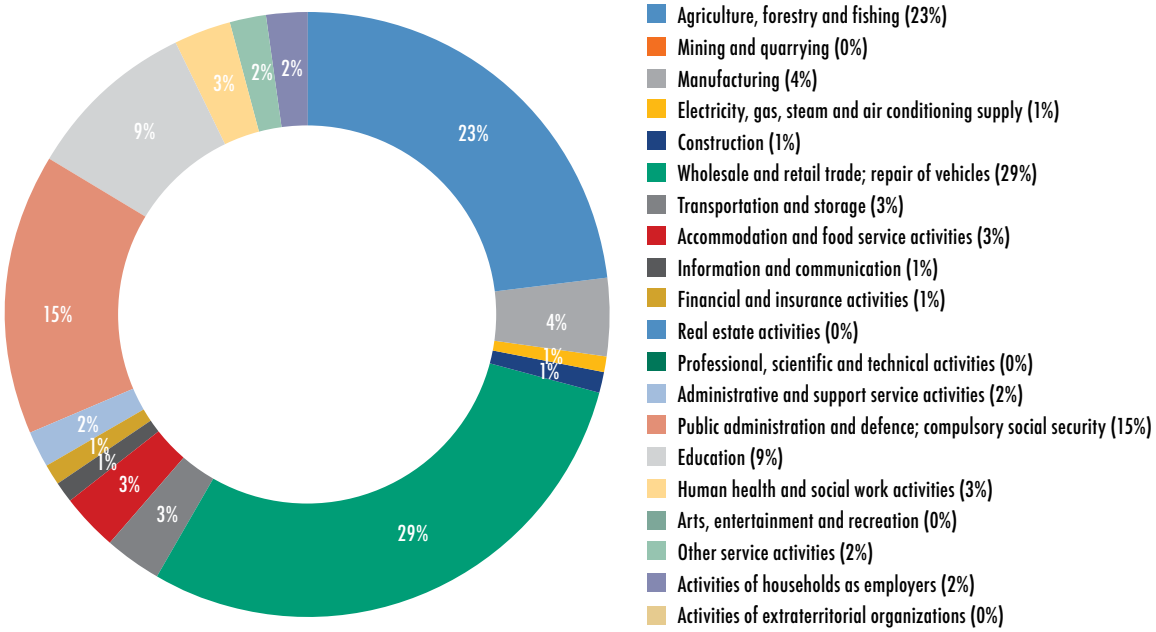
TABLE 2
Number of persons by main industry, gender and age, Kiribati: 2020

Industry	Total	Sex		Age					Average age
		Male	Female	15–19	20–24	25–44	45–59	60+	
TOTAL	30 267	16 922	13 345	924	3 467	17 215	6 889	1 772	
Agriculture, forestry and fishing	7 029	5 970	1 059	466	1 008	3 766	1 420	369	36
Mining and quarrying	15	13	2	0	2	10	3	0	37
Manufacturing	1 225	326	899	17	86	563	395	164	43
Electricity, gas, steam and air conditioning supply	149	117	32	0	13	89	45	2	39
Construction	435	424	11	8	34	278	96	19	38
Wholesale and retail trade; repair of vehicles	8 816	4 059	4 757	243	1 102	4 695	2 028	748	39
Transportation and storage	1 024	735	289	15	88	690	211	20	37
Accommodation and food service activities	912	285	627	24	104	501	236	47	38
Information and communication	155	85	70	1	21	110	20	3	36
Financial and insurance activities	182	73	109	0	22	130	28	2	36
Real estate activities	98	83	15	3	8	55	29	3	38
Professional, scientific and technical activities	82	66	16	1	11	45	22	3	38
Administrative and support service activities	634	430	204	12	64	388	147	23	38
Public administration and defence; compulsory social security	4 380	2 576	1 804	38	476	2 801	949	116	37
Education	2 646	658	1 988	8	188	1 707	647	96	39
Human health and social work activities	953	253	700	2	93	653	187	18	37
Arts, entertainment and recreation	63	35	28	1	12	39	8	3	35
Other service activities	676	437	239	5	21	360	231	59	43
Activities of households as employers	739	268	471	80	113	310	163	73	37
Activities of extraterritorial organizations	54	29	25	0	1	25	24	4	44

SOURCE: 2020 Census

[9] International Trade Statistics (Kiribati National Statistics Office, 2021).

FIGURE 4
Employed Persons by Main Industry, Kiribati (2020)



SOURCE: 2020 Census

In terms of worker numbers, the Agriculture, forestry and fishing industry reflected a 3.2 percent increase on the 6,812 workers reported in in the previous 2015 Population and Housing Census. However, the number of females reported in the industry decreased from 1,600 to 1,059 between 2015 and 2020, a drop of almost 34 percent.

Whilst there was the slight increase in the number of Agriculture, forestry and fishing workers across the five year period, comparing the various industries of employment between 2015 and 2020, shows that the proportion of persons employed in the Agriculture, forestry and fishing Industry decreased slightly from 24 percent to 23 percent, with increases recorded in the Wholesale and retail trade and Public Administration and defence industries. The other main reductions occurred in the Manufacturing and Construction Industries (Table 3 and Figure 5).

TABLE 3
Proportion of employed persons by main industry and gender, Kiribati: 2015 and 2020

Industry	Total		Male		Female	
	2015	2020	2015	2020	2015	2020
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Agriculture, forestry and fishing	24.2%	23.2%	32.2%	35.3%	13.4%	7.9%
Manufacturing	14.2%	4.0%	5.8%	1.9%	25.6%	6.7%
Construction	3.0%	1.4%	4.8%	2.5%	0.5%	0.1%
Wholesale and retail trade; repair of vehicles	12.3%	29.1%	10.8%	24.0%	14.3%	35.6%
Transportation and storage	4.4%	3.4%	5.6%	4.3%	2.7%	2.2%
Accommodation and food service activities	2.3%	3.0%	1.6%	1.7%	3.3%	4.7%
Financial and insurance activities	0.8%	0.6%	0.5%	0.4%	1.3%	0.8%
Public administration and defence; compulsory social security	12.5%	14.5%	13.5%	15.2%	11.1%	13.5%
Education	6.9%	8.7%	3.7%	3.9%	11.2%	14.9%
Human health and social work activities	0.5%	3.1%	0.4%	1.5%	0.6%	5.2%
All other industries	18.9%	8.8%	21.0%	9.2%	16.0%	8.3%

SOURCE: 2015 and 2020 Censuses

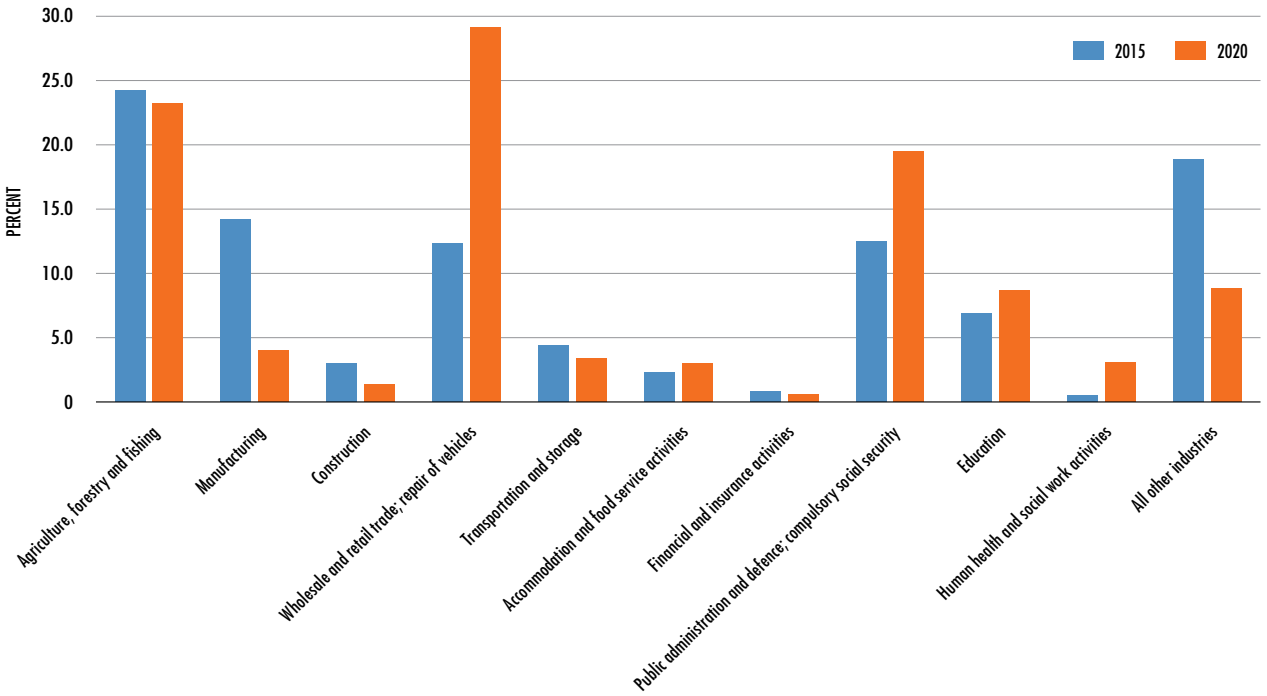
1.5 Kiribati Agriculture Development Strategy

In developing the *Kiribati Agriculture Strategy 2020-2030* (KAS), a problem tree analysis tool was used to identify the focal problem of declining agriculture production and local engagement in Kiribati and to identify its related causes and effects (Figure 6).

The main causes identified were:

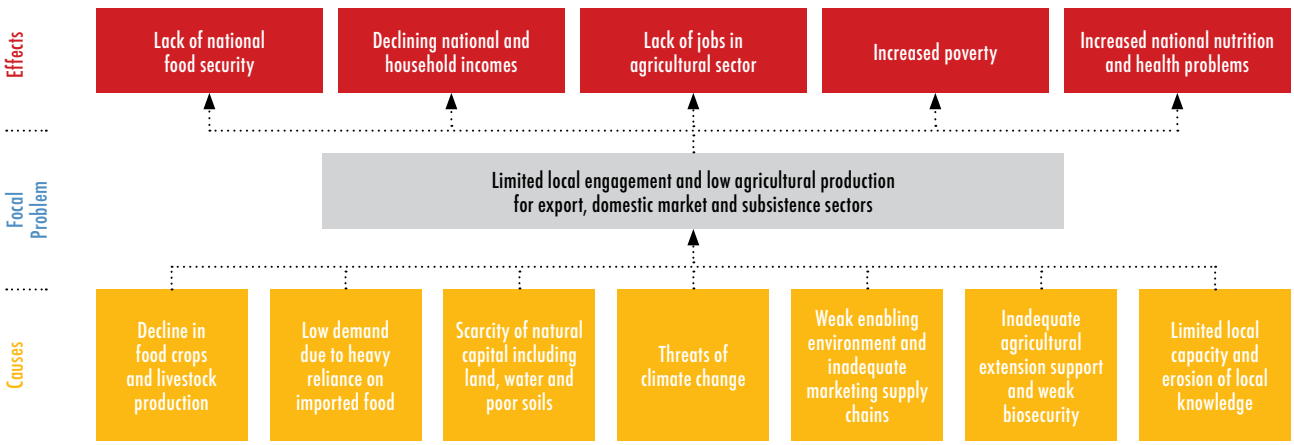
- Decline in food crops and livestock production;
- Low demand due to heavy reliance on imported food;
- Scarcity of natural capital including land, water and poor soils;
- Threats of climate change;
- Weak enabling environment and inadequate marketing supply chains;
- Inadequate agricultural extension support and weak biosecurity; and
- Limited local capacity and erosion of local knowledge.

FIGURE 5
Proportion of employed persons by main industry, Kiribati (2015 and 2020)



SOURCE: 2015 and 2020 Censuses

FIGURE 6
Kiribati Agriculture Strategy – Problem Tree Analysis



SOURCE: Kiribati Agriculture Strategy, 2020–2030

The KAS identified several key strategic issues to be addressed to enable the revival of agriculture production in Kiribati. These strategic issues are:

A. Radical change in mindset and local diet in favour of local food;

B. Political will to lead and support the implementation of the KAS and garner local support and buy in for increased local engagement;

C. Identification of influential local champion to promote the implementation and local support for the KAS;

D. Mobilization of public sector and private sector investment and resources to support the implementation of KAS;

E. Development of incentives to effectively induce positive behaviors;

F. Gender and social inclusion;

G. Partnerships; and

H. Knowledge sharing and learning from other countries.

A Theory of Change methodology was adopted which assumes that if the core outputs and related actions were pursued, it will generate the outcomes necessary to deliver the project impact and benefits.

This would lead to increased local engagement and agricultural outputs which will result in improved national and household incomes and livelihoods, improved nutrition and health and living standards for the people of Kiribati. The Kiribati Agriculture Strategy Theory of Change is shown at Figure 7 below.

This new KAS, initially covering the ten-year period 2020-2030, has identified seven Objectives, each underpinned by a number of Outputs, including:

Objective 1:
Sustainable atoll crop production systems developed and promoted.

Output 1.1 - Crop diversity improved, conserved, and utilized.

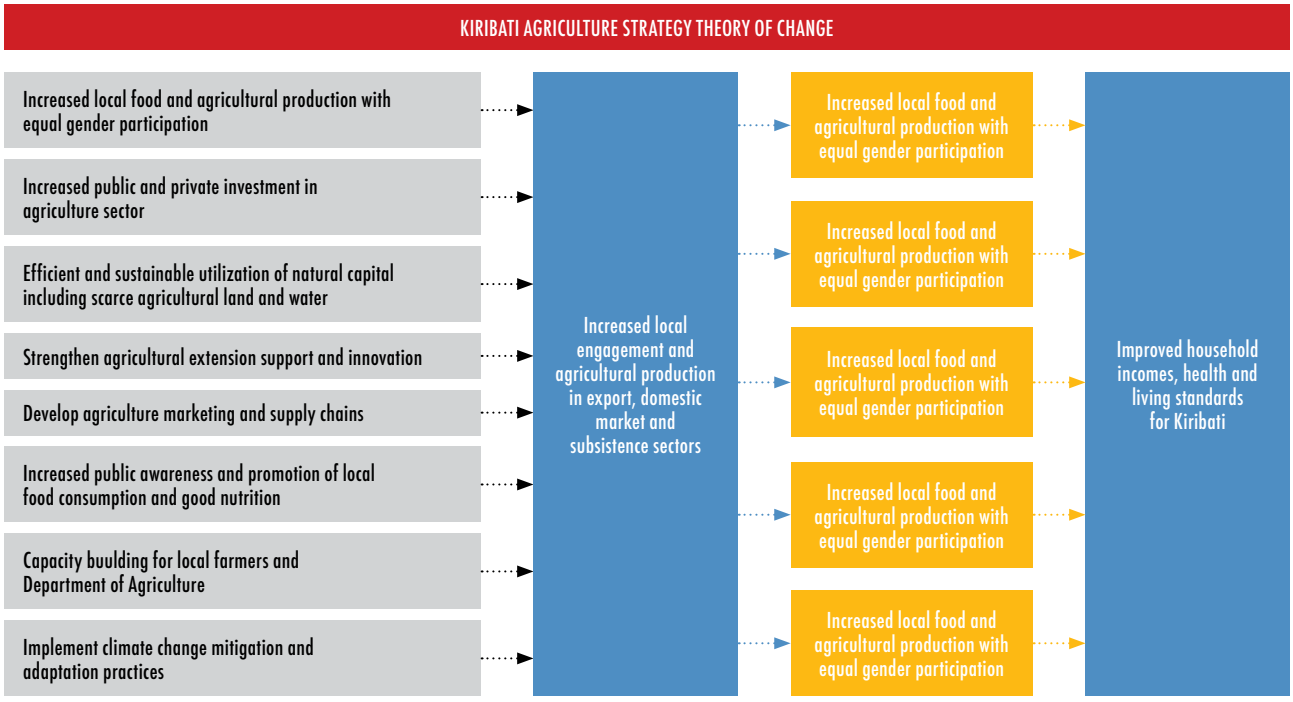
Output 1.2 - Soil management technologies appropriate for atoll conditions developed and adopted.

Output 1.3 - Agroforestry systems appropriate for atolls developed and adopted.

Output 1.4 - Water management technologies appropriate for atolls developed and adopted.

Output 1.5 - Pest and disease problems identified, control methods developed and promoted, and capacity to respond to pest problems strengthened.

FIGURE 7
Kiribati Agriculture Strategy Theory of Change



SOURCE: Kiribati Agriculture Strategy, 2020–2030

Objective 2:
Sustainable small-animal livestock production systems developed and promoted.

- Output 2.1 - Appropriate livestock management practices developed and promoted.
- Output 2.2 - Livestock genetics diversified, improved, conserved and utilized.
- Output 2.3 - Livestock feeds with local ingredients developed.
- Output 2.4 - Livestock feeds with local ingredients developed.

Objective 3:
Enabling environment and marketing mechanisms developed

- Output 3.1 - Agriculture sector financing and investments mobilized.
- Output 3.2 - Domestic value chains developed.
- Output 3.3 - Agriculture, transport and marketing infrastructure improved.

Objective 4:
Climate change mitigation and adaptation enhanced

- Output 4.1 - Climate change impacts and risks are managed and minimized.

Objective 5:
Improved Biosecurity

- Output 5.1 - Capacity to increase domestic and export trade developed and strengthened.
- Output 5.2 - Quarantine/biosecurity capacity improved.

Objective 6:
National nutrition and health education and awareness-raising about consuming local produce

- Output 6.1 - Alignment with the national health sector developmental goals.
- Output 6.2 - The local community is educated and made aware of the importance of nutrition and a healthy diet by choosing locally produced food.

Objective 7:
Capacity building for government officials and stakeholders

- Output 7.1 - Farming and business skills of farmers improved.
- Output 7.2 - Capacity of extension, outreach, and information services strengthened.
- Output 7.3 - Technical skills of agricultural staff improved.

CHAPTER 2
HOUSEHOLDS ENGAGED IN AGRICULTURE

This chapter summarizes the key Census findings about the structure of households undertaking some form of agriculture activity in Kiribati in 2020. The chapter also includes discussion on the purpose of agriculture activities undertaken by households.

2.1 Households Engaged in Agriculture and Fisheries

The 2020 Census revealed that of the total 20,354 private and occupied households enumerated in 2020, 15,467 households (76 percent) were engaged in either crop production or livestock raising, 9,663 households (47 percent) were engaged in fishing activities and 4,406 (22 percent) were engaged in handicraft production.

Over two-thirds of all households were engaged in raising livestock while a total of 8,979 households (44 percent) reported growing crops (Table 4 and Figure 8).

Of the 4,887 households across the country who did not report growing any crops or engaging in livestock raising, the majority (63 percent) were located on the capital, South Tarawa and Betio Islands, where 3,102 or one-third of the Islands' 9,444 total households were not involved in any form of cropping or livestock activity. These islands also reported the lowest number of households engaged in fishing or handicraft activities.

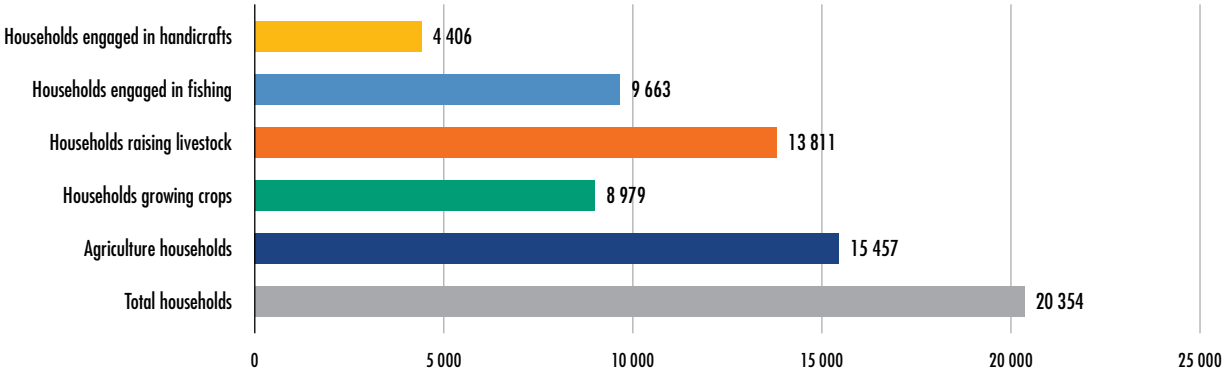
Households on the Outer Islands were more likely to be undertaking some form of agricultural activity, with the majority of islands reporting over 85 percent of households growing crops or raising livestock (Figure 9). It was a similar response for fishing and handicrafts with a greater proportion of Outer Island households reporting undertaking these activities (Figure 9).

TABLE 4
Number of households by type of agriculture/fishing activity and island: 2020

	Total House-holds	Number of agriculture households		Households growing crops		Households raising livestock		Households engaged in fishing activities		Households engaged in handicraft activities	
		Total	%	Total	%	Total	%	Total	%	Total	%
KIRIBATI	20 354	15 467	76%	8 979	44%	13 811	68%	9 663	47%	4 406	22%
Urban	10 652	7 343	69%	3 739	35%	6 335	59%	3 545	33%	809	8%
Rural	9 702	8 124	84%	5 240	54%	7 476	77%	6 118	63%	3 597	37%
ISLAND											
Banaba	85	65	76%	49	58%	52	61%	65	76%	13	15%
Makin	371	332	89%	232	63%	322	87%	226	61%	235	63%
Butaritari	618	588	95%	473	77%	561	91%	408	66%	313	51%
Marakei	575	381	66%	245	43%	326	57%	261	45%	182	32%
Abaiang	1 065	900	85%	545	51%	851	80%	733	69%	472	44%
North Tarawa	1 310	1 019	78%	515	39%	930	71%	799	61%	395	30%
South Tarawa	6 825	4 775	70%	2 408	35%	4 112	60%	2 112	31%	497	7%
Betio	2 619	1 567	60%	822	31%	1 281	49%	638	24%	103	4%
Maiana	449	399	89%	273	61%	371	83%	293	65%	145	32%
Abemama	674	499	74%	381	57%	381	57%	357	53%	156	23%
Kuria	250	216	86%	112	45%	209	84%	108	43%	29	12%
Aranuka	259	185	71%	111	43%	176	68%	139	54%	53	20%
Nonouti	611	540	88%	430	70%	467	76%	468	77%	244	40%
North Tabiteuea	753	670	89%	355	47%	639	85%	465	62%	234	31%
South Tabiteuea	279	274	98%	200	72%	271	97%	250	90%	154	55%
Beru	533	459	86%	309	58%	436	82%	346	65%	276	52%
Nikunau	423	382	90%	206	49%	368	87%	224	53%	141	33%
Onotoa	326	276	85%	157	48%	265	81%	238	73%	113	35%
Tamana	192	172	90%	128	67%	150	78%	98	51%	37	19%
Arorae	210	194	92%	123	59%	186	89%	97	46%	91	43%
Teeraina	312	265	85%	171	55%	250	80%	217	70%	144	46%
Tabuaeran	398	299	75%	218	55%	256	64%	319	80%	169	42%
Kiritimati	1 208	1 001	83%	509	42%	942	78%	795	66%	209	17%
Kanton	9	9	100%	7	78%	9	100%	7	78%	1	11%

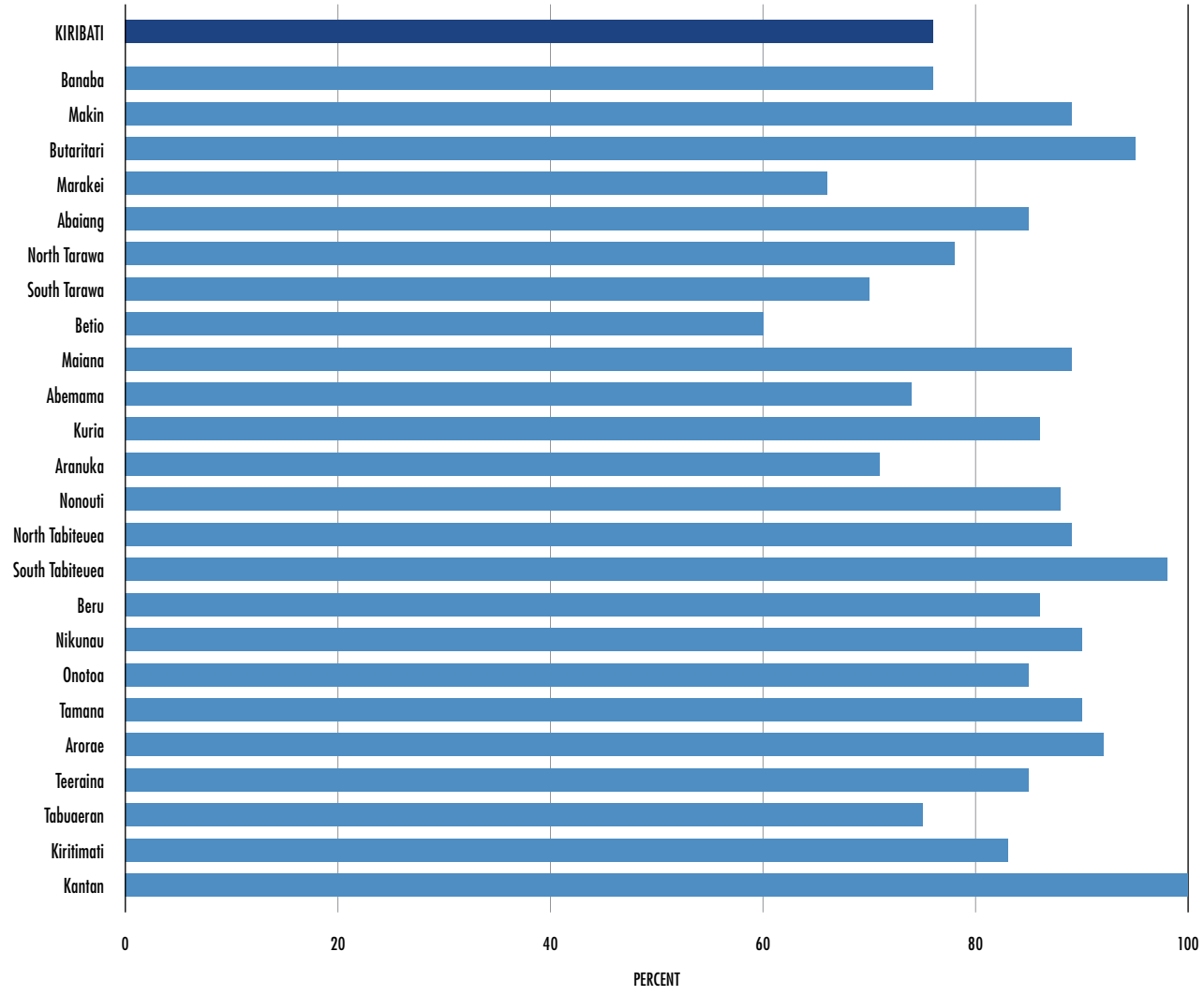
SOURCE: 2020 Census

FIGURE 8
Number of households by type of agriculture/fishing activity, Kiribati (2020)



SOURCE: 2020 Census

FIGURE 9
Proportion of households engaged in Agriculture by island, 2020



SOURCE: 2020 Census

2.2 Subsector Activities

While the Census identified that raising livestock and crop production were the main agricultural activities in Kiribati, it also found that many households were involved in mixed farming activities, where they were engaged in two or more of the sub-sectors of livestock raising, crop production, fishing or handicrafts. This was particularly evidenced by the high proportion of households on the Outer Islands reporting various forms of agricultural activity. For example, 98 percent of South Tabiteuea's 279 households reported some form of agricultural activity, including raising livestock (97 percent), growing crops (72 percent) (Table 4 above), while 90 percent and 55 percent were engaged in fishing and handicraft activities respectively (Figure 10).

Other islands to report high proportions of households undertaking multiple agriculture activities were Butaritari, Maiana, Arorae and the smallest Kanton, as reported by over 90 percent of households.

2.3 Level of Agricultural Activities

The level of agricultural activity is a broad indicator of the extent to which agricultural households are participating in the market economy. The Census queried the main purpose for the various agricultural activities undertaken by households, namely:

- Only for home consumption;
- Mainly home consumption but some sale;
- Mainly for sale but some home consumption;
- Only for sale;
- Customary practice; or
- Other purposes.

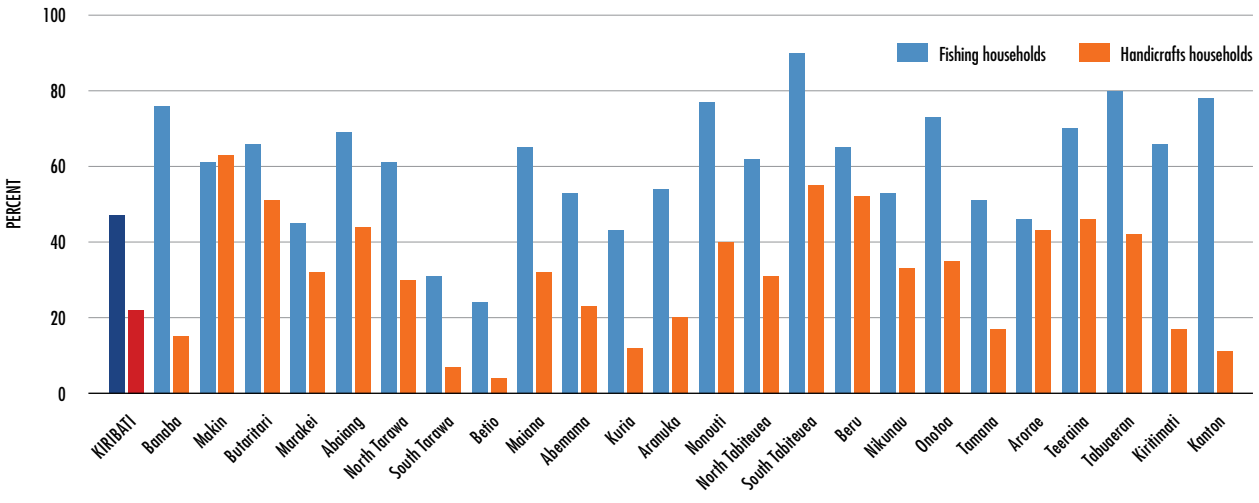
2.3.1 Crop Production

Of the 8,979 households who reported growing crops in 2020, the vast majority (92 percent) were grown only for home consumption or mainly for home consumption but with some sales, i.e. primarily subsistence production (Table 5). Only 1 percent of households reported growing their crops only for sale while a further 5 percent indicated that they grew crops mainly for sale but had some home consumption. Three percent of households on the rural islands reported growing their crops mainly for customary practices.

What was obvious from the 2020 Census data was the significant reduction in households growing crops compared with estimates from the 2010 and 2015 Censuses, particularly 2015. While the total number of households across Kiribati increased by 14.5 percent from 17,772 to 20,354 between 2015 and 2020, the actual number of households growing some traditional crops decreased by between 30 percent and 55 percent for individual crops (Table 6). The biggest reductions occurred in the number of households growing pandanus, coconut trees, breadfruit and bananas.

On the other hand, in 2020, more households reported growing kumula (sweet potato) and cassava, cabbages, cucumbers, tomatoes and watermelon than in 2015.

FIGURE 10
Proportion of households engaged in Fishing and Handicrafts by island, 2020



SOURCE: 2020 Census

TABLE 5
Households growing crops by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of Households			Proportion of Households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Cropping Households	8 979	3 739	5 240	100%	100%	100%	6 814	2 165	251	7 304	1 424
Only for home consumption	6 418	2 828	3 590	71%	76%	69%	4 733	1 685	181	5 248	989
Mainly home consumption, but some sale	1 856	638	1 218	21%	17%	23%	1 521	335	56	1 480	320
Mainly sale, but some home consumption	426	217	209	5%	6%	4%	337	89	9	350	67
Only for sale	46	25	21	1%	1%	0%	37	9	1	40	5
Customary practices	185	19	166	2%	1%	3%	149	36	2	147	36
Other purposes	48	12	36	1%	0%	1%	37	11	2	39	7

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

TABLE 6
Number and change in households growing crops by crop type, Kiribati: 2010, 2015 and 2020

	Census Years			Difference 2015 – 2020	% change
	2010	2015	2020		
Total Households	16 043	17 772	20 354	2 582	14.5%
Crops					
Coconut trees	11 424	15 361	6 715	-8 646	-56%
Breadfruit	9 518	11 775	5 202	-6 573	-56%
Pumpkin	nc	6 500	4 175	-2 325	-36%
Banana	6 302	7 331	4 162	-3 169	-43%
Babai (Swamp Taro)	1 936	5 885	3 901	-1 984	-34%
Kumala (Sweet Potato)	800	1 668	2 266	598	36%
Cabbage	1 601	1 110	2 096	986	89%
Cassava	nc	1 318	1 682	364	28%
Cucumber	nc	416	895	479	115%
Tomato	nc	453	781	328	72%
Eggplant	nc	nc	712		
Watermelon	nc	234	607	373	159%
Pawpaw	8 776	nc	246 *		
Chillies	nc	nc	169		
Taro	nc	nc	127		
Spinach	nc	nc	118		
Pandanus	7 902	10 557	62 *	-10 495	-99%
Beans	nc	nc	37		
Kang Kong	nc	nc	36		
Other	nc	nc	1 639		

NOTE: nc - not collected, * not specifically listed on 2020 Census form.
SOURCE: 2010, 2015 and 2020 Censuses

Crop information is detailed further in Chapter 3.

2.3.2 Livestock Raising

Of the 13,811 households who reported raising livestock/poultry in 2020, the vast majority (13,407 or 97 percent) raised local pigs, while nationally over 4,052 households (29 percent) raised local chickens. Less than 10 percent of livestock households reported raising cross-breed pigs or cross-breed chickens. Only 33 households reported raising ducks (Table 7).

Just over half (54 percent) of households nationally raising livestock reported that the purpose was either only or mainly for home consumption. In a similar situation to cropping households, a very small proportion of households reported raising livestock only or mainly for sale. The main difference with cropping households was the significant number of households (35 percent) reporting that the main purpose for raising livestock was customary purposes. Interestingly, the incidence of customary practices was slightly higher on the urban islands of South Tarawa, Betio and Kiritimati than the rural and outer islands (Table 8).

Unlike the 2020 Census, neither the previous 2010 or 2015 Censuses asked any specific questions in relation to the purpose of raising livestock.

Mirroring the situation with cropping households, there was a continued downward trend in the number of households raising livestock in 2020 compared with 2015, with estimates of less households raising each livestock type.

Whilst the reduction in livestock households between Censuses was not quite to the same level as with crop growing households, nonetheless there was a 5.1 percent decrease in households raising local pigs, an 18 percent decrease in households with local chickens The decreases in households raising cross-breed pigs and cross-breed chickens between 2015 and 2020 were 35 percent and 39 percent respectively, and there was a significant reduction of 73 percent in households raising ducks (Table 9).

TABLE 7
Households raising livestock by strata, gender and age of household head, Kiribati: 2020

	Number of Households			Proportion of Livestock Households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total livestock households	13 811	6 335	7 476				10 487	3 324	486	11 225	2 100
Local pigs	13 407	6 129	7 278	97%	97%	97%	10 199	3 208	467	10 894	2 046
Cross-breed pigs	1 108	512	596	8%	8%	8%	851	257	27	940	141
Local chickens	4 052	811	3 241	29%	13%	43%	3 313	739	155	3 191	706
Cross-breed chickens	179	51	128	1%	1%	2%	143	36	5	147	27
Duck	33	22	11	0.2%	0.3%	0.1%	28	5	1	29	3
Other	250	86	164	2%	1%	2%	212	38	9	206	35

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

TABLE 8
Households raising livestock by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of households			Proportion of households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total livestock households	13 811	6 335	7 476	100%	100%	100%	10 487	3 324	486	11 225	2 100
Only for home consumption	5 979	2 607	3 372	43%	41%	45%	4 459	1 520	226	4 884	869
Mainly home consumption, but some sale	1 476	602	874	11%	10%	12%	1 204	272	42	1 190	244
Mainly sale, but some home consumption	365	215	150	3%	3%	2%	287	78	7	297	61
Only for sale	171	124	47	1%	2%	1%	128	43	4	148	19
Customary practices	4 880	2 337	2 543	35%	37%	34%	3 675	1 205	166	3 922	792
Other purposes	940	450	490	7%	7%	7%	734	206	41	784	115

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

TABLE 9
Number and change in households raising livestock by livestock type, Kiribati: 2010, 2015 and 2020

	Census Years			Difference 2015 – 2020	% change
	2010	2015	2020		
Total households	16 043	17 772	20 354	2 582	14.5%
Households with Local pigs	12 770	14 123	13 407	-716	-5.1%
Households with Cross-breed pigs	1 514	1 700	1 108	-592	-34.8%
Households with Local chickens	5 272	4 944	4 052	-892	-18.0%
Households with Cross-breed chickens	280	295	179	-116	-39.3%
Households with Ducks	nc	124	33	-91	-73.4%
Households with Other livestock	nc	nc	250		

NOTE: nc - not collected.
SOURCE: 2010, 2015 and 2020 Censuses

2.3.3 Fishing

The 2020 Census questionnaire included several questions on whether household members were engaged in fishing activities including fishing methods used, fishing locations, ownership of boats or canoes and the purpose of fishing.

The 2020 Census reported that 47 percent of all Kiribati households were engaged in some form of fishing activity, including 63 percent of households located on the rural islands. The majority of the fishing activity was undertaken for home consumption only but 20 percent of fishing households nationally and almost one quarter (24 percent) of households on the rural islands also had some fish sales.

Twelve (12) percent of Urban fishing households and 8 percent of rural fishing households reported that they fished mainly to sell their catch but also had some home consumption (Table 10).

TABLE 10
Households engaged in fishing by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of Households			Proportion of Households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Fishing Households	9 663	3 545	6 118	100%	100%	100%	7 877	1 786	447	7 972	1 244
Only for home consumption	6 715	2 578	4 137	69%	73%	68%	5 303	1 412	329	5 504	882
Mainly home consumption, but some sale	1 971	497	1 474	20%	14%	24%	1 747	224	75	1 641	255
Mainly sale, but some home consumption	869	408	461	9%	12%	8%	743	126	38	742	89
Only for sale	74	49	25	1%	1%	0.4%	58	16	3	59	12
Customary practices	17	4	13	0.2%	0.1%	0.2%	12	5	1	13	3
Other purposes	17	9	8	0.2%	0.3%	0.1%	14	3	1	13	3

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

See Chapter 5 for more details on household fishing activities.

2.3.4 Handicrafts

Of the 20,354 total households nationally, 4,406 households (or 22%) indicated that they were involved in handicraft activity. The vast majority (82 percent) of these households were located on the rural islands (Table 11).

Only 8 percent of urban island households reported handicrafts compared with 37 percent of rural island households.

Just under half (47 percent) of these households produced handicrafts for their own household use, 8 percent produced handicrafts for sale and 40 percent reported a combination of both home consumption and sales. Although smaller in number, 21 percent of handicraft households on the urban islands (South Tarawa, Betio and Kiritimati) reported making handicrafts only for sale, compared with 5 percent of rural island households.

The 2020 Census also questioned households on whether they had any food stock on Census night. Just under half (47 percent) of households nationally reported some food stocks, including two-thirds of rural households. The most popular food stock was Te tari ni ika (Dried salt fish), held by 35 percent of households nationally and more than half of rural island households (Table 12).

Stocks of Dried pandanus puree (Te tuae) and Toddy Syrup (Te kamwaimwai) were reported by 19 percent and 15 percent of households respectively.

TABLE 11
Households engaged in handicrafts by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of households			Proportion of households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total handicraft households	4 406	809	3 597	100%	100%	100%	3 463	943	153	3 434	819
Only for home consumption	2 052	387	1 665	47%	48%	46%	1 638	414	84	1 594	374
Mainly home consumption, but some sale	1 251	144	1 107	28%	18%	31%	1 005	246	36	972	243
Mainly sale, but some home consumption	531	79	452	12%	10%	13%	404	127	17	414	100
Only for sale	340	169	171	8%	21%	5%	233	107	7	273	60
Customary practices	177	21	156	4%	3%	4%	140	37	6	140	31
Other purposes	55	9	46	1%	1%	1%	43	12	3	41	11

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

TABLE 12
Households having food stock by type, strata, gender and age of household head, Kiribati: 2020

	Number of households			Proportion of households			HH head sex		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total households	20 354	10 652	9 702				14 956	5 398	783	16 489	3 082
Households with food stock	9 544	3 095	6 449	47%	29%	66%	7 317	2 227	328	7 569	1 647
Te tuae (dried pandanus puree)	3 787	1 189	2 598	19%	11%	27%	2 814	973	90	2 879	818
Te tari ni ika (dried salt fish)	7 209	2 009	5 200	35%	19%	54%	5 614	1 595	280	5 714	1 215
Te kamwaimwai (toddy syrup)	2 968	1 131	1 837	15%	11%	19%	2 261	707	78	2 339	551
Te kabubu (pandanus powder)	425	98	327	2%	1%	3%	331	94	14	306	105
Te kabwibwi n mai (dried breadfruit)	1 049	331	718	5%	3%	7%	779	270	27	809	213
Te kabwibwi n ika (dried boiled fish)	591	108	483	3%	1%	5%	479	112	28	459	104

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

CHAPTER 3
CROPS

Agricultural production in Kiribati revolves mainly around subsistence, with some cash production mostly for the domestic market. The limited land area and unproductive soils restrict the opportunities for export diversification. Crop production has primarily been carried out for subsistence, with main crops including coconut, breadfruit, banana, kumula, babai, and seasonal vegetables including pumpkin and cabbages.

Along with livestock raising, producing crops is an extremely important agricultural activity undertaken by many households in Kiribati. Main crops, both traditional and introduced, grown during the 12 months prior to the Census day of 7th November 2020 were enumerated.

This section provides an overview of the cropping sector in Kiribati, analysis of the type of crops grown, the purpose of their cultivation, comparisons with cropping data collected in the 2015 Census and the identification of any trends.

3.1 Households Engaged in Crop Production

The 2020 Census estimated that 8,979 households were engaged in some form in crop production across the country. This represented 44 percent of all households in Kiribati. Crop growing households were much more predominant on the Rural Islands, where 54 percent of all households reported growing crops, compared with 35 percent of households in the capital, South Tarawa and on Betio and Kiritimati Islands (Table 13).

Just over three-quarters (76 percent) of all cropping households nationally were headed by males, while 40 percent of all female-headed households reported growing crops.

The more popular crops grown in 2020 included coconut trees, breadfruit, pumpkin, banana, babai, kumala, cabbage and cassava. Despite there being less cropping households reported on the urban islands than the rural islands, households growing crops such as cabbage, cassava, cucumber, tomato, eggplant and watermelon were reported in greater numbers on the urban islands.

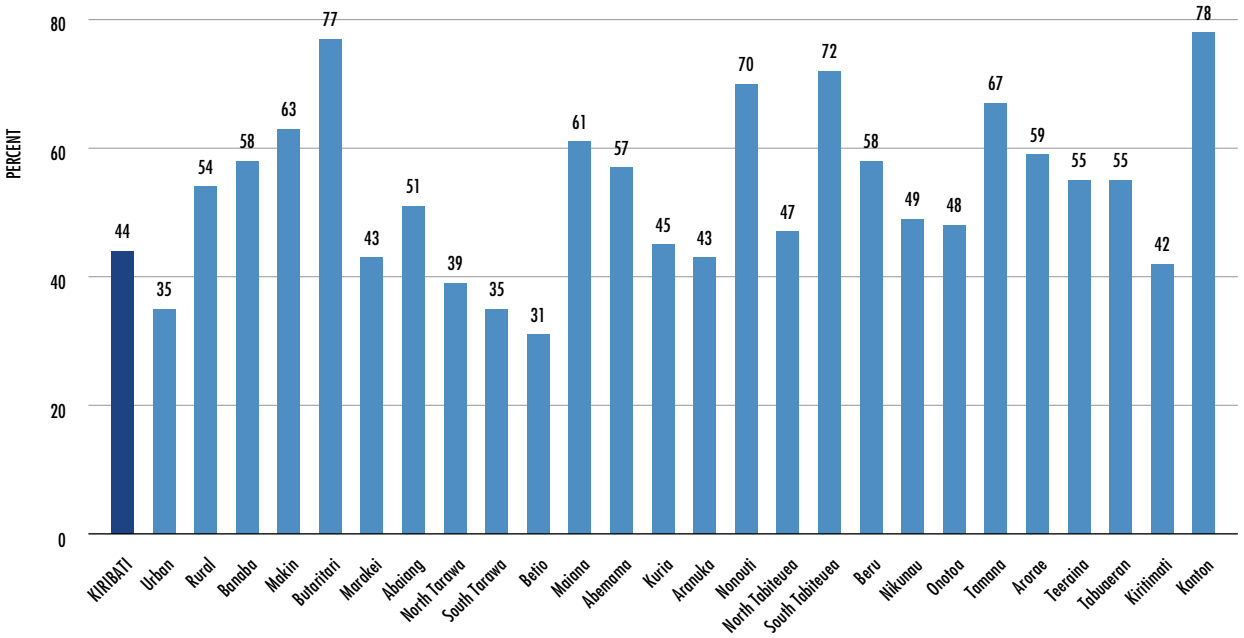
Crop growing was most common on the islands of Kanton, Butaritari, South Tabiteuea and Nonouti where between 70 percent and 78 percent of households reported cropping activity. Cropping activity was least common on Betio, South and North Tarawa Islands, where less than 40 percent of households reported growing crops (Figure 11).

TABLE 13
Number of households growing crops by strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Households	20 354	10 652	9 702	14 956	5 398	783	16 489	3 082
Total cropping households	8 979	3 739	5 240	6 814	2 165	251	7 304	1 424
Crops								
Coconut tree	6 715	2 096	4 619	5 354	1 361	196	5 361	1 158
Breadfruit	5 202	1 514	3 688	4 057	1 145	143	4 118	941
Pumpkin	4 175	1 595	2 580	3 199	976	118	3 401	656
Banana	4 162	1 534	2 628	3 162	1 000	109	3 356	697
Babai	3 901	166	3 735	3 266	635	110	3 046	745
Kumala	2 266	804	1 462	1 722	544	46	1 845	375
Cabbage	2 096	1 419	677	1 492	604	40	1 753	303
Cassava	1 682	1 190	492	1 169	513	41	1 399	242
Cucumber	895	671	224	647	248	11	746	138
Tomato	781	557	224	549	232	9	659	113
Eggplant	712	517	195	490	222	8	597	107
Watermelon	607	503	104	439	168	9	511	87
Pawapaw	246	148	98	180	66	5	192	49
Chilies	169	114	55	121	48	2	142	25
Taro	127	78	49	99	28	0	106	21
Spinach	118	79	39	80	38	1	101	16
Pandanus	62	23	39	44	18	1	51	10
Beans	37	35	2	25	12	1	31	5
Kang Kong	36	28	8	24	12	0	30	6
Other	1 639	813	826	1 210	429	38	1 330	271

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

FIGURE 11
Proportion of households growing crops by strata and island, 2020



SOURCE: 2020 Census

Proportionally, households on Butaritari reported the highest incidence of growing the main crops, with 73 percent reporting growing coconut trees, 72 percent growing babai (giant swamp taro), 69 percent growing breadfruit and 60 percent growing bananas. More than 60 percent of all households on Tamana, Nonouti, Kanton and South Tabiteuea reporting growing coconut trees, while a similar number of households on South Tabiteuea and Tamana reported growing babai.

Of the other main crops grown, breadfruit growing was also prominent on Kanton and Arorae where it was grown by 56 percent and 50 percent of households respectively, while banana growing was popular on Makin (43 percent of all households), Nonouti and Banaba (both 41 percent) and Abemama (40 percent).

At the other end of the scale, it was noted that a very small number of rural island households reported growing tomatoes (2 percent), cucumber (2 percent), eggplant (2 percent) or spinach (less than 1 percent), while only 5 percent reported growing cassava and only 7 percent grew cabbages.

3.2 Purpose of Crop Growing

Of the 8,979 households who reported growing crops in 2020, the vast majority (92 percent) were grown only for home consumption or mainly for home consumption but with some sales, i.e. primarily subsistence production. Only one (1) percent of households reported growing their crops only for sale while a further 5 percent indicated that they grew crops mainly for sale but had some home consumption (Table 14).

TABLE 14
Households growing crops by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of Households			Proportion of Households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Cropping Households	8 979	3 739	5 240	100%	100%	100%	6 814	2 165	251	7 304	1 424
Only for home consumption	6 418	2 828	3 590	71%	76%	69%	4 733	1 685	181	5 248	989
Mainly home consumption, but some sale	1 856	638	1 218	21%	17%	23%	1 521	335	56	1 480	320
Mainly sale, but some home consumption	426	217	209	5%	6%	4%	337	89	9	350	67
Only for sale	46	25	21	1%	1%	0%	37	9	1	40	5
Customary practices	185	19	166	2%	1%	3%	149	36	2	147	36
Other purposes	48	12	36	1%	0%	1%	37	11	2	39	7

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

Households on South Tarawa, Butaritari and Abaiang Islands accounted for almost two-thirds of the households growing crops either only for sale or mainly for sale. The growing of crops for customary practices was more evident on the Rural islands, with 21 percent of households on Onotoa and 11 percent of South Tabiteuea households reporting this as the main purpose for growing their crops (see Appendix Table A2).

3.3 Trends in Crop Growing

With the vast majority of households growing crops mainly for home consumption, there is very little evidence of increasing commercialization of crop growing throughout Kiribati. As data on the purpose for growing crops was not collected in the previous 2015 Kiribati Population and Housing Census, it is not possible to compare or identify any movement or trends in this aspect of agriculture production.

What was obvious from the 2020 Census data was the significant reduction in the number of reported households growing crops compared with estimates from both the 2010 and 2015 Censuses, particularly 2015. The number of households growing most of the main crop types showed increases between 2010 and 2015 but this trend appears to have reversed between 2015 and 2020.

While the total number of households across Kiribati increased 14.5 percent between 2015 and 2020 (from 17,772 to 20,354), the actual number of households growing some traditional crops decreased by between 30 percent and 55 percent for individual crop types (Table 15 and Figure 12). The biggest reductions occurred in the number of households growing coconut trees and breadfruit (both 56 percent decrease), bananas (43 percent decrease) and pumpkin (36 percent decrease). The large reported reduction in pandanus growing may be attributed to the 2020 Census questionnaire not specifically listing pandanus as a main crop type.

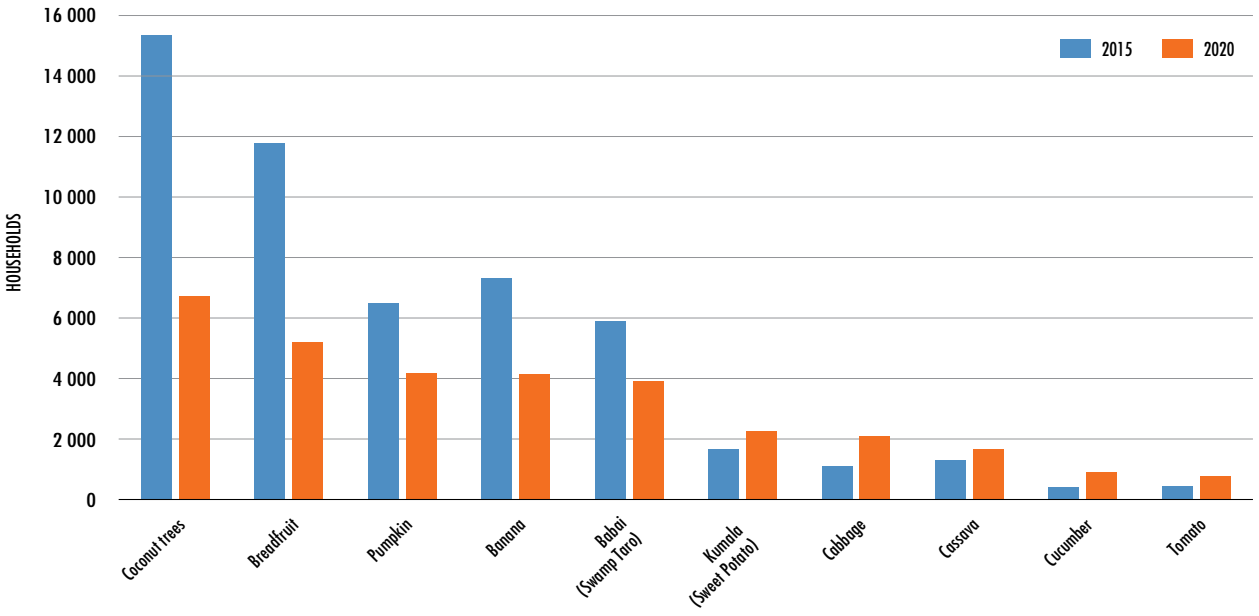
On the other hand, more households reported growing kumula (sweet potato), cassava, cabbages, cucumbers, tomatoes and watermelon in 2020 than in 2015. As detailed previously, the increased number of households growing vegetables such as cabbages, cucumbers and tomatoes occurred on the urban islands of South Tarawa, Betio and Kiritimati.

TABLE 15
Number and change in households growing crops by crop type, Kiribati: 2010, 2015 and 2020

	Census Years			Difference 2015 – 2020	% change
	2010	2015	2020		
Total Households	16 043	17 772	20 354	2 582	14.5%
Crops					
Coconut trees	11 424	15 361	6 715	-8 646	-56%
Breadfruit	9 518	11 775	5 202	-6 573	-56%
Pumpkin	nc	6 500	4 175	-2 325	-36%
Banana	6 302	7 331	4 162	-3 169	-43%
Babai (Swamp Taro)	1 936	5 885	3 901	-1 984	-34%
Kumala (Sweet Potato)	800	1 668	2 266	598	36%
Cabbage	1 601	1 110	2 096	986	89%
Cassava	nc	1 318	1 682	364	28%
Cucumber	nc	416	895	479	115%
Tomato	nc	453	781	328	72%
Eggplant	nc	nc	712		
Watermelon	nc	234	607	373	159%
Pawpaw	8 776	nc	246*		
Chillies	nc	nc	169		
Taro	nc	nc	127		
Spinach	nc	nc	118		
Pandanus	7 902	10 557	62*	-10 495	-99%
Beans	nc	nc	37		
Kang Kong	nc	nc	36		
Other	nc	nc	1 639		

NOTE: nc - not collected, * not specifically listed on 2020 Census form.
SOURCE: 2010, 2015 and 2020 Censuses

FIGURE 12
Number of households by type of main crop grown, Kiribati (2015 and 2020)



SOURCE: 2015 and 2020 Censuses

Further analysis of the reduction in the number of households growing the five main crops shows that this was consistent across households on both the urban and rural islands. However the level of reduction reported on the urban islands of South Tarawa, Betio and Kiritimati for coconut trees, breadfruit, bananas and babai was around 1.5 times the level of reported reduction on the rural islands. The exception being pumpkin-growing households where the number on the rural islands reduced by 38 percent between 2015 and 2020 compared with a 31 percent reduction on the urban islands (Table 16 and Figure 13).

Traditional farming techniques are in decline, yet, particularly on the outer islands, they contribute to agricultural diversity and food security and better diets. The use of home-grown food crops constitutes a form of import substitution, which is particularly important owing to Kiribati's significant and long-term trade deficit.

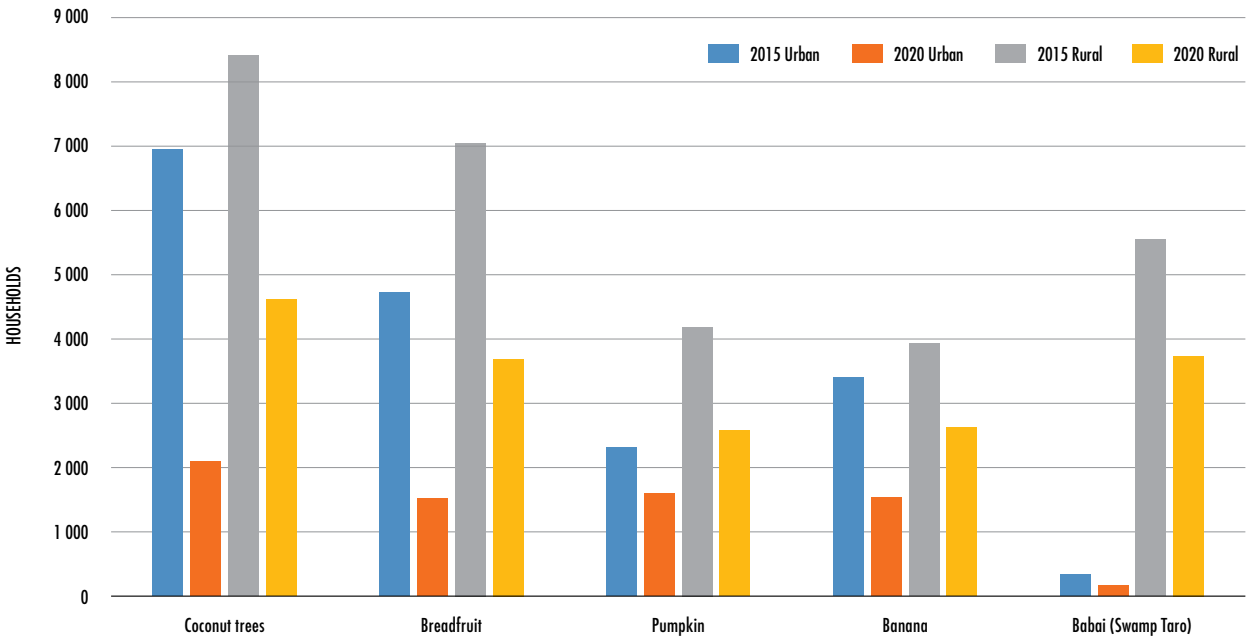
The continuing emigration from the outer islands to the capital, South Tarawa or urban drift, the availability of suitable labour on the outer islands, coupled with a declining interest on the part of young people in traditional agricultural farming practices, has reduced the production of traditional crops. It will remain important to raise awareness amongst youth and community leaders on the value of traditional agricultural and land management systems and knowledge.

TABLE 16
Number and change in households growing main crops by crop type and strata, Kiribati: 2015 and 2020

Main Crops	Households			Households		
	2015 Urban	2020 Urban	% Change	2015 Rural	2020 Rural	% Change
Coconut trees	6 952	2 096	-70%	8 409	4 619	-45%
Breadfruit	4 724	1 514	-68%	7 051	3 688	-48%
Pumpkin	2 313	1 595	-31%	4 187	2 580	-38%
Banana	3 401	1 534	-55%	3 930	2 628	-33%
Babai (Swamp Taro)	339	166	-51%	5 546	3 735	-33%

SOURCE: 2015 and 2020 Censuses

FIGURE 13
Number of households growing main crops by crop type and strata, Kiribati (2015 and 2020)



SOURCE: 2015 and 2020 Censuses

One possible reason for the significant reductions in households growing specific crops over a relatively short period may be attributed to some households increasing their land area and thereby operating larger holdings for economies of scale. However, as information on household agricultural land or cropping area was not collected in either the 2015 or 2020 Censuses it is not possible to verify this observation.

Household cropping estimates were also compared with results from the 2019 Household Income and Expenditure Survey (HIES) which showed a considerable variation between the sample-survey HIES and Census results.

Table 17 compares household crop data collected in the 2019 HIES and the 2020 Census. It should be noted that the questioning was significantly different in the 2019 HIES where details of the three main vegetable, root and fruit crops harvested in the previous 30 days were collected, whereas in the 2020 Census the questionnaire asked details of crops grown or harvested in the previous 12 months. As a result, there may be some comparative undercount in the HIES data, where a household may have been growing a particular crop but had not yet harvested it when surveyed or the crop had been harvested more than 30 days prior to the HIES survey.

Given the significant disparities between the two sets of data, there would appear little value in using this to identify any short-term movements or trends in the number of crop growing households across Kiribati.

3.4 Toddy Collection

In the 2020 Census, just over 13 percent of all households reported cutting toddy. Toddy cutting was more prevalent on the rural islands, where more than 19 percent of households cut toddy, compared with only 8 percent of urban households (Table 18).

Toddy was collected by 15 percent of all male-headed households in Kiribati and 9 percent of female-headed households. Toddy cutting was fairly consistent across the different household head age groups, with 10 percent of the 15-24 year group and 13 percent of both the 25-59 years and 60 plus year groups reporting this activity.

The highest proportions of households cutting toddy were reported on Kanton (78 percent), Butaritari (37 percent), Arorae and Tabuaeran (both 35 percent) and Teeraina (32 percent). Only 1 percent of households on Banaba reported cutting toddy while the proportion of households were also low on Betio (4 percent) and Marakei, South Tarawa and Nikunau (all 8 percent) (Figure 14).

TABLE 17
Number and percentage change of households growing crops by main crop type, Kiribati: 2019 and 2020

Main Crops	2019 HIES			2020 Census			% Change		
	National	Urban	Rural	National	Urban	Rural	National	Urban	Rural
Coconut	3 681	1 058	2 623	6 715	2 096	4 619	82%	98%	76%
Breadfruit	2 097	831	1 267	5 202	1 514	3 688	148%	82%	191%
Pumpkin, squash	1 268	438	830	4 175	1 595	2 580	229%	264%	211%
Banana	809	409	400	4 162	1 534	2 628	415%	275%	557%
Sweet potato	283	53	230	2 266	804	1 462	702%	1419%	537%
Cassava	249	212	36	1 682	1 190	492	576%	460%	1 250%

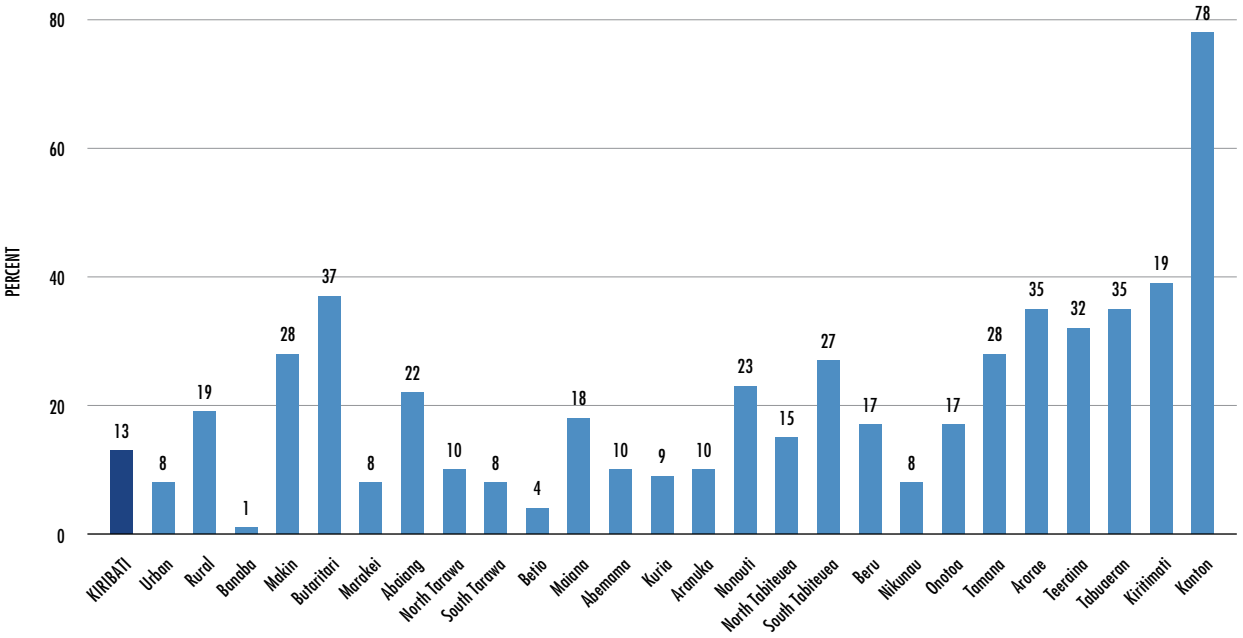
SOURCE: 2019 HIES, 2020 Census

TABLE 18
Number of households cutting toddy by strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total HHs	20 354	10 652	9 702	14 956	5 398	783	16 489	3 082
Cutting toddy	2 704	874	1 830	2 239	465	75	2 224	405

SOURCE: 2020 Census

FIGURE 14
Proportion of households cutting toddy by island, Kiribati (2020)



SOURCE: 2020 Census

3.5 Trends in Toddy Collection

There was a significant decrease in the number of households cutting toddy in the 2020 Census compared with the previous 2015 Census. Nationally, the number of households cutting toddy dropped by 64 percent, from 7,492 in 2015 to 2,704 in 2020, with these reductions occurring equally across both urban and rural islands (Table 19).

Toddy tree numbers also reduced significantly between 2015 and 2020, with an estimated 18,503 trees in 2015 compared with 6,578 trees in 2020, a 64 percent reduction nationally. The decrease in tree numbers was greater on the rural islands with an estimated 67 percent decrease compared with a 58 percent decrease on the urban islands.

Interestingly, the average number of toddy trees per household remained relatively unchanged, with 2.5 trees in 2015 compared with 2.4 trees in 2020. Average tree numbers on the urban islands rose slightly from 2.1 to 2.3 trees in the intercensal period, while the average dropped slightly from 2.6 to 2.5 trees on the rural islands.

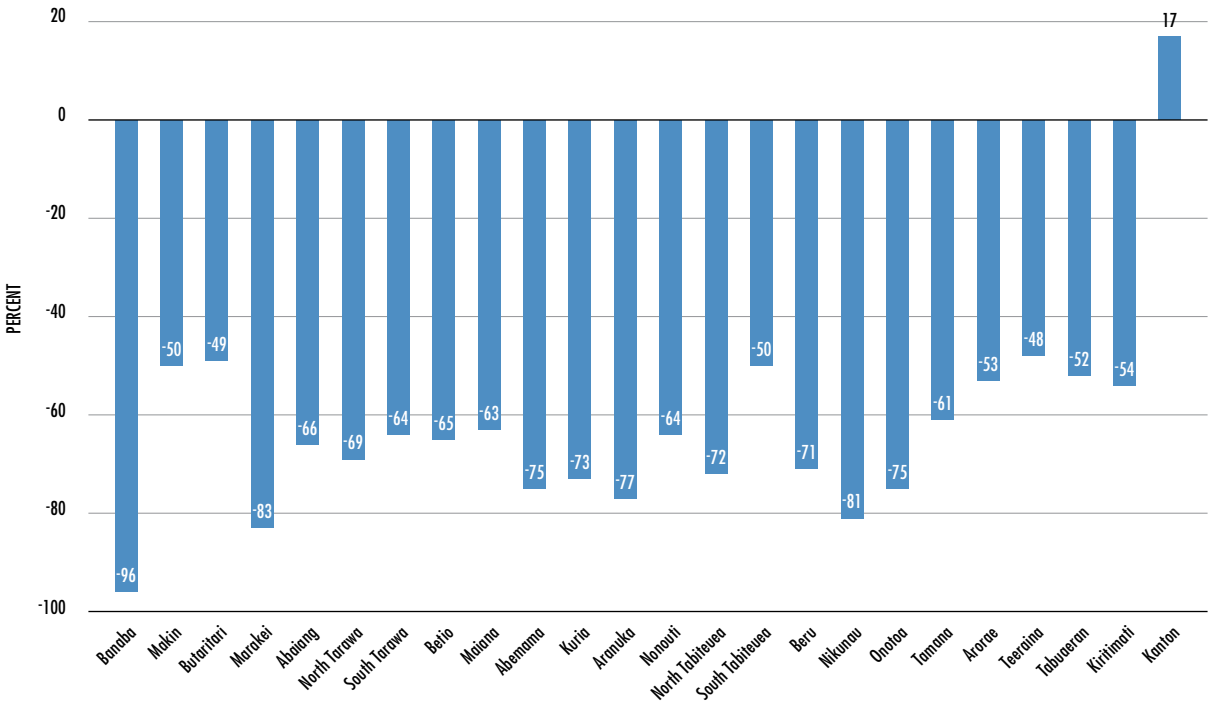
Drilling down further to island level, only the very small island of Kanton reported an increase in households cutting toddy between 2015 and 2020. Most other islands showed significant decreases in the range of 48 percent to 77 percent, with the highest reductions in households cutting toddy reported on Banaba (96 percent), Marakei (83 percent) and Nikunau (81 percent) (Figure15).

TABLE 19
Number and change in households cutting toddy by strata and tree number, Kiribati: 2015 and 2020

	2015			2020			% Change		
	National	Urban	Rural	National	Urban	Rural	National	Urban	Rural
Toddy HH	7 492	2 286	5 206	2 704	874	1 830	-64%	-62%	-65%
Number of Toddy trees									
1	2 034	852	1 182	851	329	522	-58%	-61%	-56%
2	2 375	725	1 650	880	276	604	-63%	-62%	-63%
3	1 486	376	1 110	494	130	364	-67%	-65%	-67%
4	756	168	588	211	53	158	-72%	-68%	-73%
5	404	80	324	131	35	96	-68%	-56%	-70%
6	204	38	166	62	21	41	-70%	-45%	-75%
7	95	14	81	34	15	19	-64%	7%	-77%
8	41	6	35	17	5	12	-59%	-17%	-66%
9 or more	-	-	-	24	10	14	-	-	-
Not stated	97	27	70	-	-	-	-	-	-
Total Toddy Trees (estimated)	18 503	4 876	13 627	6 578	2 029	4 549	-64%	-58%	-67%
Average trees per HH	2.5	2.1	2.6	2.4	2.3	2.5	-1%	9%	-5%

SOURCE: 2015 and 2020 Censuses

FIGURE 15
Change in households cutting toddy by island, Kiribati (2015 and 2020)



SOURCE: 2015 and 2020 Censuses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CHAPTER 4
LIVESTOCK

Along with crop production, livestock raising is one of the most important agricultural activities in Kiribati, playing a key role in supporting household livelihoods and providing income, particularly in rural areas. Households were defined as engaging in livestock raising if any member of the household was currently raising livestock at the time of the Census in November 2020. Similarly, livestock counts were defined are those animals that were currently on the holding at the time of the Census.

The 2020 Census agriculture questions recorded livestock numbers for pigs (both local and cross-breed), chickens (local and cross-breed), ducks and other livestock. Counts of domestic animals such as dogs and cats were not specifically included in the Census.

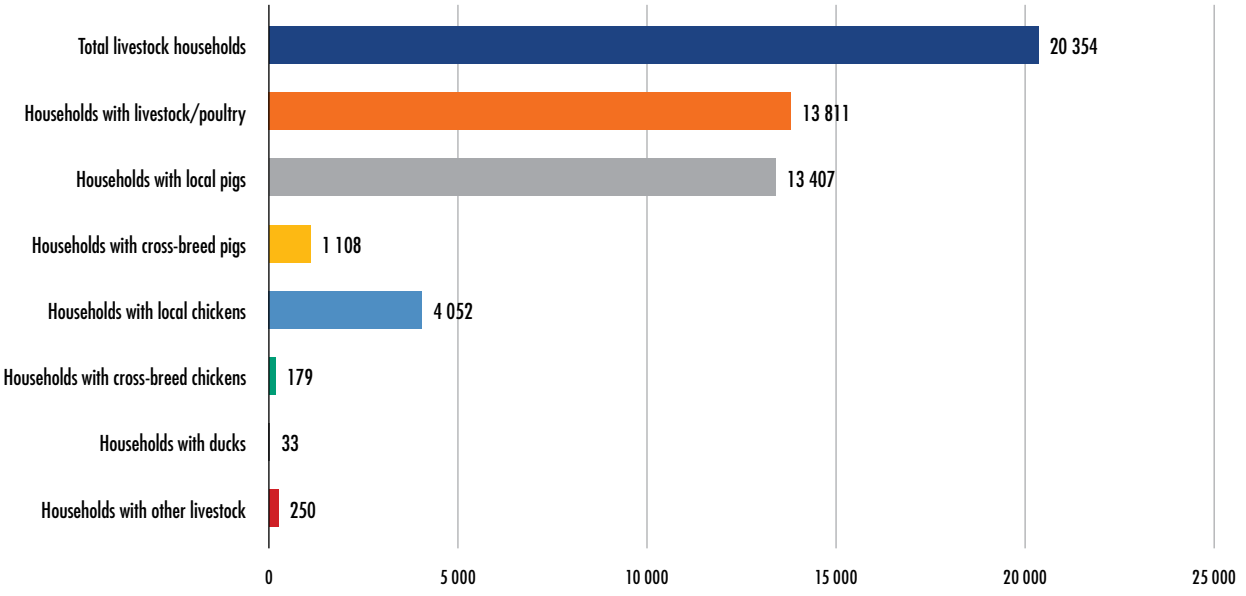
4.1 Households Engaged in Livestock Raising

Of the total 20,354 households in Kiribati reported in the 2020 Census, 13,811 households (68 percent) reported raising livestock and/or poultry. Of these livestock households, 13,407 (97 percent) were raising local pigs and 4,052 (29 percent) were raising local chickens. The number of livestock households raising cross-breed pigs or cross-breed chickens was lower at 8 percent and 1 percent respectively. Only 33 households (0.2 percent) reported having ducks (Figure 16 and Table 20).

While the proportion of households raising local pigs was fairly consistent across both the urban and rural islands, households raising local chickens were more prominent on the rural islands where 43 percent of livestock households reported this compared with 13 percent of urban island livestock households.

Males headed up 76 percent of the households raising livestock and/or poultry, a similar proportion to male-headed households growing crops. Of all female-headed households nationally, 3,324 or 61 percent were engaged in raising livestock and/or poultry, considerably higher than the 40 percent growing crops.

FIGURE 16
Number of households by type of livestock raised, Kiribati (2020)



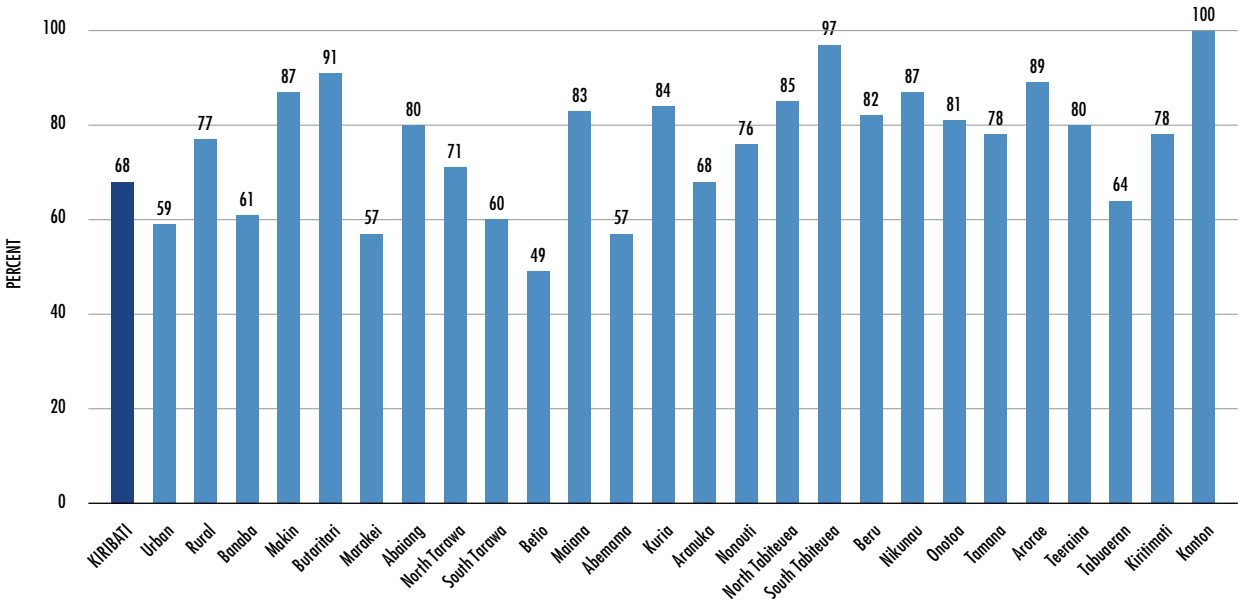
SOURCE: 2020 Census

TABLE 20
Households raising livestock by strata, gender and age of household head, Kiribati: 2020

	Number of Households			Proportion of Livestock Households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total livestock households	13 811	6 335	7 476				10 487	3 324	486	11 225	2 100
Local pigs	13 407	6 129	7 278	97%	97%	97%	10 199	3 208	467	10 894	2 046
Cross-breed pigs	1 108	512	596	8%	8%	8%	851	257	27	940	141
Local chickens	4 052	811	3 241	29%	13%	43%	3 313	739	155	3 191	706
Cross-breed chickens	179	51	128	1%	1%	2%	143	36	5	147	27
Ducks	33	22	11	0.2%	0.3%	0.1%	28	5	1	29	3
Other	250	86	164	2%	1%	2%	212	38	9	206	35

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

FIGURE 17
Proportion of households raising livestock/poultry by strata and island, 2020



SOURCE: 2020 Census

Households raising livestock/poultry were most prominent on the small island of Kanton, where all households reported having some livestock or poultry, followed closely by South Tabiteuea (97 percent) and Butaritari (91 percent) (Figure 17). Several other islands including Arorae, Nikunau, Makin and North Tabiteuea recorded 85 percent or more households raising livestock/poultry.

Livestock or poultry raising was less common for households on Betio, Abemama and Marakei Islands, with less than 60 percent of households reporting this activity.

4.2 Number of Livestock

The census recorded a total 87,450 livestock and poultry (chickens and ducks) in Kiribati in November 2020. This included 41,507 local and cross-breed pigs, 45,875 local and cross-breed chickens and 68 ducks (Table 21). A total of 409 other livestock were also reported.

Just under 70 percent of the total pig and poultry population were located on the rural islands, with 31 percent on the urban islands of South Tarawa, Betio and Kiritimati. While total pig populations didn't vary greatly between the urban and rural islands it was quite a different story for the chicken flock, where 83 percent were reported on the rural islands.

The majority of livestock were raised by male-headed households, including 77 percent of the pig herd and 84 percent of the chicken flock nationally.

4.2.1 Local Pigs

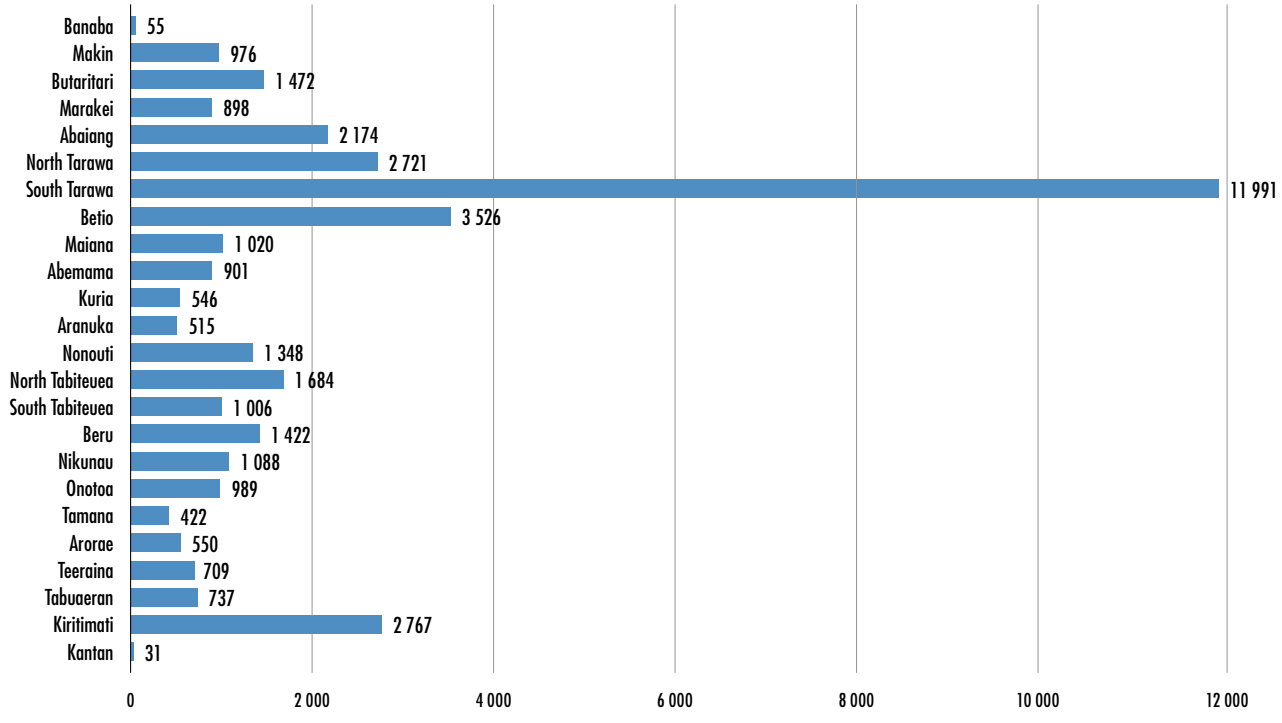
South Tarawa households reported almost 12,000 local pigs in 2020, slightly more than 30 percent of Kiribati's total local pig population (Figure 18). Other islands with high numbers of local pigs included Betio (3,526 pigs), Kiritimati (2,767 pigs) and North Tarawa (2,721 pigs). Between them, these four islands accounted for 53 percent of the country's total local pig population.

TABLE 21
Number of livestock by livestock type, strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Local pigs	39 548	18 284	21 264	30 391	9 157	1 172	32 089	6 287
Cross-breed pigs	1 959	958	1 001	1 450	509	51	1 601	307
Local chickens	44 026	6 634	37 392	36 814	7 212	1 654	33 688	8 684
Cross-breed chickens	1 849	1 095	754	1 568	281	12	1 259	578
Ducks	68	34	34	60	8	1	62	5
Other	409	143	266	350	59	12	340	57

SOURCE: 2020 Census

FIGURE 18
Number of local pigs by island, 2020



SOURCE: 2020 Census

The average local pig holding nationally was 2.9 animals, with little difference between the urban and rural islands, male and female headed households. The majority of the larger holdings of ten pigs or more were reported on the urban islands.

The older age group of 60 years plus household heads reported the highest average holding of 3.1 pigs, slightly above the national average (Table 22).

4.2.2 Cross-breed Pigs

Only 1,108 or 6 percent of all households with livestock/poultry reported having cross-breed pigs on their holding in 2020. Of the 1,959 cross-breed pigs reported by households, almost 27 percent were located on South Tarawa, with Kiritimati the next heavily populated with 271 animals followed by Betio with 161 animals (Figure 19). These three urban islands reported just under half of all cross-breed pigs across the country.

The majority of the rural islands reported total cross-breed pig numbers of less than 50 animals.

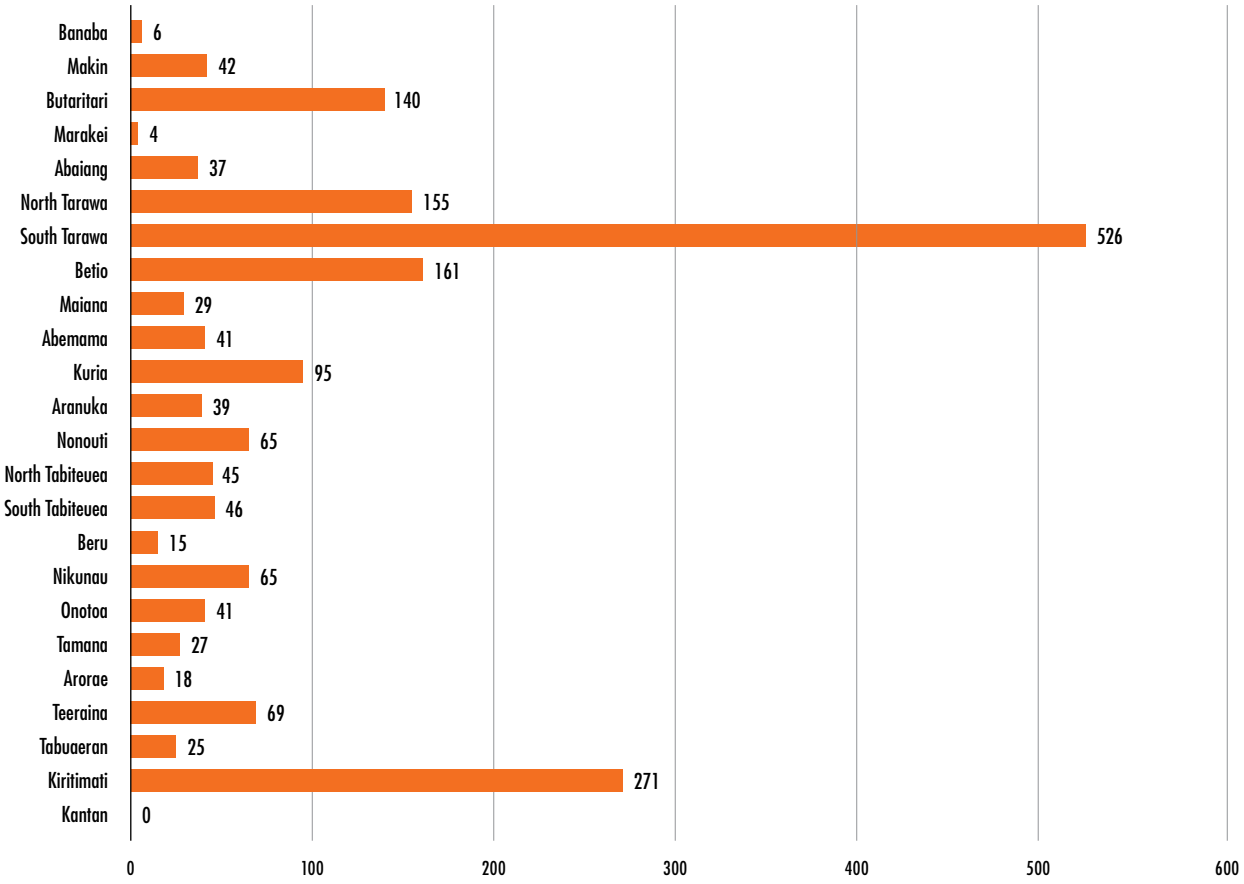
The average holding size of cross-breed pigs nationally was 1.8 animals, with similar averages of 1.9 on the urban islands and 1.7 on the rural islands (Table 23). As was the situation with local pigs, the 60 plus years age group of household heads had the higher average holdings with 2.2 animals.

TABLE 22
Number of households raising local pigs by holding size, strata, gender and age of household head, Kiribati: 2020

Number of local pigs in holding	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
1	3 511	1 809	1 702	2 544	967	170	2 839	502
2	3 537	1 531	2 006	2 723	814	130	2 899	508
3 to 5	5 051	2 093	2 958	3 916	1 135	134	4 098	819
6 to 9	1 070	545	525	849	221	28	863	179
10 to 14	188	114	74	135	53	3	154	31
15 to 19	37	27	10	20	17	1	31	5
20 and more	13	10	3	12	1	1	10	2
Total local pigs	39 548	18 284	21 264	30 391	9 157	1 172	32 089	6 287
Average holding	2.9	3.0	2.9	3.0	2.9	2.5	2.9	3.1

SOURCE: 2020 Census

FIGURE 19
Number of cross-breed pigs by island, 2020



SOURCE: 2020 Census

TABLE 23
Number of households raising cross-breed pigs by holding size, strata, gender and age of household head, Kiribati: 2020

Number of cross-breed pigs in holding	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
1	723	314	409	558	165	13	626	84
2	209	105	104	161	48	8	173	28
3 to 5	134	70	64	105	29	6	110	18
6 to 9	31	17	14	22	9	0	23	8
10 and more	11	6	5	5	6	0	8	3
Total cross-breed pigs	1 959	958	1 001	1 450	509	51	1 601	307
Average holding	1.8	1.9	1.7	1.7	2.0	1.9	1.7	2.2

SOURCE: 2020 Census

4.2.3 Pigsty Location and Cleaning

The 2020 Census also asked questions concerning the location of each household's pigsty in relation to distance from their neighbour and also the frequency of pigsty cleaning. Nationally 13 percent of pigsties were located close to neighbours, 50 percent a bit far away and 37 percent very far away from neighbour (Tables 24 and 25 and Figure 20).

As expected, on the more densely populated urban islands, a higher proportion (19 percent) of pigsties were located very close to neighbours and a lesser proportion (37 percent) were located very far from neighbours.

There was very little difference in the proportions of pigsty distance from neighbours between male and female-headed households or the different household head age groups.

Just over 90 percent of households raising pigs nationally reported that they cleaned their pigsty regularly, with urban households slightly higher than rural households (93 percent versus 88 percent) (Table 25 and Figure 21).

TABLE 24
Number of households raising pigs by location of pigsty from neighbour and cleaning of pigsty by strata, gender and age group of household head, Kiribati: 2020

Location and cleaning of pigsty	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Very close from neighbour	1 752	1 164	588	1 303	449	49	1 425	278
A bit far from neighbour	6 798	3 248	3 550	5 128	1 670	261	5 533	1 004
Very far from neighbour	5 082	1 844	3 238	3 924	1 158	165	4 126	791
Cleaned regularly	12 347	5 824	6 523	9 340	3 007	415	10 054	1 878
Not cleaned regularly	1 285	432	853	1 015	270	60	1 030	195

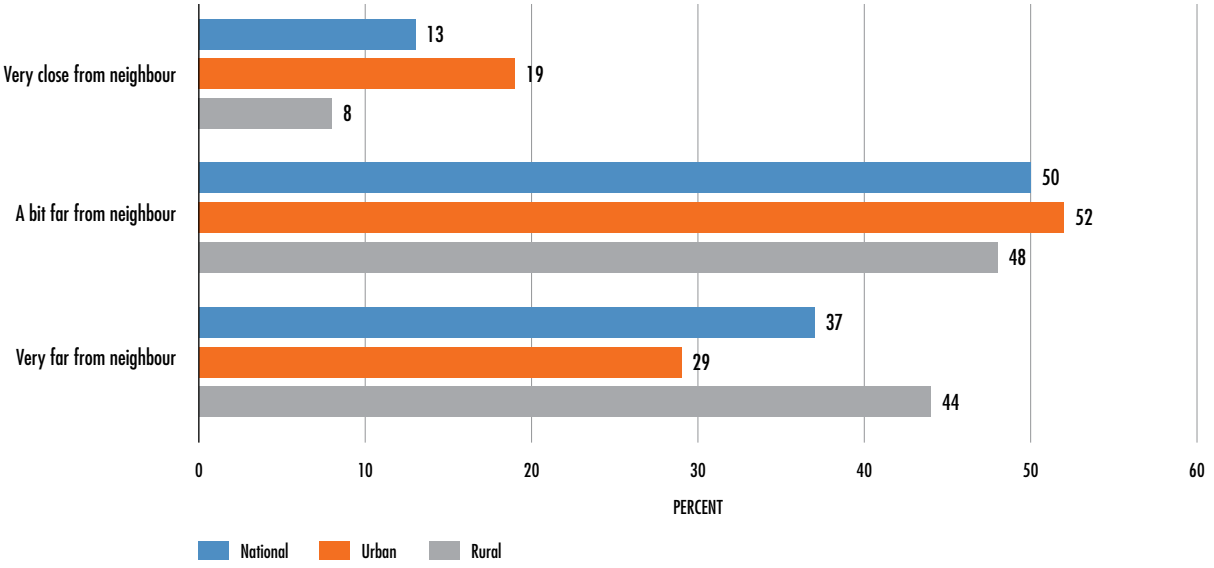
SOURCE: 2020 Census

TABLE 25
Proportion of households raising pigs by location of pigsty from neighbour and cleaning of pigsty by strata, gender and age group of household head, Kiribati: 2020

Location and cleaning of pigsty	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Very close from neighbour	13%	19%	8%	13%	14%	10%	13%	13%
A bit far from neighbour	50%	52%	48%	50%	51%	55%	50%	48%
Very far from neighbour	37%	29%	44%	38%	35%	35%	37%	38%
Cleaned regularly	91%	93%	88%	90%	92%	87%	91%	91%
Not cleaned regularly	9%	7%	12%	10%	8%	13%	9%	9%

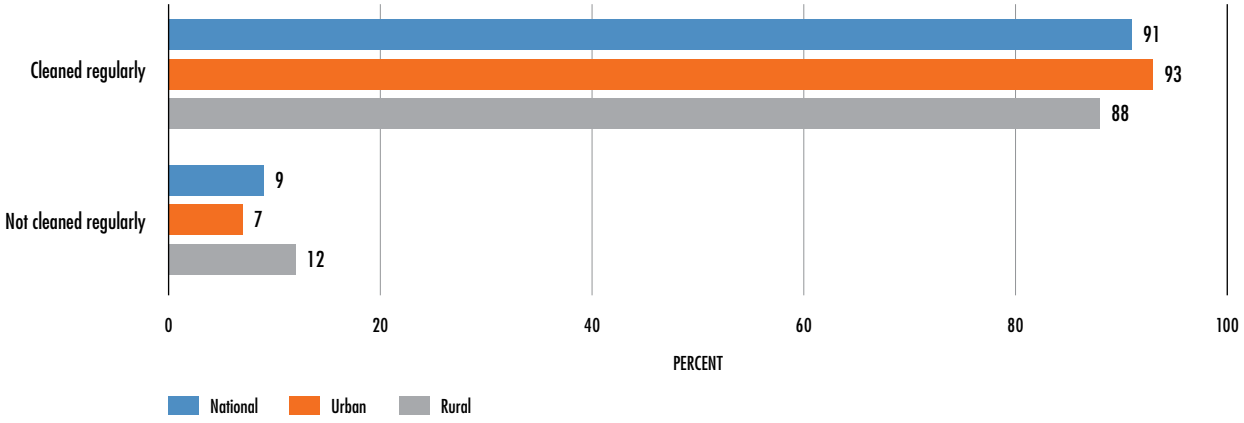
SOURCE: 2020 Census

FIGURE 20
Proportion of households raising pigs by location of pigsty from neighbour by strata, Kiribati (2020)



SOURCE: 2020 Census

FIGURE 21
Proportion of households raising pigs by frequency of cleaning pigsty by strata, Kiribati (2020)



SOURCE: 2020 Census

4.2.4 Local Chickens

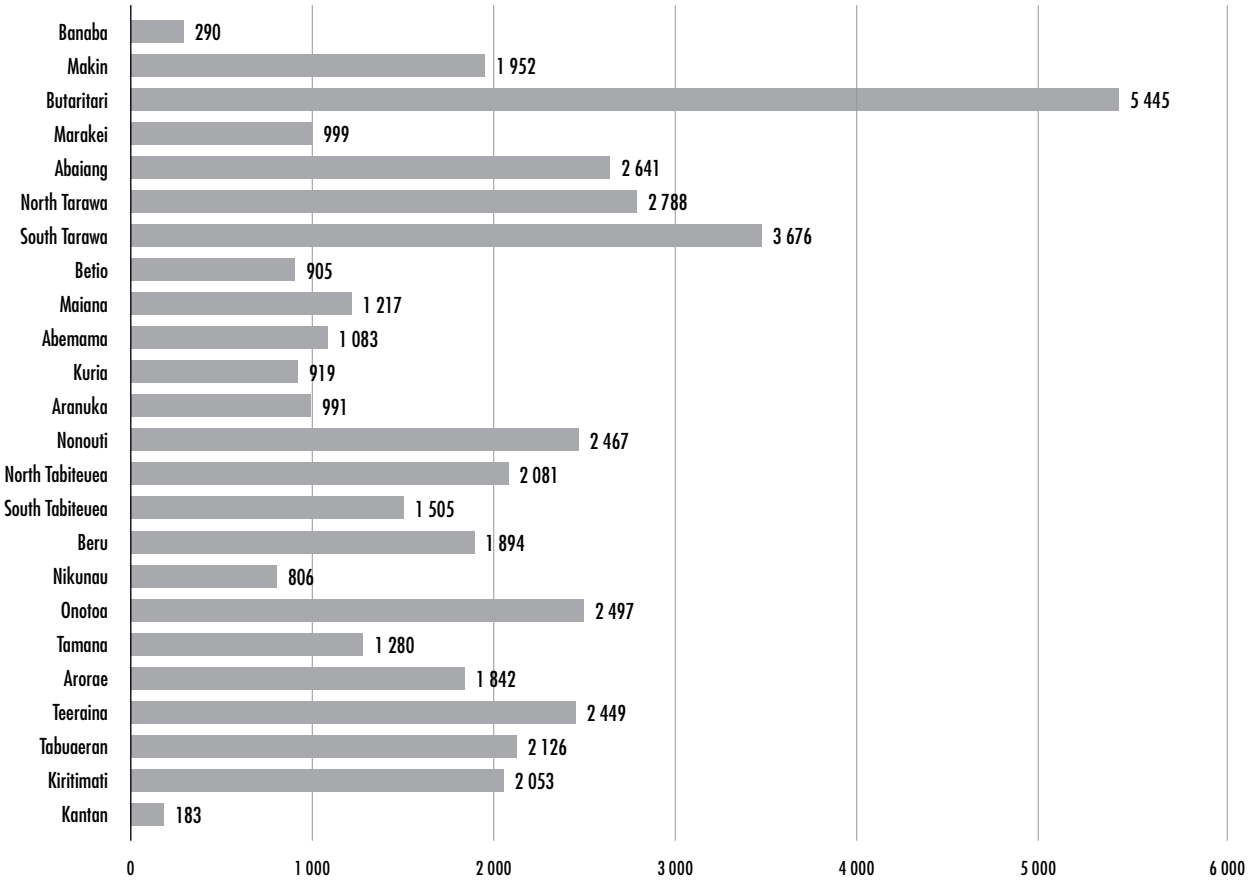
Butaritari households reported the most local chickens, with 5,445, followed by South Tarawa with 3,676 birds (Figure 22). Other islands with significant local chicken numbers were North Tarawa (2,788 birds), Abaiang (2,641) and Onotoa (2,497).

A number of other islands reported local chicken populations in the 1,500 to 2,500 range.

The average holding size of local chickens nationally was 10.9 birds, with an average 8.2 birds on the urban islands and a slightly higher average of 11.5 birds on the rural islands (Table 26). Urban households comprised 25 percent of households with flock sizes of nine birds or less, but this decreased to less than 13 percent of households with larger flock sizes of ten chickens or more.

Overall, female-headed households were raising 16 percent of the country's local chickens. This was slightly higher (20 percent) for the smaller flocks of less than five birds but interestingly female-headed households accounted for 18 percent of the larger chicken holdings, i.e. 30 birds or more.

FIGURE 22
Number of local chickens by island, 2020



SOURCE: 2020 Census

TABLE 26
Number of local chickens by holding size, strata, gender and age of household head, Kiribati: 2020

Number of local chickens in holding	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
1	359	153	206	282	77	16	304	39
2	429	127	302	330	99	20	356	53
3 to 5	912	201	711	740	172	37	730	145
6 to 9	608	107	501	472	136	21	483	104
10 to 14	571	78	493	489	82	25	430	116
15 to 19	495	48	447	426	69	11	363	121
20 to 29	441	53	388	379	62	14	341	86
30 to 49	196	33	163	161	35	9	154	33
50 and over	40	10	30	33	7	2	29	9
Total local chickens	44 026	6 634	37 392	36 814	7 212	1 654	33 688	8 684
Average holding	10.9	8.2	11.5	11.1	9.8	10.7	10.6	12.3

SOURCE: 2020 Census

4.2.5 Cross-breed Chickens

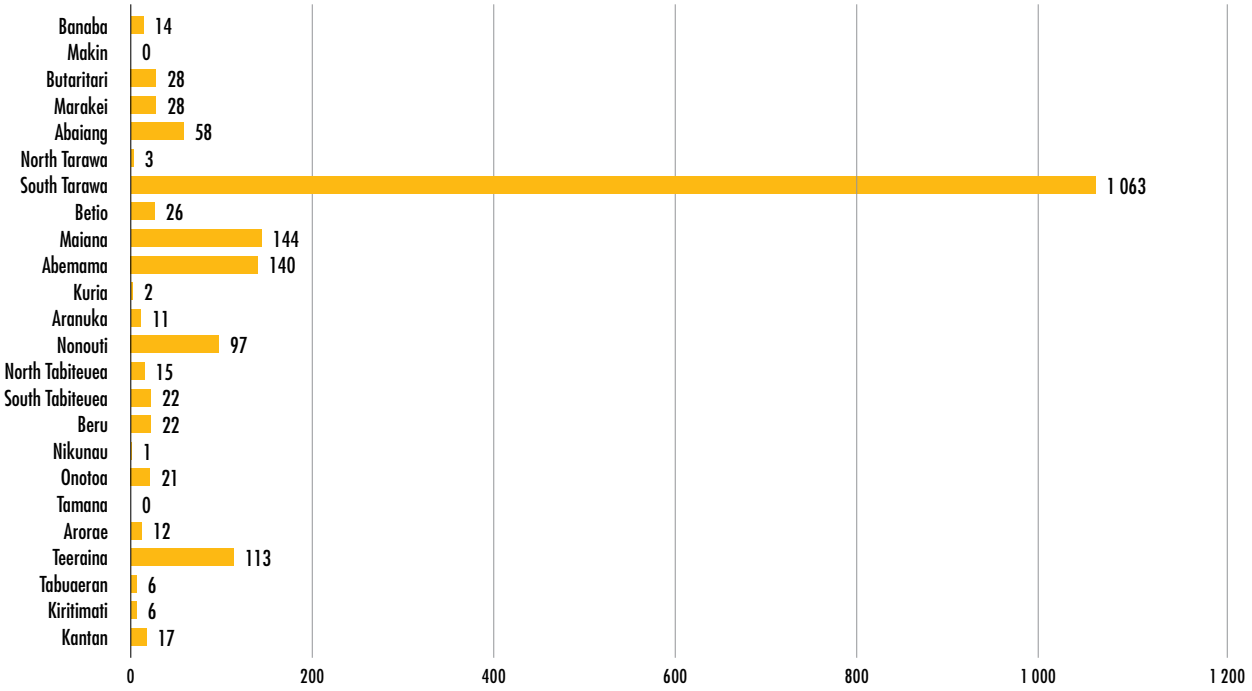
The vast majority of cross-breed chickens were reported on South Tarawa, with households reporting 1,063 birds (or 57 percent of the nation's flock). Maiana, Abemama and Teeraina Islands each reported more than 100 cross-breed chickens in 2020 (Figure 23).

The number of cross-breed chickens on several islands including Makin, North Tarawa, Kuria, Nikunau, Tamana, Tabuaeran and Kiritimati were very low, with each reporting less than ten birds in total.

The average cross-breed chicken holding across the 179 households nationally was 10.3 birds, with holdings on the urban islands double this with 21.5 birds (Table 27). This was particularly evident on South Tarawa Island where 16 households reported holdings of 15 or more cross-breed birds.

Average holdings were 5.9 birds on the rural islands, male-headed households reported average holdings of 11 birds, compared with 7.8 birds for female-headed households and household heads aged 60 years and over reported average holdings of 21.4 cross-breed birds.

FIGURE 23
Number of cross-breed chickens by island, 2020



SOURCE: 2020 Census

TABLE 27
Number of households with cross-breed chickens by holding size, strata, gender and age of household head, Kiribati: 2020

Number of cross-breed chickens in holding	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
1	69	23	46	51	18	2	58	9
2	28	4	24	23	5	1	24	3
3 to 5	23	7	16	21	2	2	19	2
6 to 9	14	0	14	12	2	0	10	4
10 to 14	16	1	15	12	4	0	14	2
15 and over	29	16	13	24	5	0	22	7
Total cross-breed chickens	1 849	1 095	754	1 568	281	12	1 259	578
Average holding	10.3	21.5	5.9	11.0	7.8	2.4	8.6	21.4

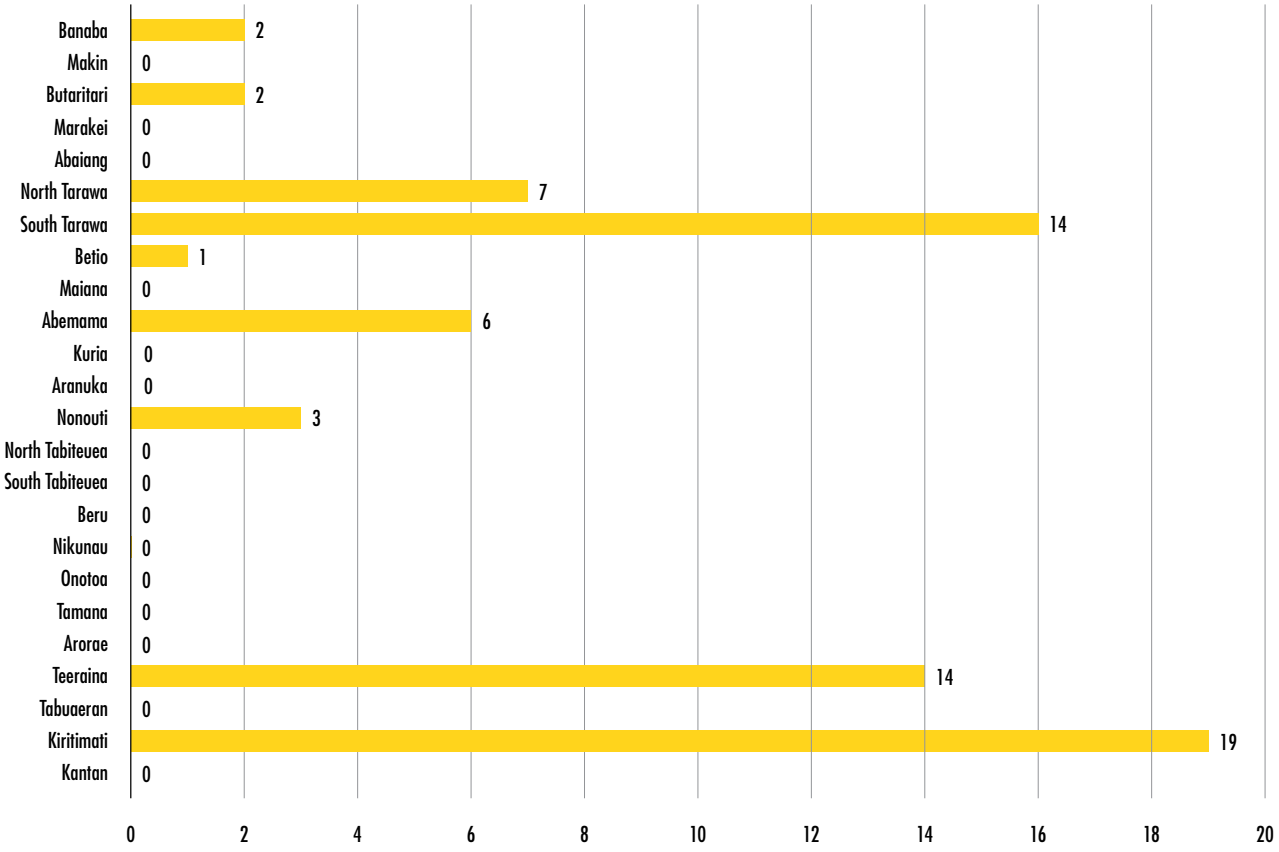
SOURCE: 2020 Census

4.2.6 Ducks

The number of ducks reported in 2020 was only 68 across the whole country, with almost 70 percent of these reported on the three islands of Kiritimati, Teeraina and South Tarawa. Of the other 21 islands, six islands reported total populations of less than 10 ducks, while no ducks were reported on the remaining fifteen islands (Figure 24).

With only 33 households reporting ducks, the average holding nationally was 2.1 ducks, comprising average holdings of 1.5 ducks on the urban islands and 3.1 ducks on the five rural islands reporting ducks.

FIGURE 24
Number of ducks by island, 2020



SOURCE: 2020 Census

4.3 Trends in Livestock Raising

Similar to the situation with cropping households, there was a continued downward trend in the number of households raising livestock in 2020 compared with 2015, with estimates of less households raising each livestock type.

Whilst the reduction in livestock households between Censuses was not quite to the same level as with crop growing households, nonetheless there was a 5.1 percent decrease in households raising local pigs and an 18 percent decrease in households with local chickens. Decreases in households raising cross-breed pigs and cross-breed chickens between 2015 and 2020 were 35 percent and 39 percent respectively, and there was a significant reduction of 73 percent in households raising ducks (Table 28).

Between 2015 and 2020, reductions in the number of households raising livestock and/or poultry were recorded across both strata (urban and rural islands) and every livestock type (Table 28 and Figure 25). The number of households raising local pigs decreased the least of all livestock types, with the national reduction of 5 percent comprised of a 6 percent reduction of households on the urban islands and a 4 percent reduction on the rural islands.

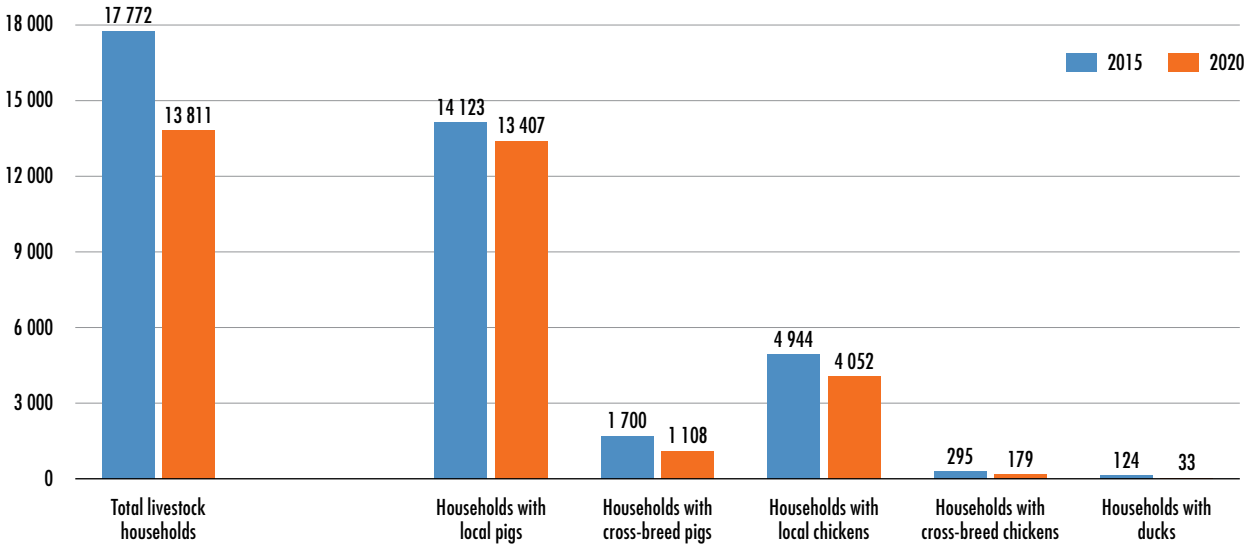
The number of households raising local chickens, the main poultry type, reduced by almost 900 nationally, or a decrease of 18 percent across the board. There appeared to be a move away from the raising of both cross-breed pigs and cross-breed chickens throughout Kiribati, where the number of households raising these livestock/poultry decreased by 35 percent and 39 percent respectively between 2015 and 2020.

TABLE 28
Number and percent change of households raising livestock by strata and livestock type, Kiribati: 2015 and 2020

	2015			2020			% change		
	Number of Households			Number of Households					
	National	Urban	Rural	National	Urban	Rural	National	Urban	Rural
Total livestock households	17 772	8 894	8 878	13 811	6 335	7 476	-22%	-29%	-16%
Households with local pigs	14 123	6 536	7 587	13 407	6 129	7 278	-5%	-6%	-4%
Households with Cross-breed pigs	1 700	757	943	1 108	512	596	-35%	-32%	-37%
Households with Local chickens	4 944	992	3 952	4 052	811	3 241	-18%	-18%	-18%
Households with Cross-breed chickens	295	81	214	179	51	128	-39%	-37%	-40%
Households with Ducks	124	85	39	33	22	11	-73%	-74%	-72%
Households with Other livestock				250	86	164	-	-	-

SOURCE: 2015 and 2020 Censuses

FIGURE 25
Number of Households Raising Livestock/Poultry by type, Kiribati (2015 and 2020)



SOURCE: 2015 and 2020 Censuses

Households raising ducks also decreased significantly, down 73 percent nationally with reductions consistent across both urban (down 74 percent) and rural (down 72 percent) islands.

When compared with livestock counts reported in the previous 2015 Census, the number of pigs and poultry all declined. Poultry flock numbers experienced the largest decline, with duck numbers decreasing by 85 percent between 2015 and 2020, and local and cross-breed chicken numbers experiencing declines of 12 percent and 30 percent respectively (Table 29 and Figure 26).

The reduction in local pig numbers nationally was less dramatic at 3 percent, however cross-breed pig numbers in 2020 were down some 43 percent on those recorded in 2015.

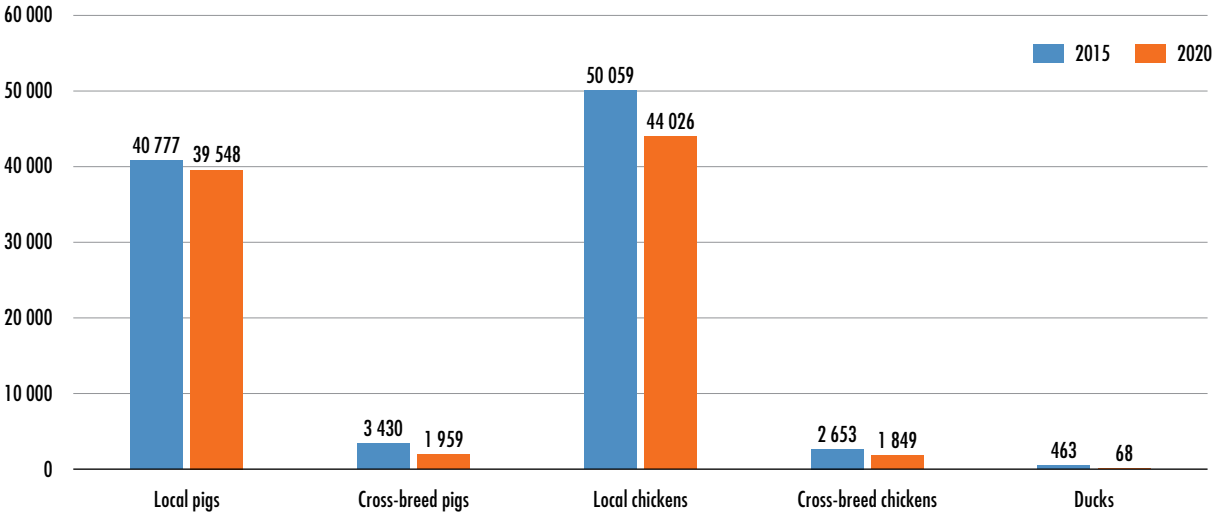
These reductions are consistent with and reflective of the reduced number of livestock and poultry households reported in 2020.

TABLE 29
Number and percent change of livestock/poultry by livestock type, Kiribati: 2015 and 2020

Livestock type	Number of Livestock/Poultry		
	2015	2020	% change
Local pigs	40 777	39 548	-3%
Cross-breed pigs	3 430	1 959	-43%
Local chickens	50 059	44 026	-12%
Cross-breed chickens	2 653	1 849	-30%
Ducks	462	68	-85%

SOURCE: 2015 and 2020 Censuses

FIGURE 26
Number of livestock/poultry by livestock type, Kiribati (2015 and 2020)



SOURCE: 2015 and 2020 Censuses

4.4 Purpose for Raising Livestock

Just over half (54 percent) of households raising livestock and/or poultry reported that the purpose was either only or mainly for home consumption (Table 30 and Figure 27). Similarly to cropping households, only a very small proportion (4 percent) of households reported raising livestock only or mainly for sale.

The main difference with cropping households was the significant number of households (35 percent) who reported that their main purpose for raising livestock was customary purposes.

Interestingly, the incidence of customary practices was slightly higher on the urban islands of South Tarawa, Betio and Kiritimati (37 percent) than on the rural and outer islands (34 percent).

There was negligible difference between male and female-headed households or the various household head age groups in terms of the main purpose for raising livestock and/or poultry.

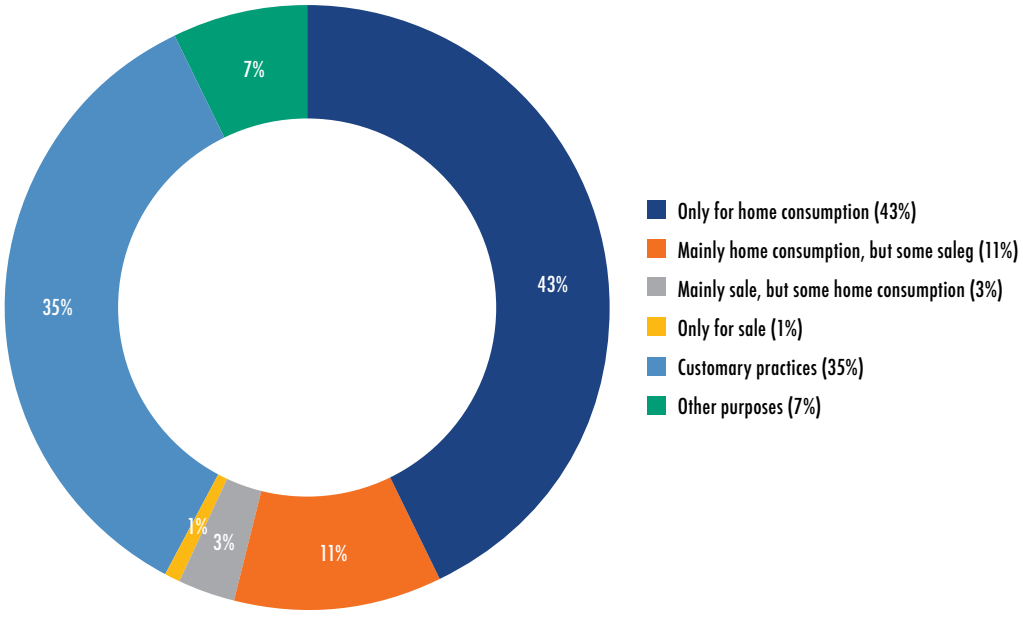
It is not possible to assess whether households' purpose for raising livestock has altered over the past decade as, unlike the 2020 Census, neither of the previous 2010 or 2015 Censuses asked any specific questions in relation to each household's purpose for raising livestock.

TABLE 30
Households raising livestock by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of households			Proportion of households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total livestock households	13 811	6 335	7 476	100%	100%	100%	10 487	3 324	486	11 225	2 100
Only for home consumption	5 979	2 607	3 372	43%	41%	45%	4 459	1 520	226	4 884	869
Mainly home consumption, but some sale	1 476	602	874	11%	10%	12%	1 204	272	42	1 190	244
Mainly sale, but some home consumption	365	215	150	3%	3%	2%	287	78	7	297	61
Only for sale	171	124	47	1%	2%	1%	128	43	4	148	19
Customary practices	4 880	2 337	2 543	35%	37%	34%	3 675	1 205	166	3 922	792
Other purposes	940	450	490	7%	7%	7%	734	206	41	784	115

NOTE: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

FIGURE 27
Proportion of households raising livestock by purpose, Kiribati (2020)



SOURCE: 2020 Census

CHAPTER 5
FISHING

There is a great reliance on marine resources for livelihoods, government revenue, and especially nutrition in Kiribati. By several estimates, Kiribati has the highest per capita consumption of fish of any country in the world.

Kiribati's fishery sector has two main categories: (1) coastal fisheries, which are subsistence and small-scale commercial – also known as artisanal – fisheries that occur in lagoons, reefs, reef slopes and nearshore ocean areas; and (2) offshore fisheries, which are the industrial-scale commercial tuna fisheries in offshore waters.

Subsistence and small-scale commercial fishing is conducted throughout the islands using traditional canoes powered by sail or paddle, plywood canoes with outboard motors, and larger craft also powered by outboards. Small-scale commercial fishing is concentrated around Tarawa, where a sizable population, cash-oriented economy, and ice and cold-store facilities provide suitable market conditions.

A large amount of tuna is captured by the industrial offshore fisheries, but the vast majority of the catch is taken by vessels based outside the country.[10]

The 2020 Census household questionnaire collected information on household members' fishing and seafood gathering activities in the previous twelve months, including fishing methods used, fishing locations, boat ownership and the main purpose of fishing.

5.1 Households Engaged in Fishing

Of the 20,354 households recorded in Kiribati in 2020, 9,663 households (47 percent) reported that they had undertaken fishing activities in the previous twelve months leading up to the Census (Table 31 and Figure 28). Fishing was more common on the rural islands where 63 percent of all households reported fishing, compared with 33 percent of households on the urban islands of South Tarawa, Betio and Kiritimati.

Male-headed households were more commonly involved in fishing activities, with 53 percent of all households nationally compared to 33 percent of female-headed households. A higher proportion (57 percent) of households where the household head was in the younger 15-24 years age group, reported engaging in fishing, compared with 48 percent and 40 percent of the 25-59 years and 60 plus years age groups respectively.

At the island level, 90 percent of households on South Tabiteuea were engaged in fishing activities, followed by Teeraina households (80 percent), Kanton and Nonouti households with 78 percent and 77 percent respectively (Figure 29). At the other end of the scale, the urban islands of Betio and South Tarawa reported 24 percent and 31 percent of households respectively were engaged in fishing.

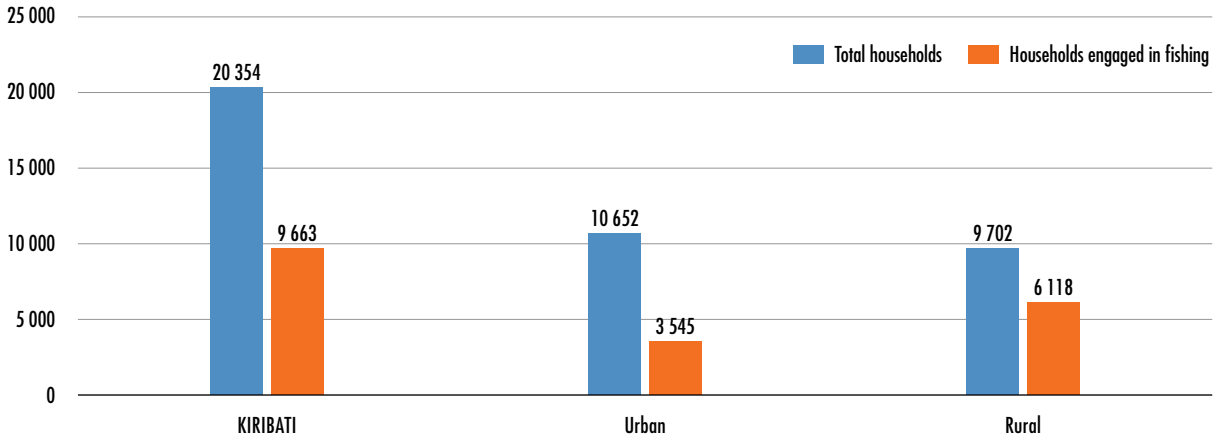
TABLE 31
Number and proportion of households engaged in fishing by strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	KIRIBATI	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Households	20 354	10 652	9 702	14 956	5 398	783	16 489	3 082
Fishing Households	9 663	3 545	6 118	7 877	1 786	447	7 972	1 244
Percent	47%	33%	63%	53%	33%	57%	48%	40%

SOURCE: 2020 Census

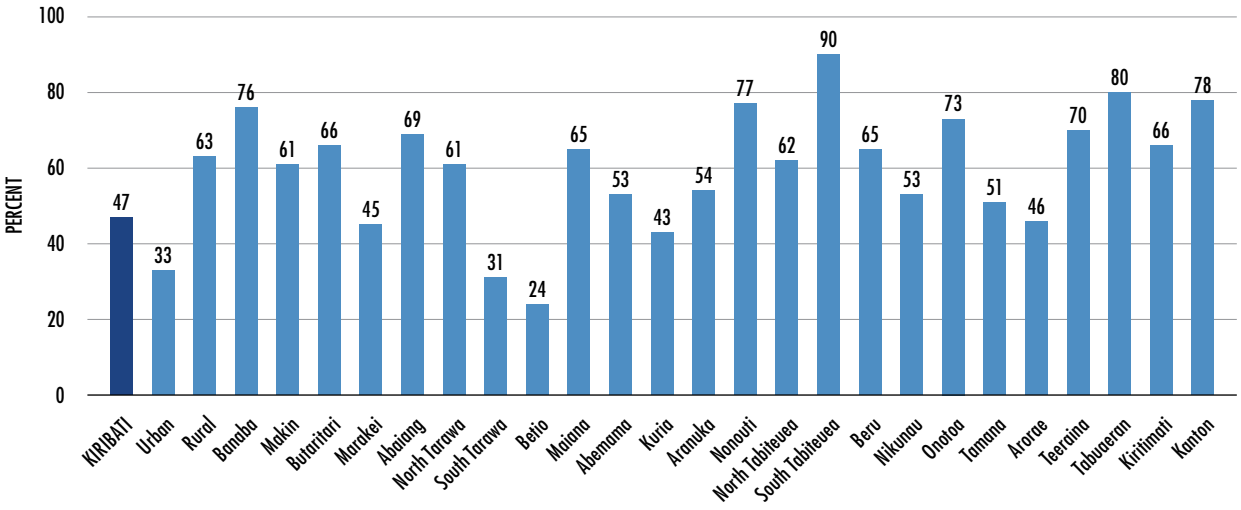
[10] © FAO 2021. Fishery and Aquaculture Country Profiles Kiribati. Country Profile Fact Sheets. Fisheries and Aquaculture Division (https://www.fao.org/fishery/en/facp/83/en).

FIGURE 28
Number of households engaged in fishing by strata, Kiribati (2015 and 2020)



SOURCE: 2015 and 2020 Censuses

FIGURE 29
Proportion of households engaged in fishing by strata and island, 2020



SOURCE: 2020 Census

5.2 Types of Fishing Activities

The most common type of fishing undertaken was scoop net fishing with 66 percent of fishing households engaged in this type, including 74 percent of rural island fishing households (Table 32 and Figure 30). Other popular fishing methods included drop stone fishing, practised by 22 percent of fishing households nationally and particularly on the rural islands (27 percent) and mantis shrimp fishing, practised by 11 percent of fishing households.

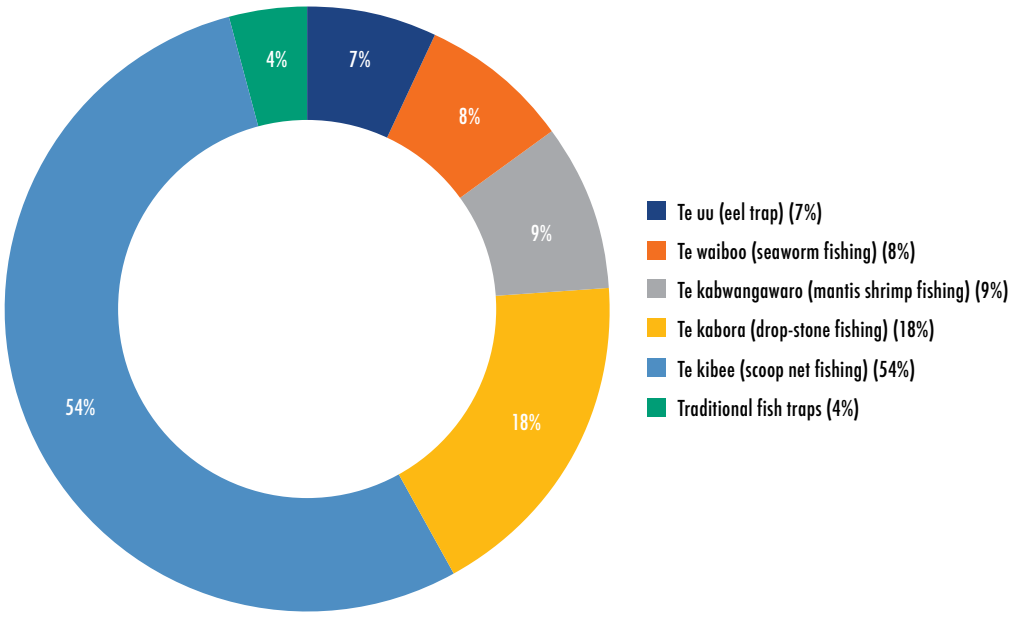
Only 525 fishing households nationally (5 percent) reported owning a traditional fish trap. These fish traps were more prominent on the rural islands, where they were owned by 8 percent of fishing households compared with one percent of urban island fishing households.

TABLE 32
Number and proportion of households engaged in fishing by fishing type, strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Fishing Households	9 663	3 545	6 118	7 877	1 786	447	7 972	1 244
Type of Fishing (Households)								
Te uu (eel trap)	861	104	757	760	101	36	674	151
Te waiboo (seaworm fishing)	902	97	805	785	117	35	739	128
Te kabwangawaro (mantis shrimp fishing)	1 068	184	884	927	141	66	864	138
Te kabora (drop-stone fishing)	2 157	506	1 651	1 884	273	101	1 764	292
Te kibee (scoop net fishing)	6 373	1 840	4 533	5 310	1 063	337	5 229	807
Traditional fish traps	525	44	481	463	62	20	399	106
Type of Fishing (%)								
Te uu (eel trap)	9%	3%	12%	10%	6%	8%	8%	12%
Te waiboo (seaworm fishing)	9%	3%	13%	10%	7%	8%	9%	10%
Te kabwangawaro (mantis shrimp fishing)	11%	5%	14%	12%	8%	15%	11%	11%
Te kabora (drop-stone fishing)	22%	14%	27%	24%	15%	23%	22%	23%
Te kibee (scoop net fishing)	66%	52%	74%	67%	60%	75%	66%	65%
Traditional fish traps	5%	1%	8%	6%	3%	4%	5%	9%

SOURCE: 2020 Census

FIGURE 30
Proportion of households engaged in fishing by fishing type, Kiribati (2020)



SOURCE: 2020 Census

5.3 Location of Fishing Activities

In the 2020 Census, fishing households were questioned on where they normally fished. It is evident from the data that households do not restrict themselves to a single location type and that they fish in any combination of lagoons, flats, reef or ocean throughout the year. The more popular locations reported were lagoons (50 percent of fishing households), reef flats (42 percent) and lagoon flats (40 percent) (Table 33 and Figure 31). Ocean fishing was the normal fishing location for 30 percent of fishing households.

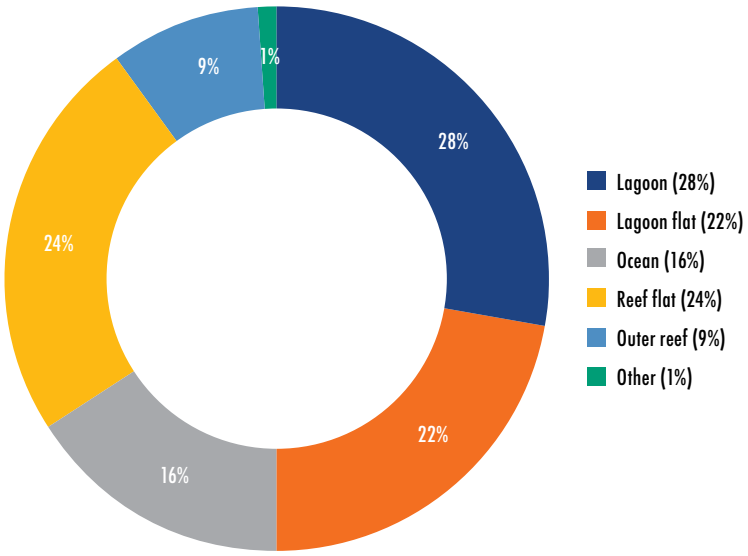
For households on the urban islands, female-headed households and households where the head was from the older age group of 60 plus years, lagoon flat fishing was slightly favoured ahead of reef flat fishing.

TABLE 33
Number and proportion of households engaged in fishing by fishing location, strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Fishing Households	9 663	3 545	6 118	7 877	1 786	447	7 972	1 244
Fishing Location (Households)								
Lagoon	4 874	1 664	3 210	4 025	849	218	4 047	609
Lagoon flat	3 829	1 339	2 490	3 088	741	179	3 112	538
Ocean	2 858	933	1 925	2 417	441	127	2 375	356
Reef flat	4 100	1 146	2 954	3 426	674	209	3 370	521
Outer reef	1 574	572	1 002	1 335	239	70	1 305	199
Other	138	113	25	109	29	4	117	17
Fishing Location (%)								
Lagoon	50%	47%	52%	51%	48%	49%	51%	49%
Lagoon flat	40%	38%	41%	39%	41%	40%	39%	43%
Ocean	30%	26%	31%	31%	25%	28%	30%	29%
Reef flat	42%	32%	48%	43%	38%	47%	42%	42%
Outer reef	16%	16%	16%	17%	13%	16%	16%	16%
Other	1%	3%	0%	1%	2%	1%	1%	1%

SOURCE: 2020 Census

FIGURE 31
Proportion of households engaged in fishing by normal fishing location, Kiribati (2020)



SOURCE: 2020 Census

5.4 Type of Fishing Boat Owned

Canoes were the most common type of fishing boat owned, with 15 percent of fishing households reporting this type of vessel. One-fifth (21 percent) of fishing households on the rural islands reported owning canoes compared with only 3 percent of urban island households (Table 34 and Figure 32).

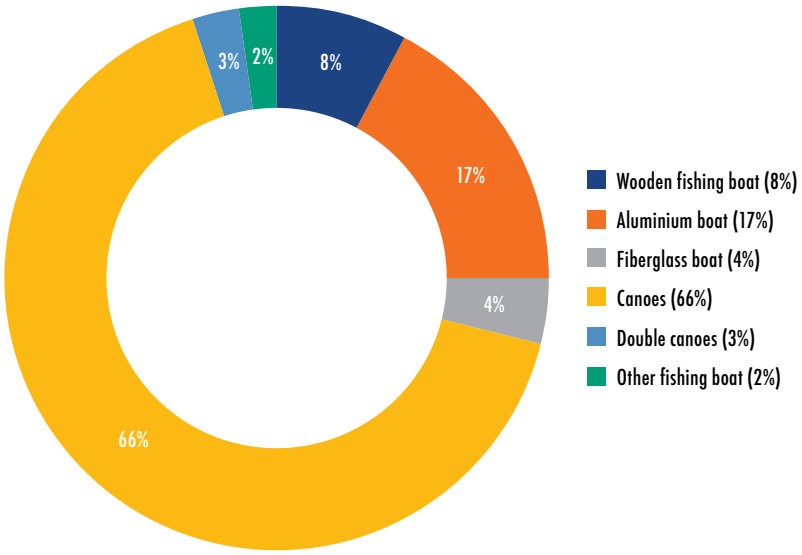
Just under 5 percent of all fishing households reported owning either an aluminium or fiberglass boat.

TABLE 34
Number and proportion of households engaged in fishing by type of boat, strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Fishing Households	9 663	3 545	6 118	7 877	1 786	447	7 972	1 244
Type of boat (households)								
Wooden fishing boat	177	121	56	143	34	2	148	27
Aluminium boat	370	133	237	311	59	7	296	67
Fiberglass boat	92	49	43	73	19	3	81	8
Canoes	1 403	124	1 279	1 279	124	52	1 140	211
Double canoes	60	11	49	54	6	2	48	10
Other fishing boat	33	10	23	27	6	0	25	8
Type of boat (%)								
Wooden fishing boat	2%	3%	1%	2%	2%	0%	2%	2%
Aluminium boat	4%	4%	4%	4%	3%	2%	4%	5%
Fiberglass boat	1%	1%	1%	1%	1%	1%	1%	1%
Canoes	15%	3%	21%	16%	7%	12%	14%	17%
Double canoes	1%	0%	1%	1%	0%	0%	1%	1%
Other fishing boat	0%	0%	0%	0%	0%	0%	0%	1%

SOURCE: 2020 Census

FIGURE 32
Proportion of fishing households owning boats by boat type, Kiribati (2020)



SOURCE: 2020 Census

5.5 Number of Fishing Boats Owned

The 2020 Census also collected data on how many fishing boats were owned by fishing households. A total of 2,296 boats were reported as owned, with two-thirds of these being canoes and 17 percent being aluminium boats (Table 35).

Just under 90 percent of all boats were owned by male-headed households while the average number of boats owned by fishing households who owned boats varied between 1.0 and 1.2 nationally.

5.6 Trends in Fishing Activities

The 2020 Census identified significant concerns in relation to the number of households engaged in fishing or collecting seafood compared with the previous 2015 Census. While the total number of households across Kiribati increased by 15 percent, the number of fishing households reduced by 21 percent nationally, including decreases of 30 percent on the urban islands and 14 percent on the rural islands (Table 36).

TABLE 35
Number and average of fishing boats owned by type of boat, strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Fishing Households	9 663	3 545	6 118	7 877	1 786	447	7 972	1 244
Fishing boats owned								
Wooden fishing boat	207	150	57	170	37	3	171	33
Aluminium boat	385	136	249	325	60	7	308	70
Fiberglass boat	96	51	45	75	21	3	84	9
Canoes	1 510	135	1 375	1 380	130	55	1 216	239
Double canoes	62	13	49	56	6	2	49	11
Other fishing boat	36	13	23	30	6	0	28	8
Total boats owned	2 296	498	1 798	2 036	260	70	1 856	370
Fishing boats average								
Wooden fishing boat	1.2	1.2	1.0	1.2	1.1	1.5	1.2	1.2
Aluminium boat	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0
Fiberglass boat	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.1
Canoes	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1
Double canoes	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.1
Other fishing boat	1.1	1.3	1.0	1.1	1.0	-	1.1	1.0

SOURCE: 2020 Census

TABLE 36
Number and change in fishing households by strata, Kiribati: 2015 and 2020

	2015			2020			Change		
	National	Urban	Rural	National	Urban	Rural	National	Urban	Rural
Total Households	17 772	8 894	8 878	20 354	10 652	9 702	15%	20%	9%
Total Fishing Households	12 196	5 093	7 103	9 663	3 545	6 118	-21%	-30%	-14%
Fishing households (%)	69%	57%	80%	47%	33%	63%			

SOURCE: 2015 and 2020 Censuses

In 2015, 69 percent of all households reported undertaking fishing activities while in 2020 this had dropped to 47 percent of all households. The proportion of urban island households engaged in fishing fell from 57 percent in 2015 to 33 percent in 2020 while rural island fishing households fell from 80 percent in 2015 to 63 percent in 2020.

The 2020 Census reported that the most prevalent fishing activity was lagoon and reef flat fishing, followed by lagoon flat and ocean fishing. In the previous 2015 Census, ocean fishing ranked as the second most common location behind lagoon fishing, followed by lagoon flat and reef flat fishing.

Table 37 has been prepared in an attempt to identify any trends in fishing locations utilized by fishing households over the decade between 2010 and 2020.

Care should be taken when comparing fishing location data from the various 2010, 2015 and 2020 Censuses as the data collected is not strictly comparable. In both the 2010 Census and the more recent 2020 Census, the questionnaire allowed respondents to select multiple fishing locations, whereas the 2015 Census questionnaire only provided for the selection of a single, main location.

The previously mentioned reductions in households engaged in fishing activities between Censuses were mirrored by significant reductions in boat ownership across the five years, where the overall number of boats owned fell by 47 percent nationally. There were reductions of 65 percent recorded on the urban islands and 39 percent on the rural islands (Table 38).

While all boat types were affected, the number of wooden and aluminium fishing boats owned fell by 75 percent and 54 percent respectively. Even ownership of the popular canoe fell by 26 percent nationally, including by over half on the urban islands.

It is unclear why such dramatic decreases have occurred, other than perhaps a shift towards households purchasing fish and seafood rather than catching or collecting it themselves.

TABLE 37
Number and change in households fishing by fishing location, Kiribati: 2010, 2015 and 2020

	Census years			Difference 2015 – 2020	% change
	2010	2015	2020		
Total fishing households	na	12 196	9 663	-2 533	-21%
Households fishing in Lagoon	9 260	5 449	4 874	-575	-11%
Households fishing in Lagoon flat	9 436	1 872	3 829	1 957	105%
Households fishing in Ocean	4 754	2 381	2 858	477	20%
Households fishing in Reef flat	5 656	1 178	4 100	2 922	248%
Households fishing in Outer reef	8 744	711	1 574	863	121%
Other	nc	605	138	-467	-77%

NOTE: multi-select location options in 2010 and 2020 Censuses, single location selection in 2015 Census; na - not available; nc - not collected.
SOURCE: 2010, 2015 and 2020 Censuses

TABLE 38
Number and change in boat ownership by type of boat and strata, Kiribati: 2015 and 2020

Type of boat	2015			2020			% change		
	National	Urban	Rural	National	Urban	Rural	National	Urban	Rural
Wooden fishing boat	839	536	303	207	150	57	-75%	-72%	-81%
Aluminium boat	840	394	446	385	136	249	-54%	-65%	-44%
Fiberglass boat	247	94	153	96	51	45	-61%	-46%	-71%
Canoes	2 051	276	1775	1 510	135	1 375	-26%	-51%	-23%
Double canoes	224	71	153	62	13	49	-72%	-82%	-68%
Other fishing boat	167	44	123	36	13	23	-78%	-70%	-81%
Total boats	4368	1415	2 953	2 296	498	1798	-47%	-65%	-39%

SOURCE: 2015 and 2020 Censuses

5.7 Purpose of Fishing Activities

The 2020 Census reported that the majority (69 percent) of household fishing activity was undertaken for home consumption only, with a further 20 percent of fishing households nationally and almost one quarter (24 percent) of households on the rural islands fishing mainly for home consumption but also having some fish sales (Table 39 and Figure 33).

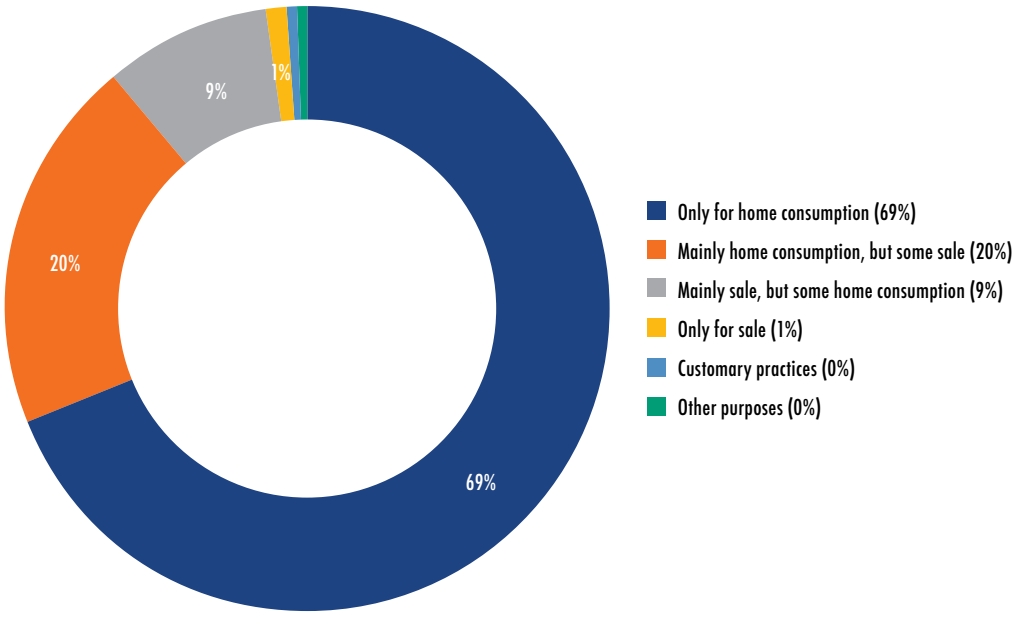
Twelve (12) percent of fishing households on the urban islands and 8 percent of rural fishing households reported that they fished mainly to sell their catch but also had some home consumption. Less than one percent of households reported that their main purpose for fishing was for customary practices.

TABLE 39
Households engaged in fishing by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of Households			Proportion of Households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Fishing Households	9 663	3 545	6 118	100%	100%	100%	7 877	1 786	447	7 972	1 244
Only for home consumption	6 715	2 578	4 137	69%	73%	68%	5 303	1 412	329	5 504	882
Mainly home consumption, but some sale	1 971	497	1 474	20%	14%	24%	1 747	224	75	1 641	255
Mainly sale, but some home consumption	869	408	461	9%	12%	8%	743	126	38	742	89
Only for sale	74	49	25	1%	1%	0%	58	16	3	59	12
Customary practices	17	4	13	0%	0%	0%	12	5	1	13	3
Other purposes	17	9	8	0%	0%	0%	14	3	1	13	3

SOURCE: 2020 Census

FIGURE 33
Proportion of households engaged in fishing by purpose, Kiribati (2020)



SOURCE: 2020 Census

Analysis of data from both the 2015 and 2020 Censuses shows that while there was a decrease in the number of households fishing, there was a reported increase in the number of households catching fish where the purpose was for both sale and home consumption.

To undertake this comparison it was necessary to combine categories from the 2020 Census to align with the information collected in 2015. For example, the 'Mainly home consumption, but some sale' and 'Mainly sale, but some home consumption' categories were combined into the 'Both for home consumption and sale' component in Table 40 below. Similarly the category 'Customary practices' was combined with the 'Other purposes' category.

In 2015, 75 percent of households reported that their main purpose for fishing was home consumption. This reduced to 69 percent of households in 2020, with the main reductions occurring on the urban islands (from 81 percent in 2015 down to 73 percent in 2020).

The proportion of households catching fish for both home consumption and sale increased from 19 percent nationally in 2015 to 29 percent in 2020. This comprised increases from 13 percent to 26 percent of households on the urban islands and from 23 percent to 32 percent on the rural islands between 2015 and 2020.

Interestingly, the proportion of households engaged in fishing primarily for sale purposes reduced from 4 percent to 1 percent across this five year period.

TABLE 40
Number and proportion of households engaged in fishing by purpose and strata, Kiribati: 2015 and 2020

	2015			2020			% change		
	National	Urban	Rural	National	Urban	Rural	National	Urban	Rural
Total Fishing Households	12 196	5 093	7 103	9 663	3 545	6 118	-21%	-30%	-14%
Home consumption	9 089	4 106	4 983	6 715	2 578	4 137	-26%	-37%	-17%
Both for home consumption and sale	2 290	651	1 639	2 840	905	1 935	24%	39%	18%
For sale	503	234	269	74	49	25	-85%	-79%	-91%
Other purposes	314	102	212	34	13	21	-89%	-87%	-90%
Percent of Total Fishing Households									
Home consumption	75%	81%	70%	69%	73%	68%			
Both for home consumption and sale	19%	13%	23%	29%	26%	32%			
For sale	4%	5%	4%	1%	1%	0%			
Other purposes	3%	2%	3%	0%	0%	0%			

SOURCE: 2015 and 2020 Censuses

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CHAPTER 6
HANDICRAFTS

The 2020 Census collected basic information on whether the household had undertaken handicraft activities in the previous twelve months and the main purpose for producing the handicrafts, i.e. for home consumption or use, for sale of some combination of both home consumption and sale.

Further details about the types of handicrafts produced and the number of items produced were not collected.

6.1 Households Engaged in Handicraft Production

In 2020, just over one-fifth (22 percent) of households in Kiribati reported that they were engaged in handicraft production, including 37 percent of rural island households and 8 percent of urban households (Table 41).

Handicraft production was particularly evident on Makin, South Tabiteuea, Beru and Butaritari islands, where 63 percent, 55 percent, 52 percent and 51 percent of households respectively reported handicraft production (Figure 34).

Just under one-quarter (23 percent) of male-headed households reported producing handicrafts compared with 17 percent of female-headed households. Handicraft production was fairly consistent across the three reported household head age groups with 27 percent of the 60 years plus household head age group reporting handicraft production.

6.2 Households with Food Stock

The 2020 Census also questioned households on whether they had any food stock on Census night. Just under half (47 percent) of households nationally reported some food stocks, including two-thirds of rural households.

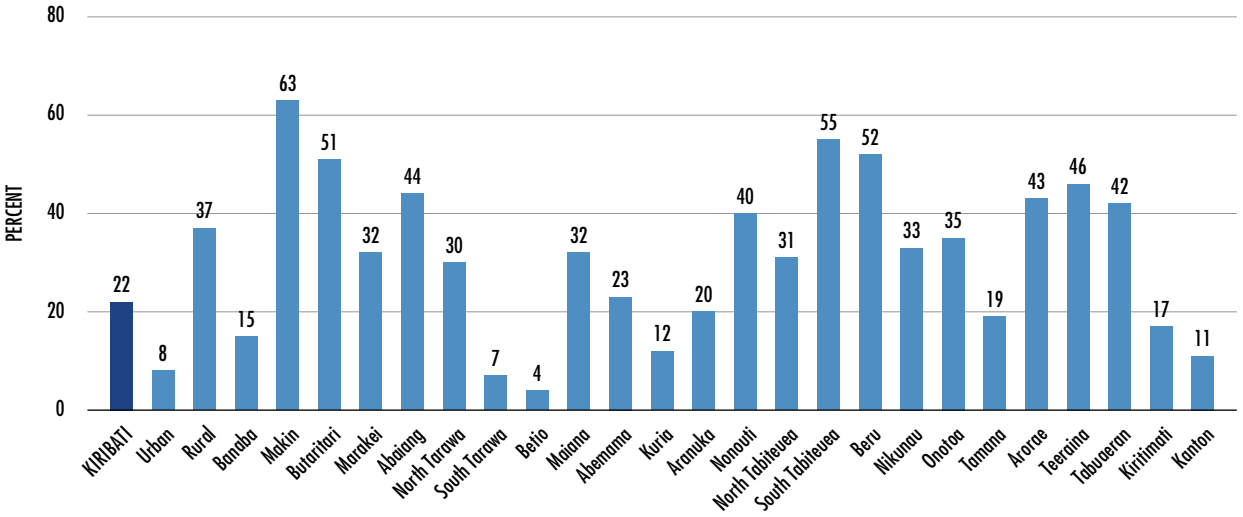
The most popular food stock was Te tari ni ika (Dried salt fish), held by 35 percent of households nationally and more than half (54 percent) of rural island households (Table 42). Stocks of Dried pandanus puree (Te tuae) and Toddy Syrup (Te kamwaimwai) were reported by 19 percent and 15 percent of households respectively.

TABLE 41
Households engaged in handicraft production by strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	KIRIBATI	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Households	20 354	10 652	9 702	14 956	5 398	783	16 489	3 082
Handicraft Households	4 406	809	3 597	3 463	943	153	3 434	819
Percent	22%	8%	37%	23%	17%	20%	21%	27%

SOURCE: 2020 Census

FIGURE 34
Proportion of households engaged in handicraft production by strata and island, 2020



SOURCE: 2020 Census

TABLE 42
Households having food stock by type, strata, gender and age of household head, Kiribati: 2020

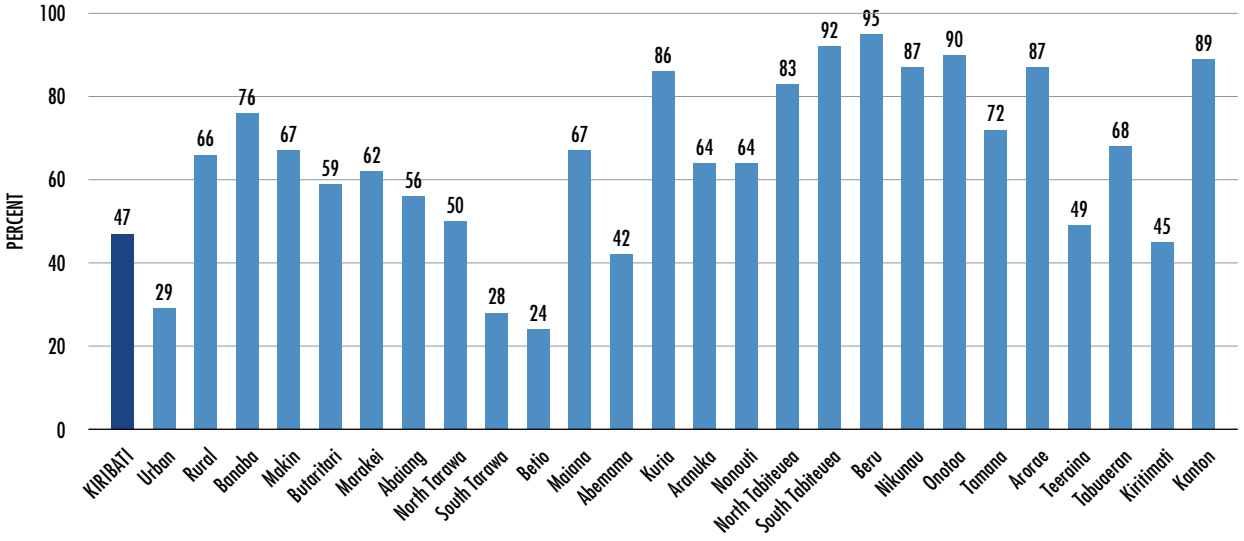
	Number of households			Proportion of households			HH head sex		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total households	20 354	10 652	9 702				14 956	5 398	783	16 489	3 082
Households with food stock	9 544	3 095	6 449	47%	29%	66%	7 317	2 227	328	7 569	1 647
Te tuae (dried pandanus puree)	3 787	1 189	2 598	19%	11%	27%	2 814	973	90	2 879	818
Te tari ni ika (dried salt fish)	7 209	2 009	5 200	35%	19%	54%	5 614	1 595	280	5 714	1 215
Te kamwaimwai (toddy syrup)	2 968	1 131	1 837	15%	11%	19%	2 261	707	78	2 339	551
Te kabubu (pandanus powder)	425	98	327	2%	1%	3%	331	94	14	306	105
Te kabwibwi n mai (dried breadfruit)	1 049	331	718	5%	3%	7%	779	270	27	809	213
Te kabwibwi n ika (dried boiled fish)	591	108	483	3%	1%	5%	479	112	28	459	104

Note: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

It was extremely common for high numbers of households on the rural islands to report having food stocks on Census night. This included 95 percent of households on Beru Island, 92 percent on South Tabiteuea and 90 percent on Onotoa Island (Figure 35). Kanton, Arorae, Nikunau and Kuria Islands all reported more than 85 percent of households with food stocks.

Only 24 percent and 28 percent of households on the urban islands of Betio and South Tarawa respectively reported having food stocks on Census night in November 2020.

FIGURE 35
Proportion of households having food stock by strata and island, Kiribati (2020)



SOURCE: 2020 Census

6.3 Purpose of Handicraft Production

Just under half (47 percent) of all households producing handicrafts did so only for their own household use/consumption, 8 percent produced handicrafts only for sale and 40 percent reported a combination of both home consumption and sales (Table 43 and Figure 36).

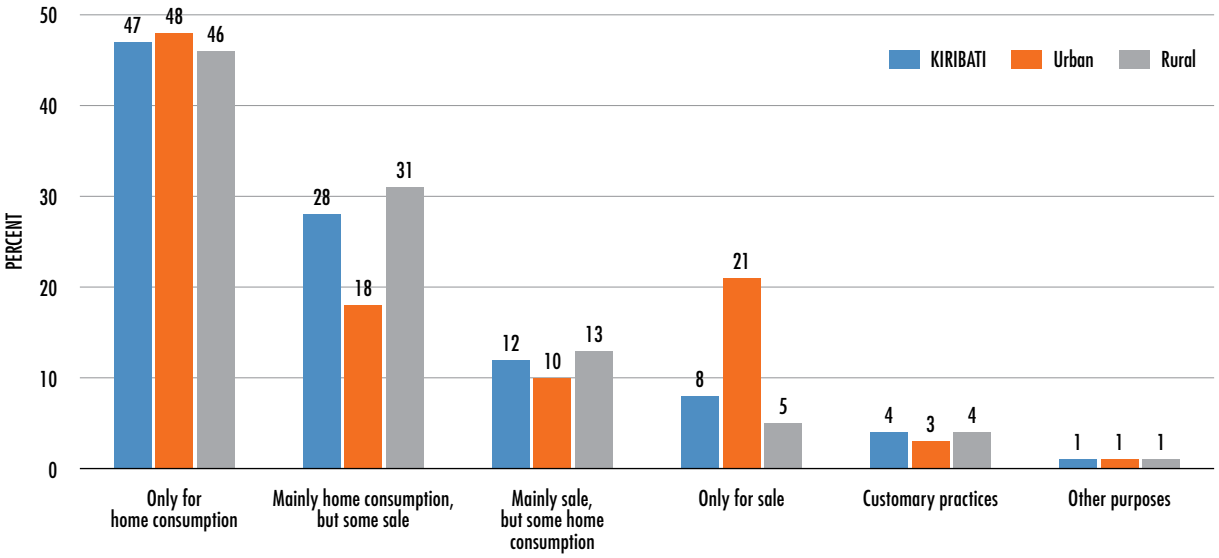
While urban island households accounted for only 18 percent of handicraft producing households nationally, over one-fifth (21 percent) of the urban island handicraft households reported making handicrafts only for sale, compared with only 5 percent of rural island households. The production of handicrafts for customary practices or other purposes was consistent across both urban and rural island households, at 3 percent and 4 percent respectively.

TABLE 43
Households engaged in handicraft production by purpose, strata, gender and age of household head, Kiribati: 2020

	Number of households			Proportion of households			HH head gender		HH head age group		
	National	Urban	Rural	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total handicraft households	4 406	809	3 597	100%	100%	100%	3 463	943	153	3 434	819
Only for home consumption	2 052	387	1 665	47%	48%	46%	1 638	414	84	1 594	374
Mainly home consumption, but some sale	1 251	144	1 107	28%	18%	31%	1 005	246	36	972	243
Mainly sale, but some home consumption	531	79	452	12%	10%	13%	404	127	17	414	100
Only for sale	340	169	171	8%	21%	5%	233	107	7	273	60
Customary practices	177	21	156	4%	3%	4%	140	37	6	140	31
Other purposes	55	9	46	1%	1%	1%	43	12	3	41	11

Note: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census

FIGURE 36
Households engaged in handicraft production by purpose and strata, Kiribati (2020)



SOURCE: 2020 Census

6.4 Trends in Handicraft Production

No information in relation to handicraft activity was collected in either of the previous 2010 and 2015 Censuses, therefore any comparison with data from the 2020 Census is not possible.

However, the 2019 Kiribati Household Income and Expenditure Survey (HIES) did collect information on handicrafts and food processing production. Whilst the data from the 2019 HIES and 2020 Census are not directly comparable, the data is quite consistent in terms of the proportion of households either creating handicrafts or processing food stocks (Table 44).

What is clear is that the processing and preserving of food stocks is a more common practice for rural island households than for households on the urban islands. This was true for all types of food stocks reported and is possibly due to urban households having more disposable income and ready access to markets to buy food products than households on the rural or remote islands.

TABLE 44
Households engaged in handicrafts and having food stocks by type, strata, gender and age of household head, Kiribati: 2019 and 2020

	Number of households			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total households	20 354	10 652	9 702	14 956	5 398	783	16 489	3 082
Population and Housing Census, 2020								
Total handicraft households	4 406	809	3 597	3 463	943	153	3 434	819
	22%	8%	37%	23%	17%	20%	21%	27%
Households with food stock	9 544	3 095	6 449	7 317	2 227	328	7 569	1 647
	47%	29%	66%	49%	41%	42%	46%	53%
Te tuae (dried pandanus puree)	3 787	1 189	2 598	2 814	973	90	2 879	818
	19%	11%	27%	19%	18%	11%	17%	27%
Te tari ni ika (dried salt fish)	7 209	2 009	5 200	5 614	1 595	280	5 714	1 215
	35%	19%	54%	38%	30%	36%	35%	39%
Te kamwaimwai (toddy syrup)	2 968	1 131	1 837	2 261	707	78	2 339	551
	15%	11%	19%	15%	13%	10%	14%	18%
Te kabubu (pandanus powder)	425	98	327	331	94	14	306	105
	2%	1%	3%	2%	2%	2%	2%	3%
Te kabwibwi n mai (dried breadfruit)	1 049	331	718	779	270	27	809	213
	5%	3%	7%	5%	5%	3%	5%	7%
Te kabwibwi n ika (dried boiled fish)	591	108	483	479	112	28	459	104
	3%	1%	5%	3%	2%	4%	3%	3%
Household Income and Expenditure Survey, 2019								
Had handicraft/food processing production (HH)	7 373	3 486	3 887	5 076	2 297	141	6 284	948
	36%	33%	40%	34%	43%	18%	38%	31%

Note: 'Urban' includes South Tarawa, Betio and Kiritimati Islands, 'Rural' = all other islands.
SOURCE: 2020 Census and 2019 HIES

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CHAPTER 7
HOUSEHOLD DEMOGRAPHICS

This section presents the demographics of agriculture and fishing households, household heads and members working in agriculture or fishing as reported in the 2020 Census. The analysis includes education levels achieved and household member size by gender as well as agriculture or fishing work undertaken by household members.

7.1 Household Members Working in Agriculture or Fishing

The 2020 Census reported that 5,307 persons aged 15 years and above identified that their main economic activity was working in own farming, raising animals or fishing (Table 45). This represented 7 percent of the total population aged 15 years and above.

The majority (85 percent) of these were males, representing 12 percent of the total male population aged 15 years or above. The 800 females working in own farming, raising animals or fishing accounted for 2 percent of the total female population aged 15 years or above.

The Census reported that 15 percent of the working age population on the rural islands were working in own farming, raising animals or fishing, including 26 percent of males and 4 percent of females aged 15 years or above. This compares with less than 2 percent of the working age population on the urban islands.

TABLE 45
Number of household members aged 15 years and over with main activity own agriculture/fishing by gender, age and strata: 2020

Age group		Number of household members		
		National	Urban	Rural
Total	15–19	362	29	333
	20–24	761	90	671
	25–44	2 701	421	2 280
	45–59	1 150	187	963
	60+	333	43	290
	Total Ag/Fishing	5 307	770	4 537
	Total aged 15+	76 521	45 995	30 526
Male	15–19	335	28	307
	20–24	696	80	616
	25–44	2 296	351	1 945
	45–59	913	154	759
	60+	267	32	235
	Total Ag/Fishing	4 507	645	3 862
	Total aged 15+	36 832	21 698	15 134
Female	15–19	27	1	26
	20–24	65	10	55
	25–44	405	70	335
	45–59	237	33	204
	60+	66	11	55
	Total Ag/Fishing	800	125	675
	Total aged 15+	39 689	24 297	15 392

SOURCE: 2020 Census

7.1.1 Hours Worked On Own Account Agriculture and Fishing

The Census also questioned respondents on how many hours they had spent working on their own farming, raising animals or fishing activities in the previous week.

At a national level, just under 86 percent of own account agriculture and fishing workers indicated that they worked between one and 24 hours in the previous week, 7 percent worked between 25 and 34 hours and 8 percent worked 35 hours or more (Table 46). At the strata level, 87 percent of members of households on the rural islands worked less than 24 hours the previous week compared with 75 percent of household members on the urban islands. One-quarter (25 percent) of urban household members responded that they had worked more than 25 hours while this applied to 13 percent of rural household members.

On a gender basis, a higher proportion of male workers tended to work longer hours in their farming and fishing activities than did female workers. This is not surprising given that many of the female workers also had domestic duties to undertake.

7.1.2 Main Purpose For Own Account Agriculture and Fishing

Of the 5,307 household members reporting their main activity was working on their own farming, raising animals or fishing activities, 63 percent nationally indicated the main purpose for their farming or fishing was only or mainly for sale (Table 47). This was slightly higher at 74 percent for household members on the urban islands.

Approximately one-fifth of respondents nationally indicated that the main purpose of their own agriculture or fishing activities was for home consumption only. This was slightly higher for rural island household members (23 percent) than urban island workers (14 percent).


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TABLE 46
Number of household members aged 15 years and over with main activity own agriculture/fishing by gender, weekly hours worked and strata, Kiribati: 2020

Weekly hours worked		Number of household members		
		National	Urban	Rural
Total	1–9	2 109	248	1 861
	10–24	2 420	328	2 092
	25–34	372	87	285
	35 or more	405	106	299
Male	1–9	1 777	202	1 575
	10–24	2 053	275	1 778
	25–34	318	74	244
	35 or more	358	93	265
Female	1–9	332	46	286
	10–24	367	53	314
	25–34	54	13	41
	35 or more	47	13	34

SOURCE: 2020 Census

TABLE 47
Number and proportion of household members aged 15 years and over with main activity own agriculture/fishing by purpose and strata, Kiribati: 2020

Purpose	Number of household members			Percent		
	National	Urban	Rural	National	Urban	Rural
Total	5 307	770	4 537	100%	100%	100%
Only for sale	1 961	288	1 673	37%	37%	37%
Mainly for sale	1 383	282	1 101	26%	37%	24%
Mainly for family consumption	837	96	741	16%	12%	16%
Only for family consumption	1 126	104	1 022	21%	14%	23%

SOURCE: 2020 Census

TABLE 48
Number and proportion of household members growing food in plot or kitchen garden in past week by gender, age and strata, Kiribati: 2020

Age group		Number of household members			Proportion members growing food (%)		
		National	Urban	Rural	National	Urban	Rural
Total	15–19	576	328	248	6%	7%	5%
	20–24	956	500	456	10%	11%	9%
	25–44	4 514	2 220	2294	48%	49%	48%
	45–59	2 438	1 117	1321	26%	25%	27%
	60+	867	360	507	9%	8%	11%
	Total growing food	9 351	4 525	4 826	100%	100%	100%
	Total aged 15+	76 521	45 995	30 526			
Male	15–19	327	195	132	7%	9%	6%
	20–24	487	279	208	11%	12%	9%
	25–44	2 045	1 072	973	45%	48%	43%
	45–59	1 157	521	636	26%	23%	28%
	60+	483	183	300	11%	8%	13%
	Total growing food	4 499	2 250	2 249	100%	100%	100%
	Total aged 15+	36 832	21 698	15 134			
Female	15–19	249	133	116	5%	6%	5%
	20–24	469	221	248	10%	10%	10%
	25–44	2 469	1 148	1 321	51%	50%	51%
	45–59	1 281	596	685	26%	26%	27%
	60+	384	177	207	8%	8%	8%
	Total growing food	4 852	2 275	2 577	100%	100%	100%
	Total aged 15+	39 689	24 297	15 392			

SOURCE: 2020 Census

7.1.3 Household Members Growing Food

The 2020 Census also questioned whether any household members had grown food in a plot or kitchen garden mainly for consumption by the household in the previous week. Nationally, 9,351 household members (12 percent of the total population aged 15 years and over) reported this activity. This comprised 10 percent of all working age persons on the urban islands and 16 percent of all working age persons on the rural islands (Table 48). Just under half of these were aged 25 to 44 years while a further quarter were aged in the 45 to 59 years age group.

At the national level, the gender split was the same at 12 percent of the working population, however a greater proportion of females on the rural islands (17 percent) reported growing food in a plot or kitchen garden mainly for household consumption than females on the urban islands, reported by 9 percent.

7.1.4 Household Members Raising or Tended Farm Animals

A total of 24,299 household members reported that they had raised or tended farm animals in the week prior to the 2020 Census (Table 49). This represented 32 percent of all persons aged 15 years and over nationally. The proportion was higher on the rural islands where 41 percent of the working age population reported this livestock activity, compared with 26 percent of the urban island working age population.

While 32 percent of males on the urban islands reported raising or tending farm animals, only 20 percent of females on the urban islands reported this activity. This gender split was reversed on the rural islands where 43 percent of females aged 15 years and over had raised or tended farm animals in the previous week compared with 39 percent of males.

TABLE 49
Number of household members raising or tending farm animals in past week by gender, age and island, 2020

Age group		Number of household members			Proportion members raising or tending livestock (%)		
		National	Urban	Rural	National	Urban	Rural
Total	15–19	2 039	1 155	884	8%	10%	7%
	20–24	3 104	1 694	1 410	13%	14%	11%
	25–44	11 866	5 859	6 007	49%	49%	48%
	45–59	5 424	2 392	3 032	22%	20%	24%
	60+	1 866	774	1 092	8%	7%	9%
	Total raising livestock	24 299	11 874	12 425	100%	100%	100%
	Total aged 15+	76 521	45 995	30 526			
Male	15–19	1 354	800	554	11%	12%	9%
	20–24	1 838	1 119	719	14%	16%	12%
	25–44	6 006	3 331	2 675	47%	48%	46%
	45–59	2 597	1 252	1 345	20%	18%	23%
	60+	963	409	554	8%	6%	9%
	Total raising livestock	12 758	6 911	5 847	100%	100%	100%
	Total aged 15+	36 832	21 698	15 134			
Female	15–19	685	355	330	6%	7%	5%
	20–24	1 266	575	691	11%	12%	11%
	25–44	5 860	2 528	3 332	51%	51%	51%
	45–59	2 827	1 140	1 687	24%	23%	26%
	60+	903	365	538	8%	7%	8%
	Total raising livestock	11 541	4 963	6 578	100%	100%	100%
	Total aged 15+	39 689	24 297	15 392			

SOURCE: 2020 Census

7.1.5 Household Members Fishing, Fish Farming or Collecting Shellfish

In the 2020 Census, 10,563 people indicated that they had been fishing, fish farming or collecting shellfish in the week preceding the Census in November 2020 (Table 50). This represented 14 percent of all persons aged 15 years and above, comprising 9 percent and 21 percent of the urban and rural island populations respectively aged 15 years or more.

On the rural islands, almost a third (30 percent) of working age males and 11 percent of working age females reported fishing or collecting shellfish in the previous week, compared with 17 percent of male and 3 percent of female household members on the urban islands.

While there were similar proportions of males and females in the 25 to 44 year age group engaged in these activities (52 percent and 51 percent respectively), there tended to be higher proportions of females fishing or collection shellfish in both the 45 to 59 years and over 60 years age groups.

TABLE 50
Number and proportion of household members fishing, fish farming or collecting shellfish in past week by gender, age and strata, Kiribati: 2020

Age group		Number of household members			Proportion members fishing, fish farming or collecting shellfish (%)		
		National	Urban	Rural	National	Urban	Rural
Total	15–19	1 019	427	592	10%	10%	9%
	20–24	1 698	794	904	16%	19%	14%
	25–44	5 431	2 243	3 188	51%	53%	51%
	45–59	1 953	667	1 286	18%	16%	20%
	60+	462	131	331	4%	3%	5%
	Total fishing, collecting shellfish	10 563	4 262	6 301	100%	100%	100%
	Total aged 15+	76 521	45 995	30 526			
Male	15–19	854	367	487	10%	10%	11%
	20–24	1 402	705	697	17%	20%	15%
	25–44	4 206	1 903	2 303	52%	53%	50%
	45–59	1 394	521	873	17%	15%	19%
	60+	307	85	222	4%	2%	5%
	Total fishing, collecting shellfish	8 163	3 581	4 582	100%	100%	100%
	Total aged 15+	36 832	21 698	15 134			
Female	15–19	165	60	105	7%	9%	6%
	20–24	296	89	207	12%	13%	12%
	25–44	1 225	340	885	51%	50%	51%
	45–59	559	146	413	23%	21%	24%
	60+	155	46	109	6%	7%	6%
	Total fishing, collecting shellfish	2 400	681	1 719	100%	100%	100%
	Total aged 15+	39 689	24 297	15 392			

SOURCE: 2020 Census

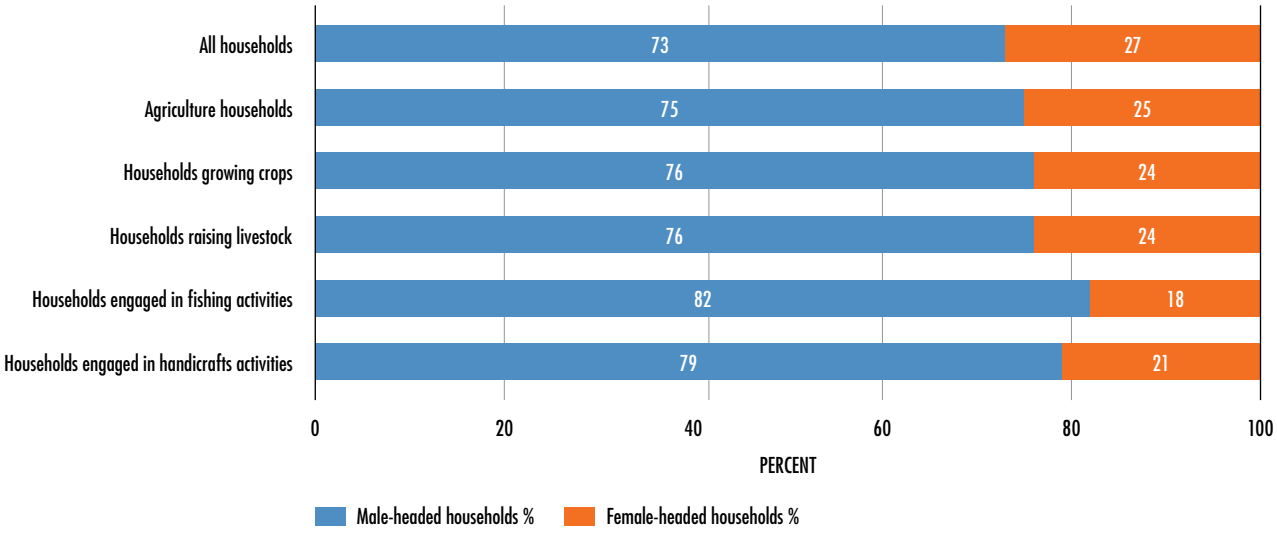
7.2 Gender

Of the 20,354 total households across Kiribati in 2020, 14,956 (73 percent) were headed by males and 5,398 (27 percent) by females.

Of the 15,467 households (76 percent) who indicated they were engaged in agriculture, the gender split was 75 percent of these households were headed by males and 25 percent by females (Figure 37).

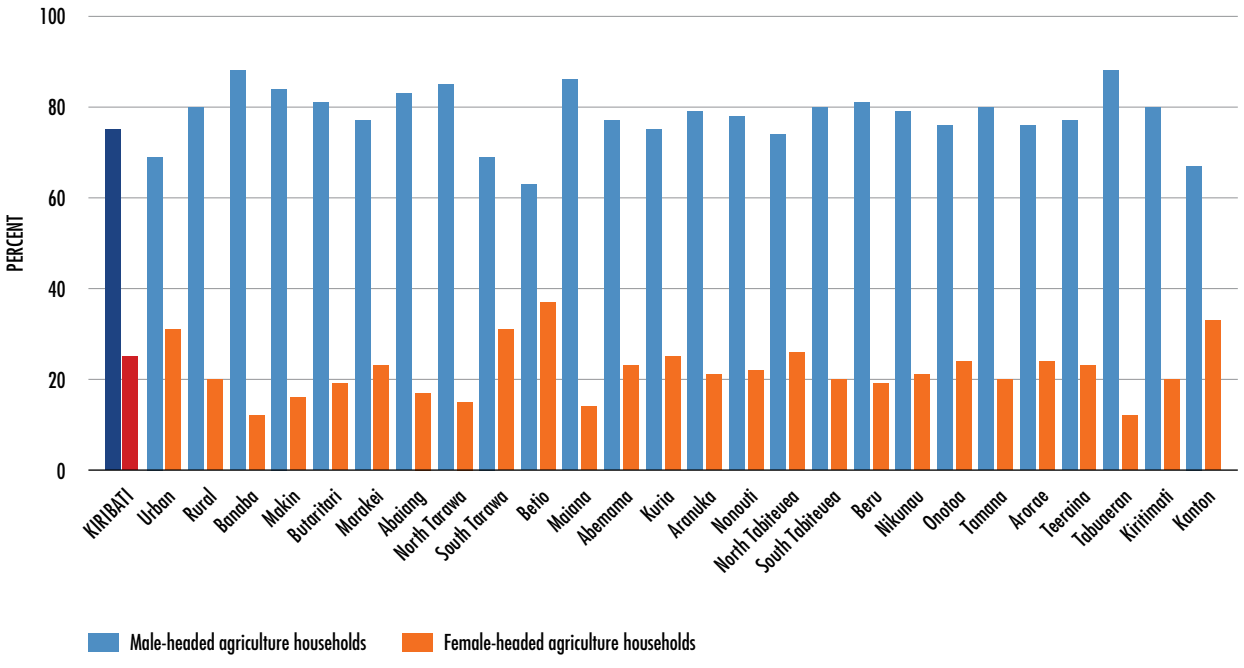
Betio (37 percent), Kanton (33 percent), South Tarawa (31 percent) and North Tabiteuea all reported higher than the national average of f emale-headed agriculture households, while Banaba (12 percent), Tabuaeran (12 percent) and Maiana (14 percent) reported the lowest percentages. (Figure 38 and Table 51).

FIGURE 37
Proportion of households by agriculture/fishing activity and gender of household head, Kiribati (2020)



SOURCE: 2020 Census

FIGURE 38
Proportion of households engaged in agriculture (cropping/livestock) by gender of household head, strata and island, 2020



SOURCE: 2020 Census

Interestingly, identical proportional splits were evident in the number of male and female-headed households engaged in growing crops or raising livestock, with 76 percent being male-headed households and 24 percent female-headed (Table 51 and Figure 39).

Of households engaged in fishing activities, 82 percent were male-headed and 18 percent female-headed, while the gender split for households producing handicrafts was 79 percent and 21 percent for male and female-headed households respectively.

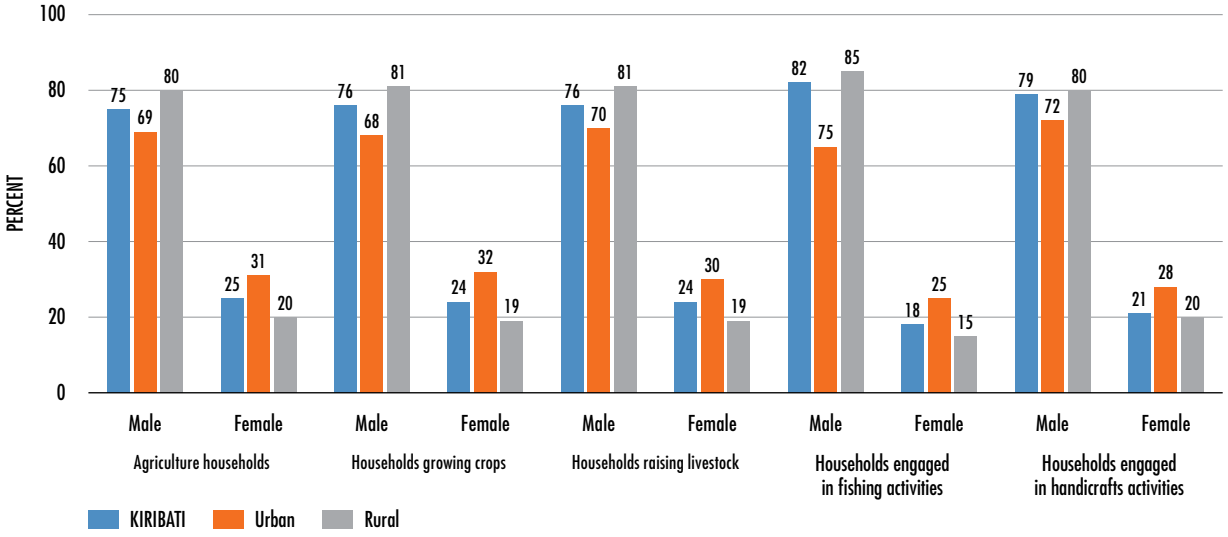
Male-headed households on the rural islands accounted for at least 80 percent of households engaged in cropping, livestock, fishing or handicraft activities compared to around 70 percent on the urban islands.

TABLE 51
Proportion of households by agriculture/fishing activity, gender of household head, strata and island: 2020

	Total Households	Agriculture households		Households growing crops		Households raising livestock		Households engaged in fishing activities		Households engaged in handicraft activities	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
KIRIBATI	20 354	75%	25%	76%	24%	76%	24%	82%	18%	79%	21%
Urban	10 652	69%	31%	68%	32%	70%	30%	75%	25%	72%	28%
Rural	9 702	80%	20%	81%	19%	81%	19%	85%	15%	80%	20%
Island											
Banaba	85	88%	12%	88%	12%	87%	13%	94%	6%	77%	23%
Makin	371	84%	16%	84%	16%	84%	16%	92%	8%	81%	19%
Butaritari	618	81%	19%	81%	19%	80%	20%	85%	15%	80%	20%
Marakei	575	77%	23%	78%	22%	77%	23%	87%	13%	82%	18%
Abaiang	1 065	83%	17%	84%	16%	84%	16%	88%	12%	85%	15%
North Tarawa	1 310	85%	15%	84%	16%	86%	14%	88%	12%	85%	15%
South Tarawa	6 825	69%	31%	68%	32%	70%	30%	74%	26%	68%	32%
Betio	2 619	63%	37%	63%	37%	65%	35%	69%	31%	62%	38%
Maiana	449	86%	14%	86%	14%	86%	14%	92%	8%	83%	17%
Abemama	674	77%	23%	74%	26%	78%	22%	81%	19%	76%	24%
Kuria	250	75%	25%	80%	20%	75%	25%	79%	21%	59%	41%
Aranuka	259	79%	21%	82%	18%	78%	22%	91%	9%	79%	21%
Nonouti	611	78%	22%	80%	20%	78%	22%	81%	19%	75%	25%
North Tabiteuea	753	74%	26%	80%	20%	74%	26%	80%	20%	73%	27%
South Tabiteuea	279	80%	20%	85%	15%	80%	20%	82%	18%	84%	16%
Beru	533	81%	19%	82%	18%	81%	19%	88%	12%	79%	21%
Nikunau	423	79%	21%	79%	21%	78%	22%	79%	21%	73%	27%
Onotoa	326	76%	24%	77%	23%	75%	25%	77%	23%	72%	28%
Tamana	192	80%	20%	78%	22%	81%	19%	89%	11%	73%	27%
Arorae	210	76%	24%	77%	23%	75%	25%	79%	21%	76%	24%
Teeraina	312	77%	23%	77%	23%	78%	22%	88%	12%	81%	19%
Tabuaeran	398	88%	12%	89%	11%	86%	14%	90%	10%	89%	11%
Kiritimati	1 208	80%	20%	81%	19%	81%	19%	83%	17%	85%	15%
Kanton	9	67%	33%	57%	43%	67%	33%	71%	29%	100%	0%

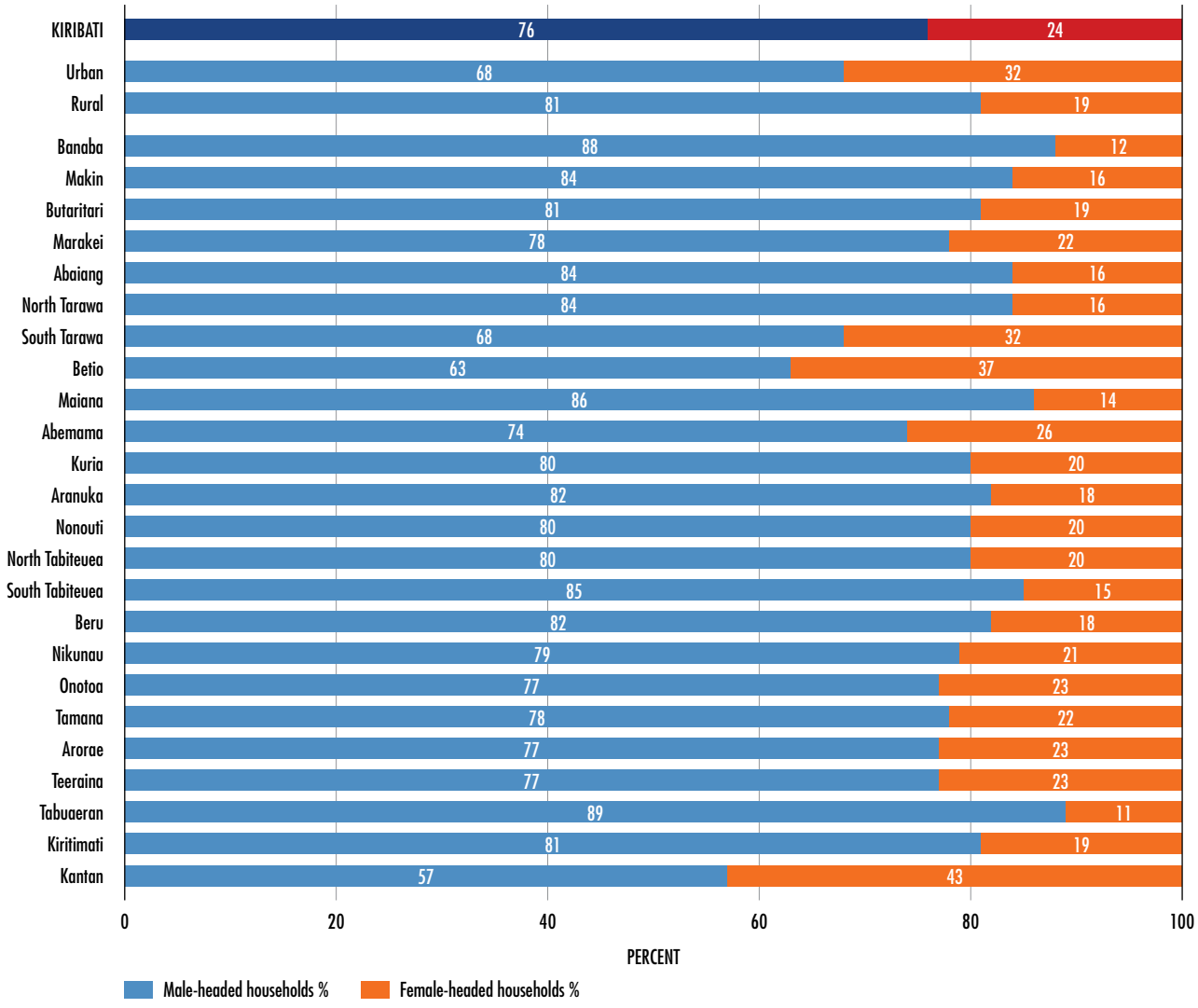
SOURCE: 2020 Census

FIGURE 39
Proportion of households by agriculture/fishing, gender of household head and strata, Kiribati (2020)



SOURCE: 2020 Census

FIGURE 40
Percentage of households engaged in growing crops by gender of household head, strata and island, 2020



SOURCE: 2020 Census

7.2.1 Cropping Household Gender Characteristics

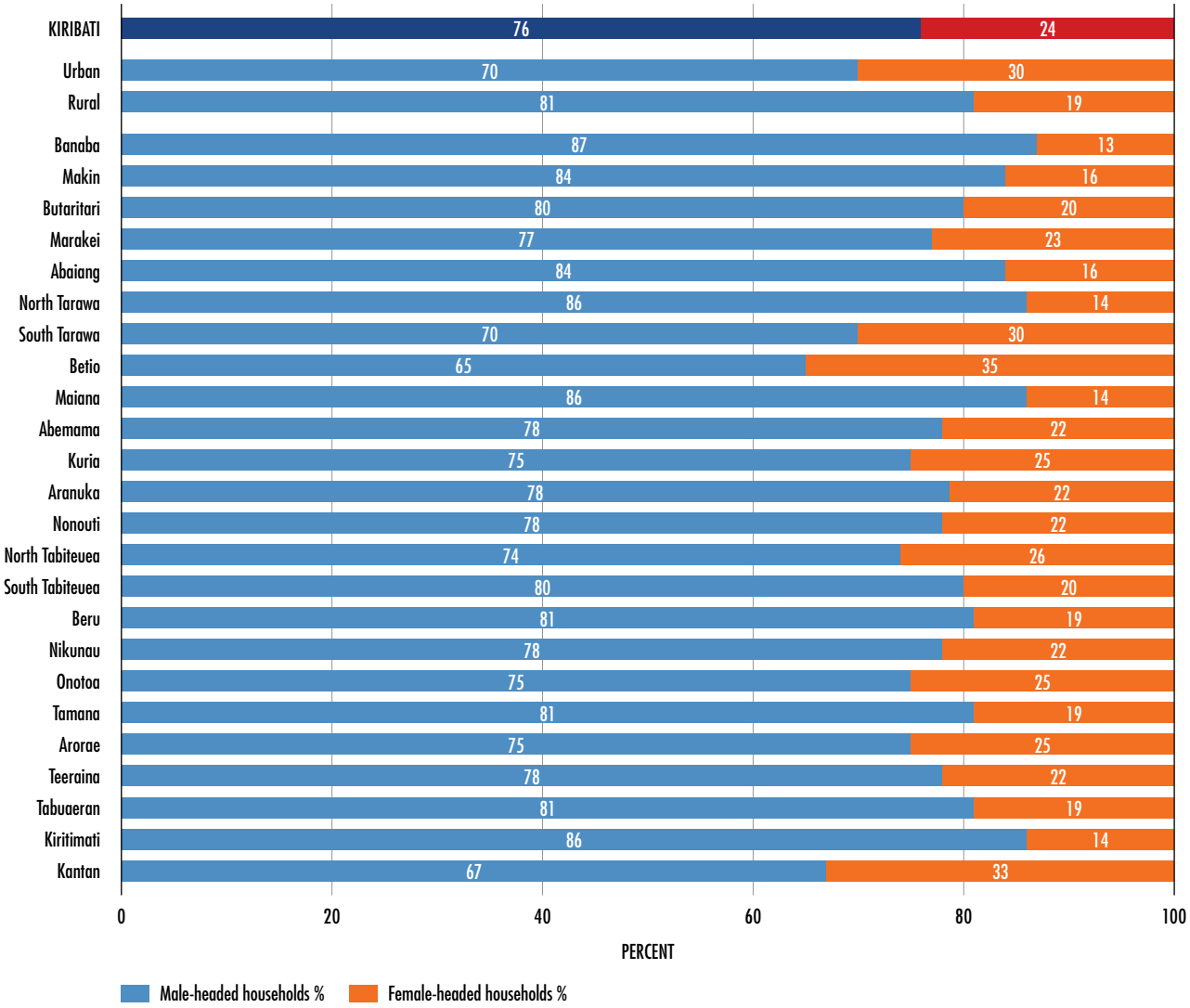
The highest proportions of female-headed households engaged in crop growing were recorded in Kanton (43 percent), Betio (37 percent), and South Tarawa (32 percent), while only 11 percent and 12 percent of crop growing households on Tabuaeran and Banaba respectively were headed by females (Figure 40).

7.2.2 Livestock Household Gender Characteristics

Of the households engaged in livestock raising, 76 percent were headed by men, with 24 percent headed by women (Table 51 and Figure 41).

The islands reporting the highest proportion of male-headed households raising livestock were Banaba (87 percent), North Tarawa, Maiana and Tabuaeran (all 86 percent) while Betio (35 percent) and Kanton (33 percent) reported the highest proportion of female-headed households raising livestock.

FIGURE 41
Percentage of households raising livestock by gender of household head, strata and island, 2020

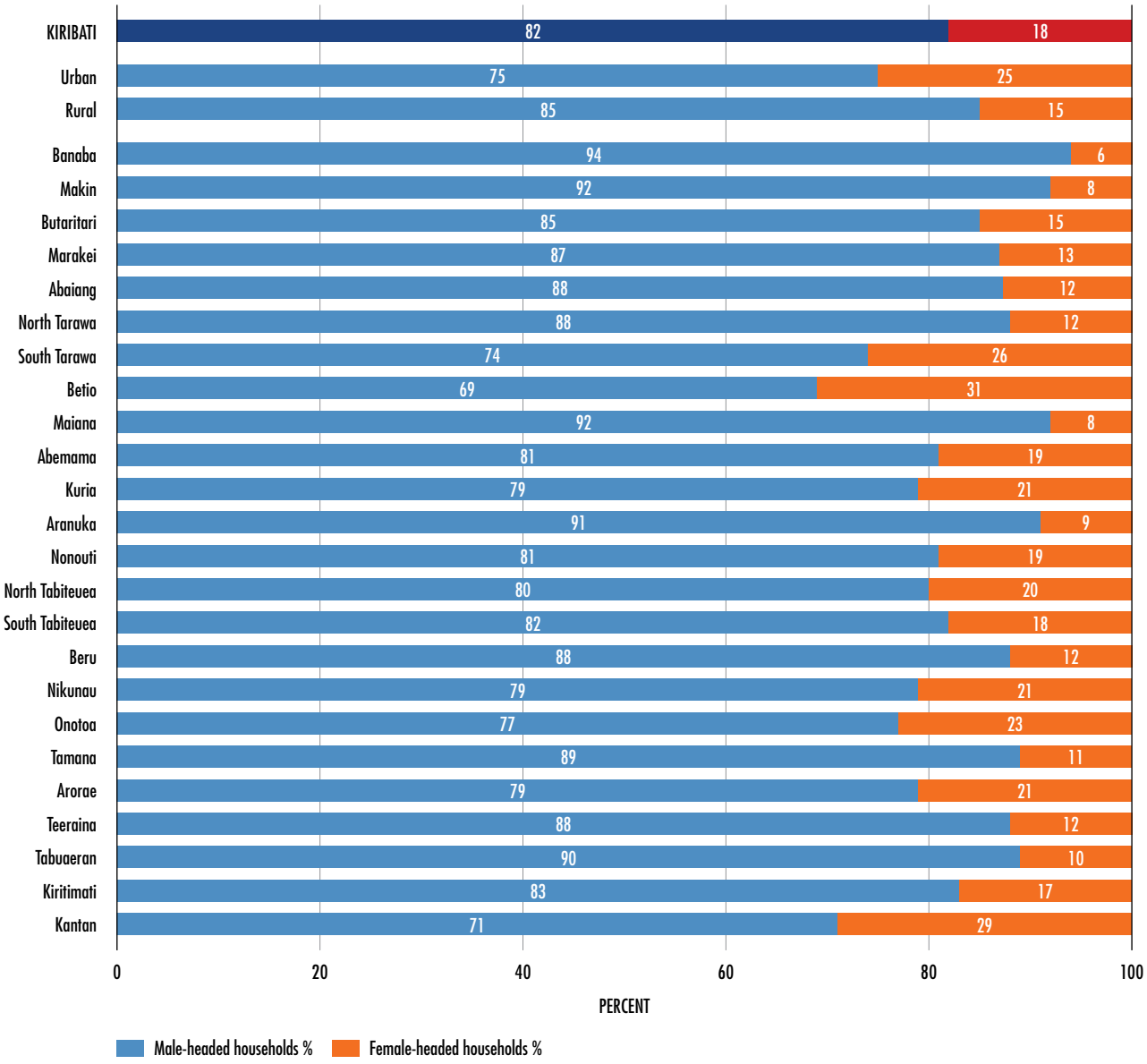


SOURCE: 2020 Census

7.2.3 Fishing Household Gender Characteristics

Generally the gender split for households engaged in fishing activities, including shellfish collection, was higher for male-headed households than for crop growing or livestock raising households. Overall, 82 percent of fishing households nationally were headed by males with Banaba (94 percent), Makin and Maiana (both 92 percent) reporting higher levels of male-headed households engaged in fishing (Table 51 and Figure 42). Again, Betio (31 percent) and the sparsely populated island of Kanton (29 percent) reported the greater proportion of female-headed households engaged in fishing or collecting shellfish.

FIGURE 42
Percentage of households engaged in fishing activities by gender of household head, strata and island, strata and island, 2020



SOURCE: 2020 Census

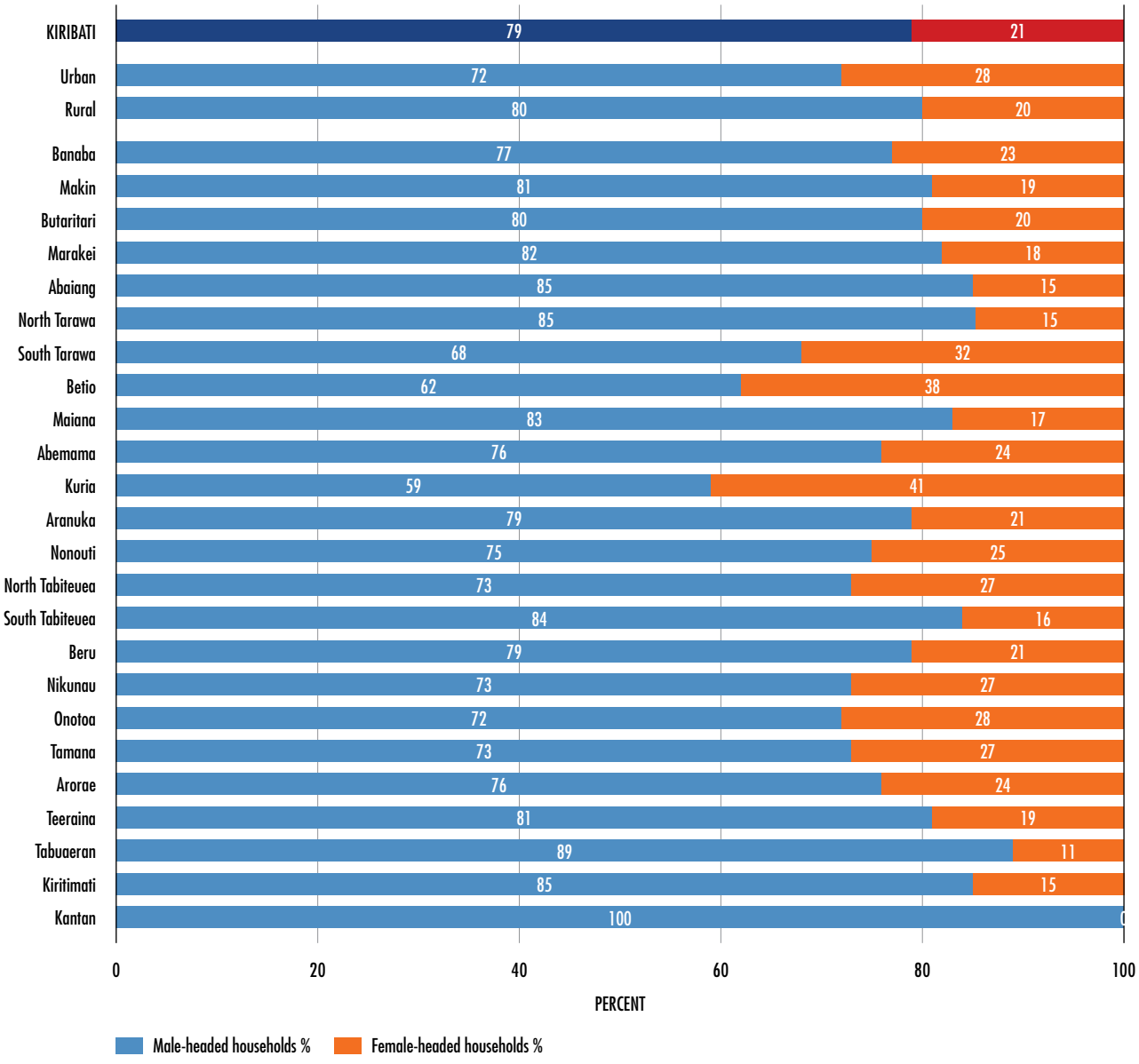
7.2.4 Handicraft Household Gender Characteristics

The other important agricultural activity relates to households producing handicrafts. At the national level, 79 percent of households reporting handicraft activities were headed by males, and 21 percent females.

Kuria reported the highest proportion (41 percent) of female-headed households producing handicrafts with the next highest being Betio (38 percent) and South Tarawa (32 percent) (Table 51 and Figure 43).

Kanton households reported that all engaged in handicrafts were headed by males, with Tabuaeran (89 percent) and Kiritimati and Butaritari (both 85 percent) Islands also reporting high levels of male-headed households producing handicrafts.

FIGURE 43
Percentage of households engaged in handicraft activities by gender of household head and island, 2020



SOURCE: 2020 Census

7.3 Household Head Education levels

7.3.1 Agriculture Household Heads

Over 98 percent of household heads engaged in agriculture reported having attended some formal schooling from primary school to tertiary levels, while 2 percent reported having had no formal schooling or qualifications. Of those agriculture household heads who had formal schooling, primary school was the highest level attended for 13 percent, lower secondary school (Forms 1-3) was the level attended by 43 percent, 35 percent had attended upper secondary school (Forms 4-6) while 6 percent had progressed to tertiary level (Figure 44 and Table 52).

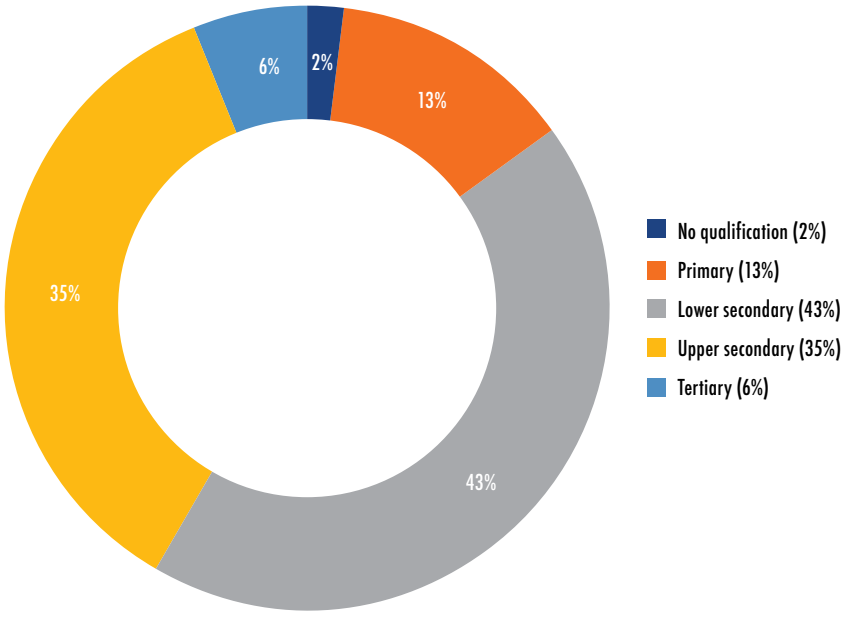
For rural island agriculture household heads, the highest level of schooling attended was more likely to be primary or lower secondary school levels (65 percent) compared with their urban island counterparts (47 percent). Over half (51 percent) of urban island agriculture household heads reported attending upper secondary or tertiary levels compared with 32 percent of rural island agriculture household heads.

On a gender basis, female agriculture household heads were more likely to have undertaken higher education levels than male household heads.

Just under half (49 percent) of female agriculture household heads reported attending upper secondary or tertiary levels compared with 38 percent of male household heads (Table 52 and Figure 45).

A higher proportion of male agriculture household heads (60 percent) reporting their highest level of education as being primary of lower secondary levels compared with 48 percent of female agriculture heads.

FIGURE 44
Proportion of agriculture household heads by highest education level attained, Kiribati (2020)



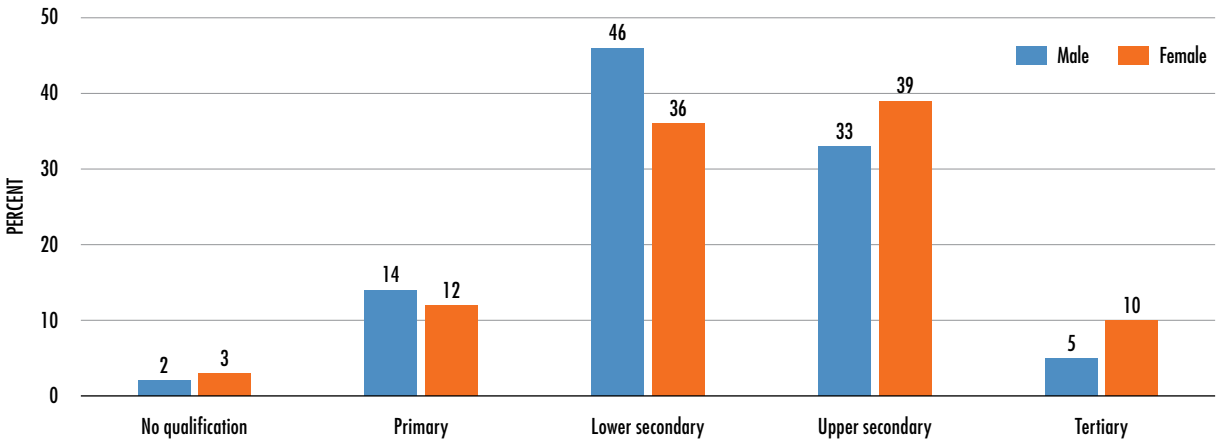
SOURCE: 2020 Census

TABLE 52
Number and proportion of agriculture household heads by highest education level attended, gender and strata, Kiribati: 2020

	Education level attended	Number of household heads			Proportion of household heads		
		Urban/rural			Urban/rural		
		National	Urban	Rural	National	Urban	Rural
Total	No qualification	382	154	228	2%	2%	3%
	Primary	2 044	729	1 315	13%	10%	16%
	Lower secondary	6 707	2 750	3 957	43%	37%	49%
	Upper secondary	5 356	3 048	2 308	35%	42%	28%
	Tertiary	978	662	316	6%	9%	4%
	Total	15 467	7 343	8 124	100%	100%	100%
Male	No qualification	265	103	162	2%	2%	2%
	Primary	1 583	517	1 066	14%	10%	16%
	Lower secondary	5 326	1 997	3 329	46%	39%	51%
	Upper secondary	3 860	2 063	1 797	33%	41%	28%
	Tertiary	582	409	173	5%	8%	3%
	Total	11 616	5 089	6 527	100%	100%	100%
Female	No qualification	117	51	66	3%	2%	4%
	Primary	461	212	249	12%	9%	16%
	Lower secondary	1 381	753	628	36%	33%	39%
	Upper secondary	1 496	985	511	39%	44%	32%
	Tertiary	396	253	143	10%	11%	9%
	Total	3 851	2 254	1 597	100%	100%	100%

SOURCE: 2020 Census

FIGURE 45
Proportion of agriculture household heads by gender and highest education level attended, Kiribati (2020)



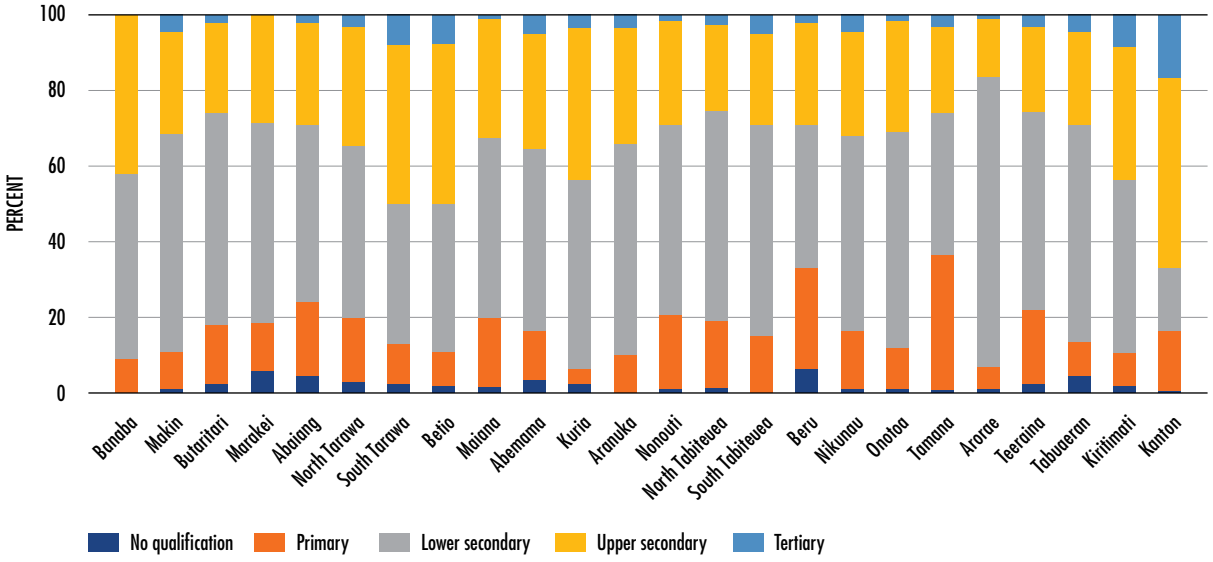
SOURCE: 2020 Census

The islands of Beru and Marakei reported the highest levels of agriculture household heads having no educational qualifications, with 9 percent and 7 percent respectively. Of the agriculture household heads on Tamana, 36 percent of males and 35 percent of females had either no qualification or attended primary school only (Figures 46 and 47).

The southern atoll of Arorae reported the lowest proportion of male agriculture household heads who had not attended higher education, with 84 percent not progressing past the lower secondary school level.

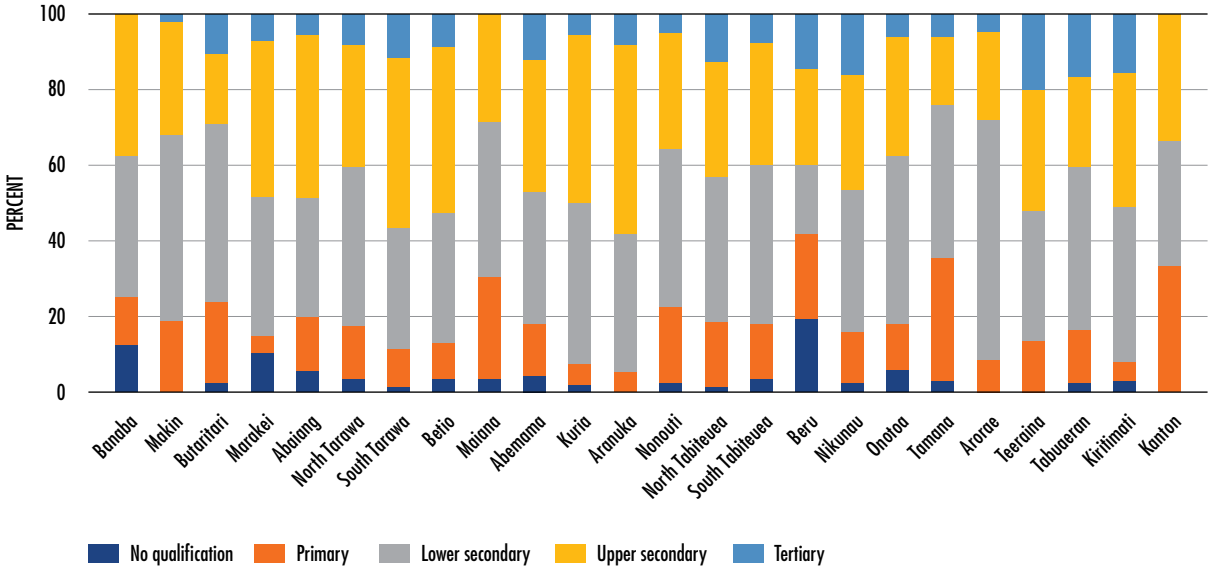
For male agriculture household heads, tertiary level education proportions were highest on Kanton, North and South Tarawa while between 15 percent and 20 percent of female household heads on Teeraina, Nikunau and Beru reported attending this level. South Tarawa accounted for 46 percent and 43 percent of Kiribati's male and female agriculture household heads respectively educated to tertiary level.

FIGURE 46
Proportion of male agriculture household heads by highest education level attended and island, 2020



SOURCE: 2020 Census

FIGURE 47
Proportion of female agriculture household heads by highest education level attended and island, 2020



SOURCE: 2020 Census

7.3.2 Fishing Household Heads

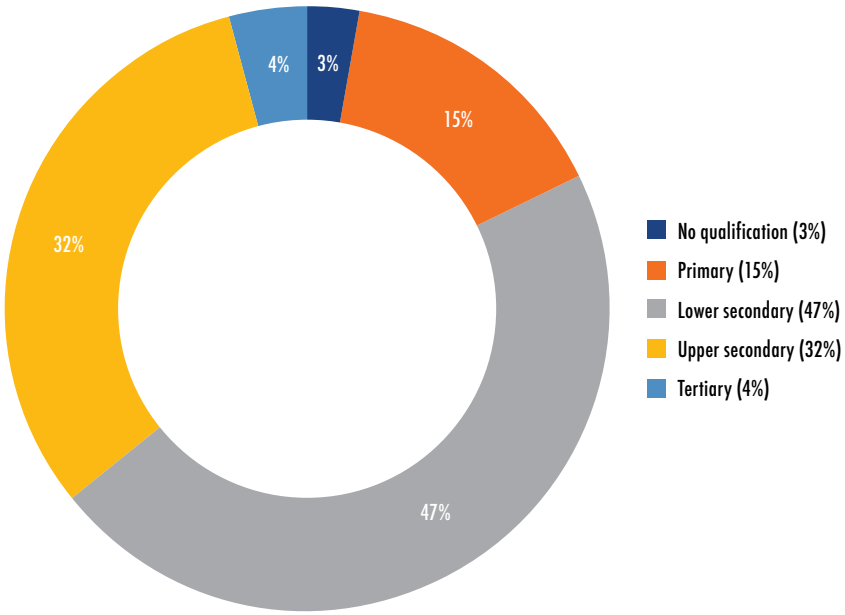
In 2020, 18 percent of household heads engaged in fishing activities reported having either no educational qualifications (3 percent) or only attended primary school (15 percent). Almost half (47 percent) had attended lower secondary school (Forms 1-3), 32 percent had attended upper secondary school (Forms 4-6) and 4 percent had attended tertiary level education (Figure 48 and Table 53).

Generally, the proportion of fishing household heads on the rural islands had attended lower levels of education than those on the urban islands, with just on 70 percent of fishing household heads on the rural islands attending to lower secondary school level, compared with 55 percent on the urban islands. Conversely, 45 percent of fishing household heads on the urban islands attended either upper secondary school or tertiary level education compared with 30 percent of fishing household heads on the rural islands.

It was a consistent story on a gender basis with both male and female fishing household heads on the urban islands attending higher levels of education than their rural island counterparts. Similar to the situation with agriculture household heads, female fishing household heads tended to have higher education levels than their male counterparts (Table 53 and Figure 49).

On the urban islands, over half (51 percent) of female fishing household heads reported attending either upper secondary school or tertiary level compared with 43 percent of male household heads. On the rural islands, 39 percent of female household heads had attended these higher education levels compared with 29 percent of male household heads.

FIGURE 48
Proportion of fishing household heads by highest education level attained, Kiribati (2020)



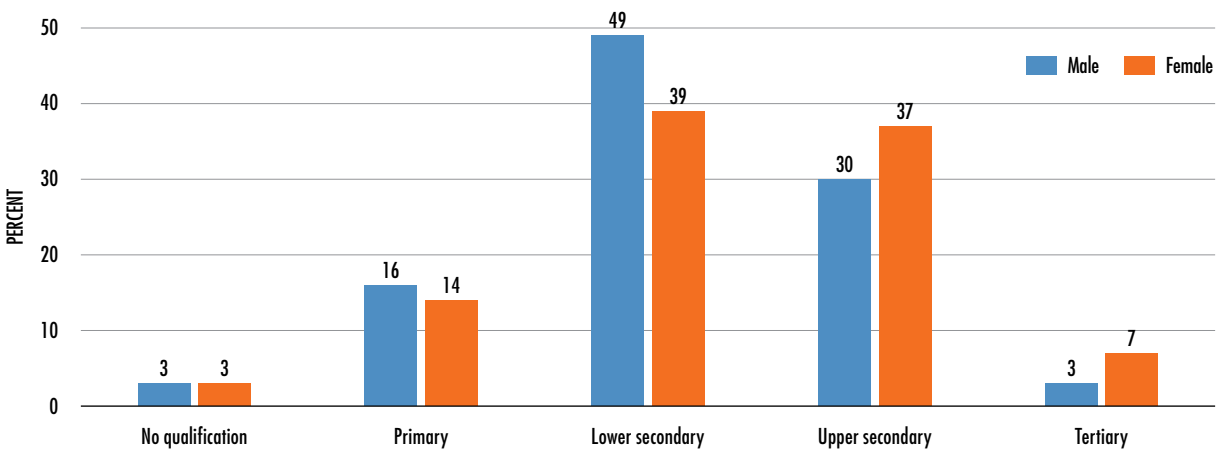
SOURCE: 2020 Census

TABLE 53
Number and proportion of fishing household heads by highest education level attended, gender and strata, Kiribati: 2020

	Education level attended	Number of household heads			Proportion of household heads		
		Urban/rural			Urban/rural		
		National	Urban	Rural	National	Urban	Rural
Total	No qualification	268	86	182	3%	2%	3%
	Primary	1 466	401	1 065	15%	11%	17%
	Lower secondary	4 512	1 474	3 038	47%	42%	50%
	Upper secondary	3 051	1 366	1 685	32%	39%	28%
	Tertiary	366	218	148	4%	6%	2%
	Total	9 663	3 545	6 118	100%	100%	100%
Male	No qualification	207	63	144	3%	2%	3%
	Primary	1 224	305	919	16%	12%	18%
	Lower secondary	3 824	1 148	2 676	49%	43%	51%
	Upper secondary	2 386	986	1 400	30%	37%	27%
	Tertiary	236	150	86	3%	6%	2%
	Total	7 877	2 652	5 225	100%	100%	100%
Female	No qualification	61	23	38	3%	3%	4%
	Primary	242	96	146	14%	11%	16%
	Lower secondary	688	326	362	39%	37%	41%
	Upper secondary	665	380	285	37%	43%	32%
	Tertiary	130	68	62	7%	8%	7%
	Total	1 786	893	893	100%	100%	100%

SOURCE: 2020 Census

FIGURE 49
Proportion of fishing household heads by gender and highest education level attended, Kiribati (2020)



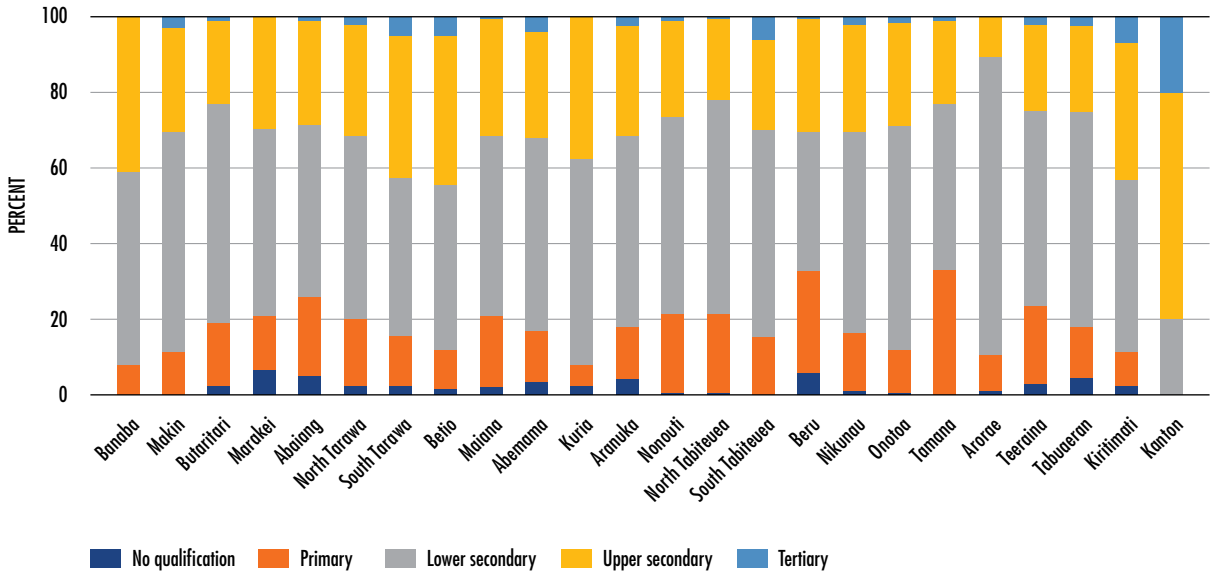
SOURCE: 2020 Census

The islands of Beru and Marakei reported the highest levels of fishing household heads having no educational qualifications, with 8 percent and 7 percent respectively. Of the fishing household heads on Tamana, 33 percent of males and 27 percent of females had either no qualification or attended primary school only (Figures 50 and 51).

Arorae reported the highest proportion of male fishing household heads who had not attended past lower secondary school, with 90 percent not progressing past this level.

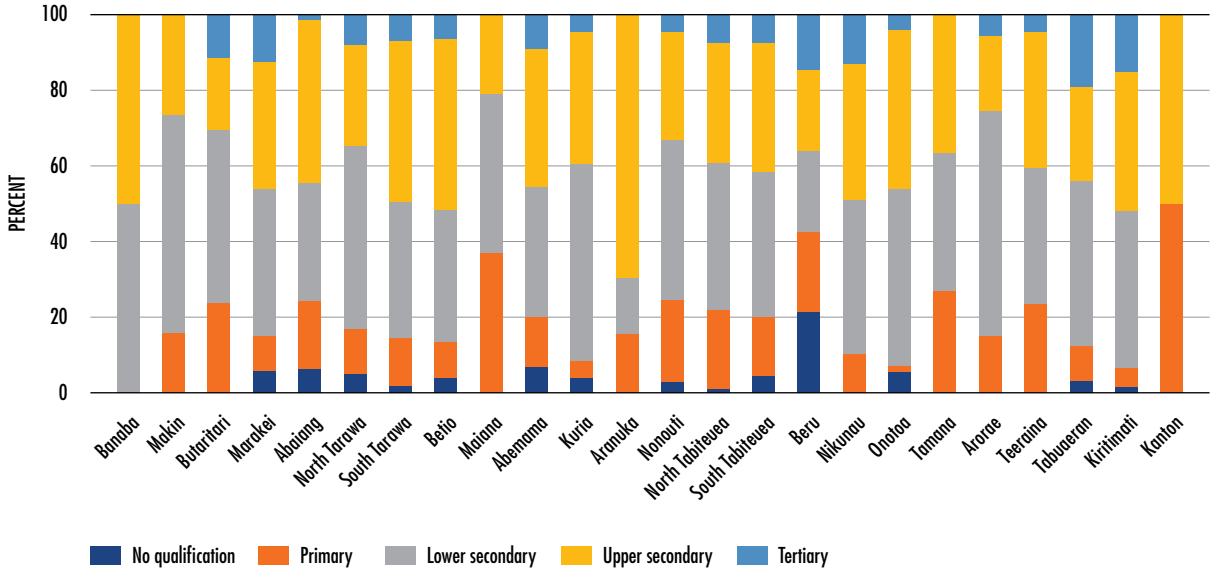
The proportions of fishing household heads who had attended tertiary level education were highest on Kanton, South Tarawa, Betio and South Tabiteuea. Between 15 percent and 20 percent of female household heads on Tabuaeran, Beru and Kirimati reported attending this level. South Tarawa accounted for 33 percent and 28 percent of Kiribati's male and female fishing household heads respectively educated to tertiary level.

FIGURE 50
Proportion of male fishing household heads by highest education level attended and island, 2020



SOURCE: 2020 Census

FIGURE 51
Proportion of female fishing household heads by highest education level attended and island, 2020



SOURCE: 2020 Census

7.4 Household Demographics

7.4.1 Agriculture Household Sizes

Of the estimated 15,467 households in Kiribati in 2020 engaged in agricultural activities (growing crops or raising livestock), 6,841 (44 percent) reported that the number of members in their household was six (6) or greater. A further 4,776 households (31 percent) reported having either four (4) or five (5) members, whilst 3,850 households (25 percent) reported having one (1) to three (3) household members (Figure 52).

The average agriculture household size across the country was 5.7 members, with slightly less (average of 4.8 members) on the rural islands compared with an average 6.7 members on the more densely populated urban islands (Table 54 and Figure 53).

Agriculture households on Banaba and Beru reported the lowest average size with 4 members, with larger average household sizes of 7.3 reported on Betio, 6.7 on South Tarawa and 6.2 on Kiritimati.

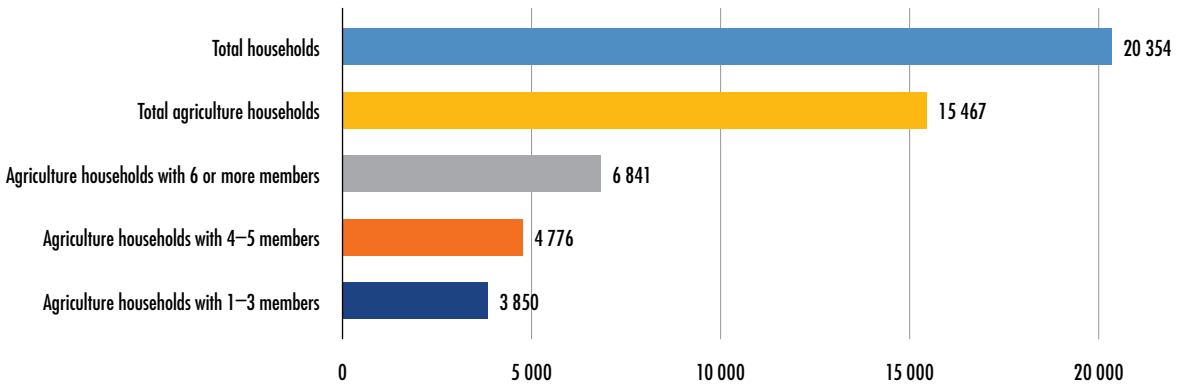
Over 60 percent of Betio's agriculture households and more than half of South Tarawa households reported 6 or more members. These larger households on the urban islands of South Tarawa, Betio and Kiritimati are reflective of people moving from the outer islands to the capital and urban islands to stay with relatives for either education or employment opportunities.

The average size of female-headed agriculture households (5.8 members) was slightly higher than both the national average and that of male-headed households (5.7 members). This was primarily due

to the number of larger household sizes on South Tarawa and Betio where the average size of female-headed agriculture households was 6.6 and 7.1 members respectively (Table 54) and where 68 percent of the total agriculture households with six or more members were reported.

Abemama and South Tabiteuea were the only islands where the average agriculture household size was greater for female than male-headed households.

FIGURE 52
Number of households engaged in agriculture by household size, Kiribati (2020)



SOURCE: 2020 Census

TABLE 54

Number of households engaged in agriculture by household size, gender of household head and island: 2020

Island	Total House-holds	Agriculture Households											
		Total	Total				Male-headed Households				Female-headed Households			
			Number of Household Members											
			1–3	4–5	6 or more	Average house-hold size	1–3	4–5	6 or more	Average house-hold size	1–3	4–5	6 or more	Average house-hold size
KIRIBATI	20 354	15 467	3 850	4 776	6 841	5.7	2 804	3 672	5 140	5.7	1 046	1 104	1 701	5.8
Urban	10 652	7 343	1 275	1 932	4 136	6.7	844	1 360	2 885	6.7	431	572	1 251	6.7
Rural	9 702	8 124	2 575	2 844	2 705	4.8	1 960	2 312	2 255	4.9	615	532	450	4.5
Banaba	85	65	27	24	14	4.0	23	22	12	4.1	4	2	2	3.8
Makin	371	332	74	124	134	5.2	50	113	116	5.4	24	11	18	4.4
Butaritari	618	588	165	220	203	5.0	119	186	169	5.1	46	34	34	4.3
Marakei	575	381	119	129	133	4.9	85	95	114	5.0	34	34	19	4.3
Abaiang	1 065	900	272	317	311	4.9	216	262	271	5.0	56	55	40	4.4
North Tarawa	1 310	1 019	294	343	382	5.2	252	287	327	5.2	42	56	55	5.1
South Tarawa	6 825	4 775	847	1 275	2 653	6.7	557	886	1 847	6.7	290	389	806	6.6
Betio	2 619	1 567	215	359	993	7.3	120	238	637	7.4	95	121	356	7.1
Maiana	449	399	107	144	148	5.0	79	128	136	5.2	28	16	12	4.2
Abemama	674	499	186	174	139	4.5	146	131	105	4.4	40	43	34	4.6
Kuria	250	216	70	77	69	4.8	52	55	55	4.8	18	22	14	4.6
Aranuka	259	185	67	74	44	4.4	49	61	37	4.5	18	13	7	4.0
Nonouti	611	540	208	171	161	4.5	149	142	129	4.5	59	29	32	4.3
North Tabiteuea	753	670	181	224	265	5.3	123	172	202	5.3	58	52	63	5.2
South Tabiteuea	279	274	81	104	89	4.9	61	89	69	4.9	20	15	20	5.0
Beru	533	459	207	156	96	4.0	162	124	85	4.1	45	32	11	3.6
Nikunau	423	382	126	144	112	4.7	99	106	95	4.7	27	38	17	4.5
Onotoa	326	276	117	94	65	4.2	90	65	54	4.2	27	29	11	4.0
Tamana	192	172	53	60	59	4.9	38	53	47	5.0	15	7	12	4.4
Arorae	210	194	62	70	62	4.8	44	51	52	5.0	18	19	10	4.2
Teeraina	312	265	88	77	100	5.1	69	58	78	5.2	19	19	22	4.8
Tabuaeran	398	299	67	117	115	5.2	52	111	99	5.3	15	6	16	4.6
Kiritimati	1 208	1 001	213	298	490	6.2	167	236	401	6.2	46	62	89	6.0
Kanton	9	9	4	1	4	4.6	2	1	3	4.7	2	0	1	4.3

SOURCE: 2020 Census

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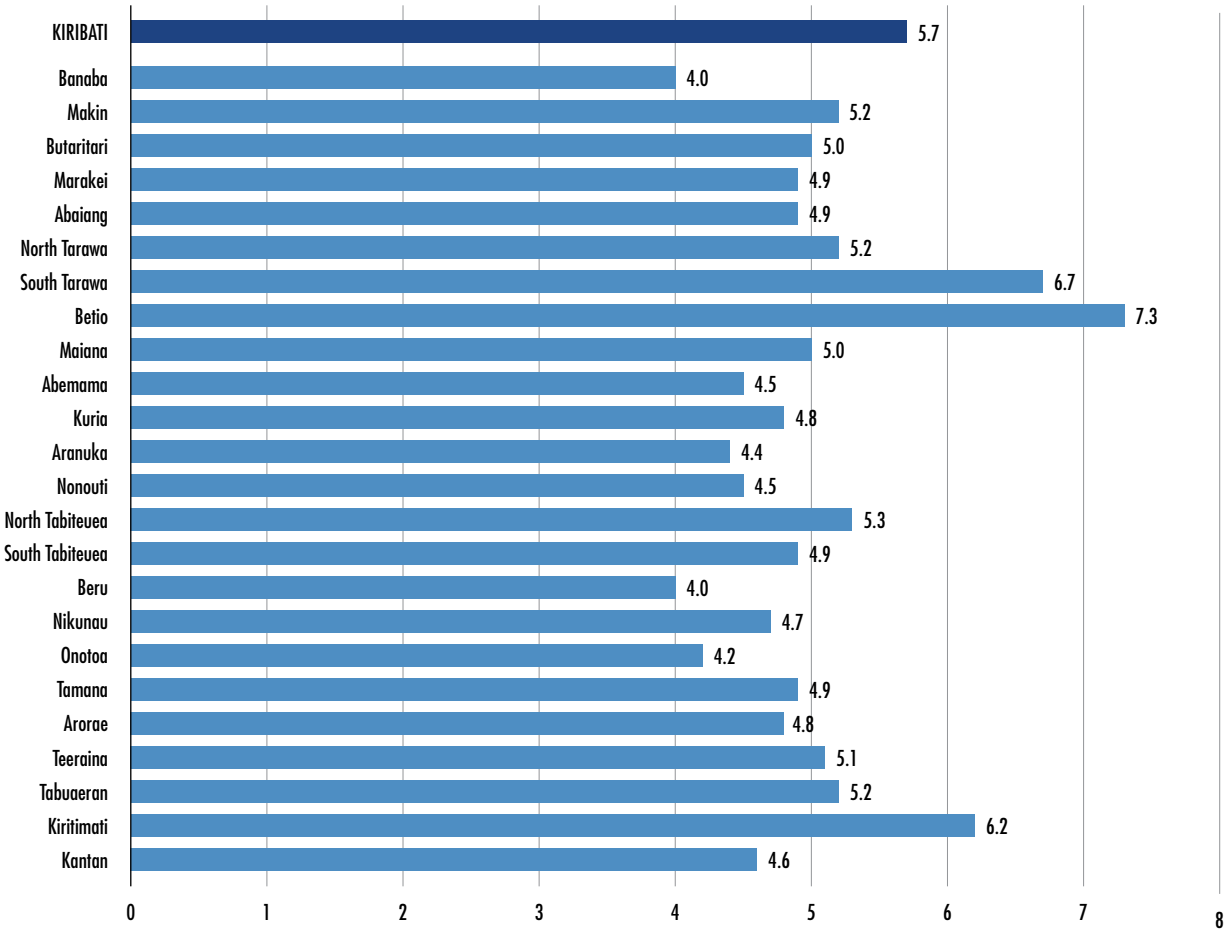
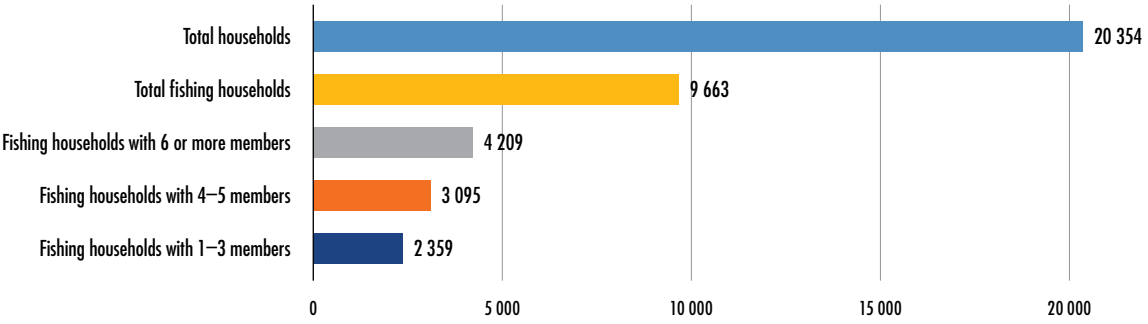
FIGURE 53
Average size of households engaged in agriculture by island, 2020



SOURCE: 2020 Census

FIGURE 54
Number of households engaged in fishing by household size, Kiribati (2020)



SOURCE: 2020 Census

7.4.2 Fishing Household Sizes

Of the 9,663 households in Kiribati engaged in fishing activities (including collecting shellfish) reported in the 2020 Census, 4,209 (44 percent) reported six (6) or greater household members. A further 3,095 households (32 percent) reported having either four (4) or five (5) members, whilst 2,359 households (24 percent) reported having one (1) to three (3) household members (Figure 54). These proportions align very closely to the household sizes for agriculture households.

The average fishing household size across the country was 5.7 members, with an average of 5.0 members on the rural islands and 7.0 members on the more densely populated urban islands (Table 55).

Fishing households on Banaba and Beru reported the lowest average size with 4.1 members, with average household sizes of 7.9 reported on Betio and 7.0 on South Tarawa (Table 55 and Figure 55).

Just under 70 percent of Betio's fishing households, 57 percent of South Tarawa households and 52 percent of Kiritimati fishing households reported 6 or more members. Again, the larger member households on the urban islands of South Tarawa, Betio and Kiritimati is reflective of people moving from the outer islands to the capital and urban islands to stay with relatives for either education or employment opportunities.

The average size of female-headed fishing households (6.2 members) was slightly higher that the national average and that of male-headed households (5.6 members). This was largely influenced by the number of larger household sizes on Betio and South Tarawa, where the average size of female-headed agriculture households was 8.1 and 7.3 members respectively (Table 55).

Female-headed fishing households reported higher average household members than male-headed households on fourteen of the twenty-four islands, including Banaba, North Tarawa, South Tarawa, Betio, Abemama, Aranuka, Nonouti, South Tabiteuea, Onotoa, Tamana, Teeraina, Tabuaeran, Kiritimati and Kanton.

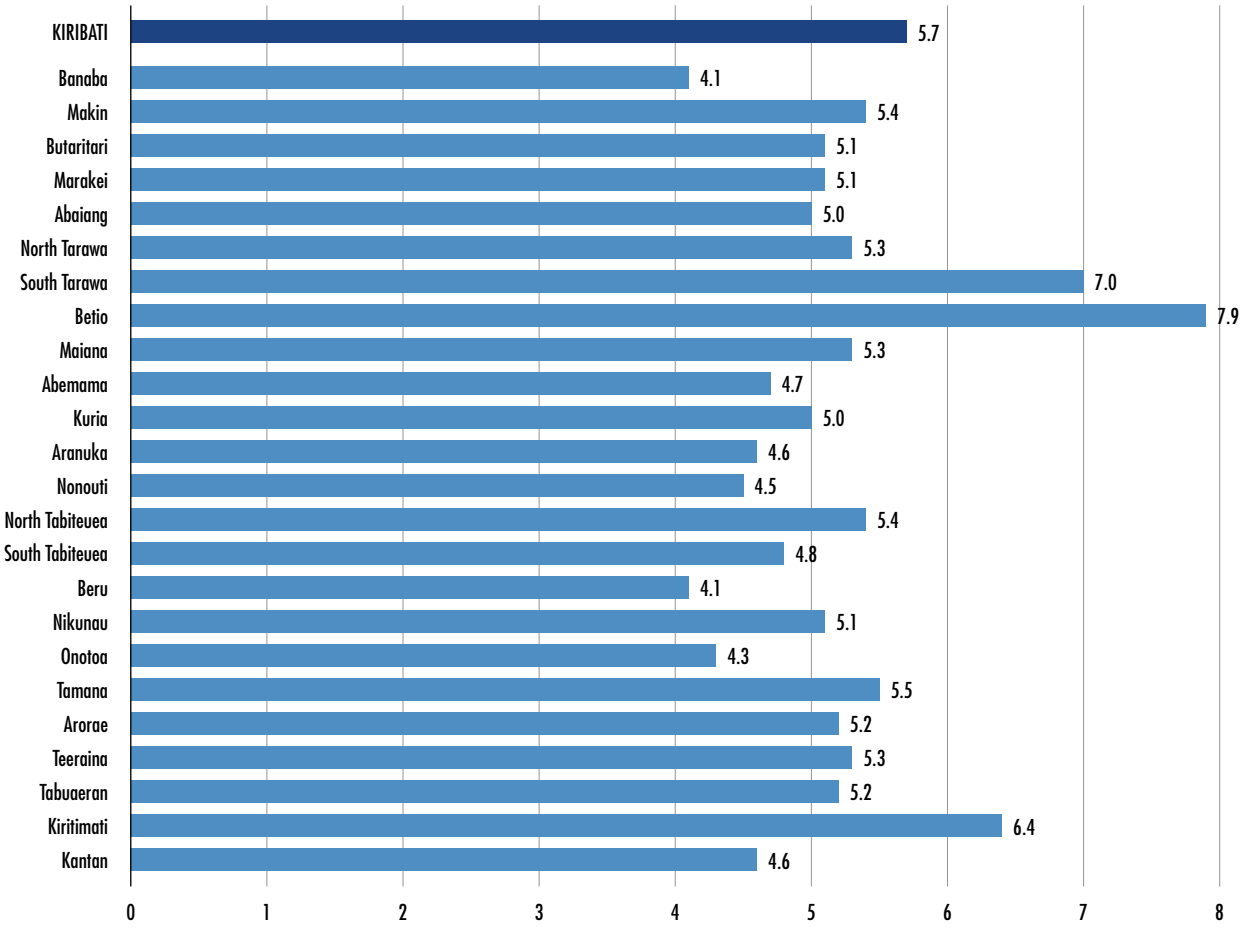
TABLE 55

Number of households engaged in fishing by household size, gender of household head and island: 2020

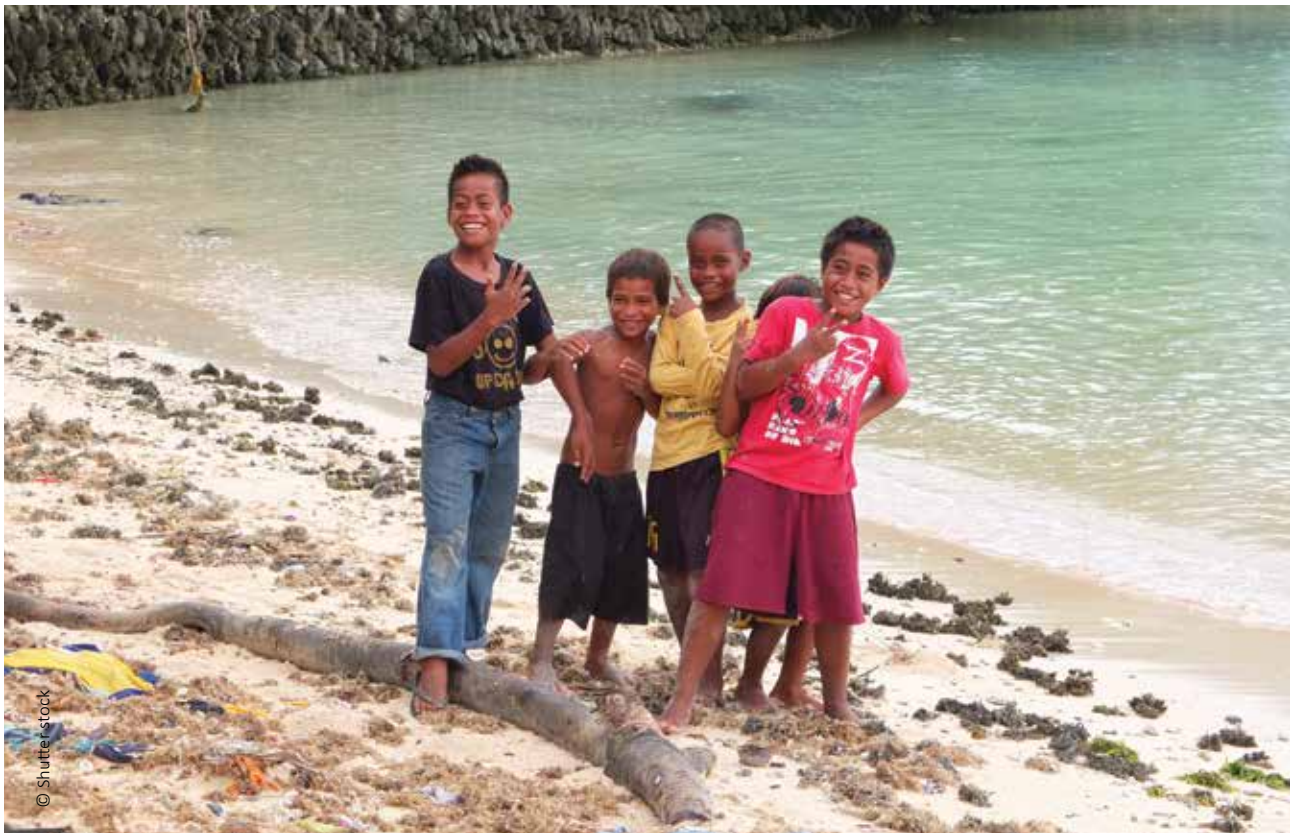
Island	Total Households	Fishing Households											
		Total	Total				Male-headed Households				Female-headed Households			
			Number of Household Members											
			1–3	4–5	6 or more	Average household size	1–3	4–5	6 or more	Average household size	1–3	4–5	6 or more	Average household size
KIRIBATI	20 354	9 663	2 359	3 095	4 209	5.7	1 969	2 570	3 338	5.6	390	525	871	6.2
Urban	10 652	3 545	576	921	2 048	7.0	457	703	1 492	6.9	119	218	556	7.4
Rural	9 702	6 118	1 783	2 174	2 161	5.0	1 512	1 867	1 846	5.0	271	307	315	5.0
Banaba	85	65	25	27	13	4.1	24	26	11	4.1	1	1	2	5.0
Makin	371	226	42	88	96	5.4	35	83	89	5.5	7	5	7	4.7
Butaritari	618	408	110	149	149	5.1	89	130	126	5.2	21	19	23	4.7
Marakei	575	261	70	88	103	5.1	59	75	94	5.2	11	13	9	4.6
Abaiang	1 065	733	206	259	268	5.0	174	229	241	5.0	32	30	27	4.6
North Tarawa	1 310	799	224	273	302	5.3	204	241	260	5.2	20	32	42	5.6
South Tarawa	6 825	2 112	341	568	1 203	7.0	270	425	861	6.8	71	143	342	7.3
Betio	2 619	638	83	120	435	7.9	56	90	292	7.7	27	30	143	8.1
Maiana	449	293	65	111	117	5.3	58	101	110	5.3	7	10	7	4.8
Abemama	674	357	108	143	106	4.7	95	112	81	4.5	13	31	25	5.3
Kuria	250	108	30	42	36	5.0	24	31	30	5.0	6	11	6	4.7
Aranuka	259	139	42	56	41	4.6	38	51	37	4.6	4	5	4	4.8
Nonouti	611	468	177	148	143	4.5	140	124	115	4.5	37	24	28	4.7
North Tabiteuea	753	465	112	151	202	5.4	82	127	161	5.4	30	24	41	5.4
South Tabiteuea	279	250	76	97	77	4.8	62	84	60	4.7	14	13	17	5.2
Beru	533	346	150	120	76	4.1	132	103	69	4.1	18	17	7	4.1
Nikunau	423	224	59	81	84	5.1	47	59	71	5.1	12	22	13	4.9
Onotoa	326	238	97	82	59	4.3	78	58	47	4.2	19	24	12	4.3
Tamana	192	98	26	28	44	5.5	25	25	37	5.4	1	3	7	6.4
Arorae	210	97	25	37	35	5.2	19	28	30	5.4	6	9	5	4.7
Teeraina	312	217	64	66	87	5.3	61	59	72	5.2	3	7	15	6.0
Tabuaeran	398	319	72	127	120	5.2	64	120	103	5.2	8	7	17	5.4
Kiritimati	1 208	795	152	233	410	6.4	131	188	339	6.3	21	45	71	6.6
Kanton	9	7	3	1	3	4.6	2	1	2	4.2	1	0	1	5.5

SOURCE: 2020 Census

FIGURE 55
Average size of households engaged in fishing by island, 2020



SOURCE: 2020 Census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CHAPTER 8
ENVIRONMENT

The 2020 Census questionnaire included a series of environmental questions, including cutting down of trees for local house building and waste problems.

8.1 Households Cutting Trees

Just under half (48 percent) of all households in Kiribati reported cutting trees to build local houses in the previous twelve months. As expected, tree cutting was more prominent on the rural islands where 76 percent of households reported this, compared with 22 percent of households on the urban islands (Table 56).

Male-headed households accounted for 81 percent of the 9,764 households who responded to this question. Rural households reported cutting Te uri, Te mao and Te kaina trees while on the urban islands the most common tree variety cut was Te nii.

The cutting of trees for local house building was most common on Tamana (95 percent of households), Nikunau (93 percent), South Tabiteuea (91 percent) and Nonouti (90 percent) Islands (Figure 56).

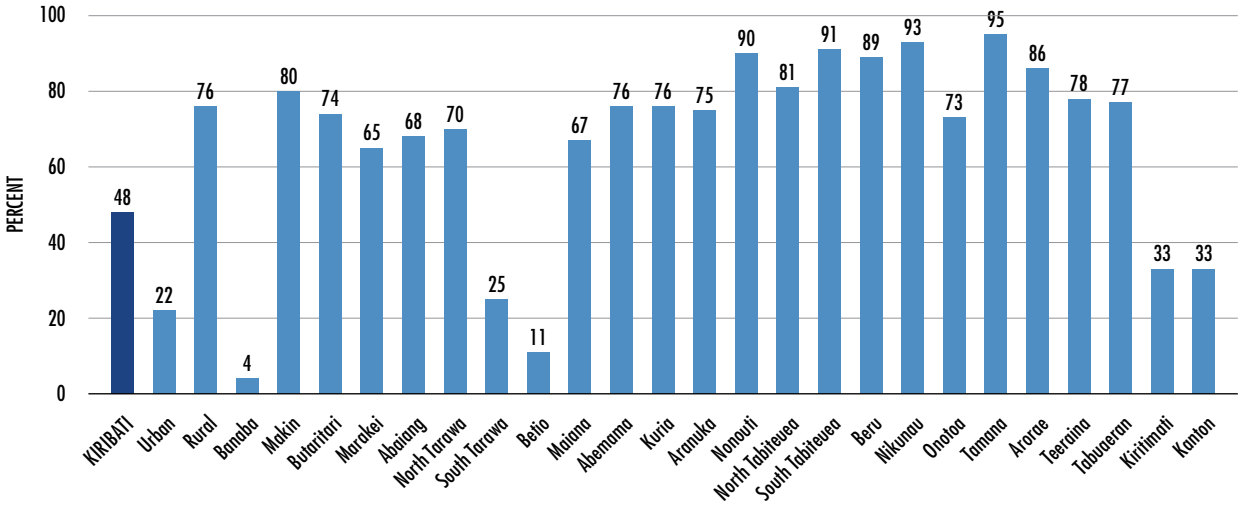
At the other end of the scale, very few households on Banaba (4 percent) or the urban island of Betio (11 percent) reported cutting trees.

TABLE 56
Households cutting trees for local house building by tree type, strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Households	20 354	10 652	9 702	14 956	5 398	783	16 489	3 082
Tree type								
Te tongo	776	153	623	644	132	28	640	108
Te nii	6 496	1 686	4 810	5 335	1 161	287	5 151	1 058
Te ngea	2 688	197	2 491	2 279	409	111	2 114	463
Te mao	6 358	752	5 606	5 272	1 086	285	4 980	1 093
Te uri	6 498	522	5 946	5 345	1 123	272	5 108	1 088
Te kaina	6 387	837	5 550	5 337	1 050	286	5 015	1 086
Total	9 764	2 361	7 403	7 909	1 855	440	7 747	1 577

SOURCE: 2020 Census

FIGURE 56
Proportion of households cutting trees for local house building by strata and island, 2020



SOURCE: 2020 Census

8.2 Waste Problems

In the 2020 Census, households were asked whether they saw waste as being a problem on their island and, if so, the reason(s) for this. The responses were overwhelming and most concerning with 20,165 households or 99 percent of all households confirming that waste was a problem on their island (Table 57 and Figure 57). Less than 200 households nationally did not consider waste a problem.

The main waste problems identified were unhygienic (source of illness), bad sight (or unsightly), bad smell and the source of insects (including mosquitos).

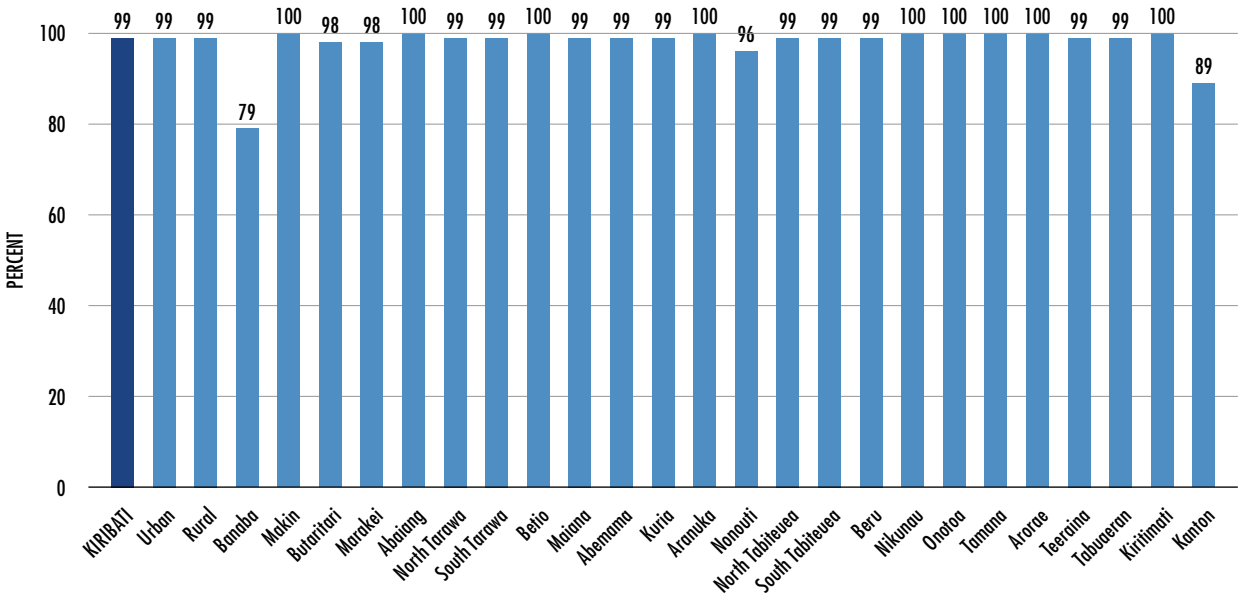
These observations were highly consistent across both urban and rural islands with Banaba (79 percent) and Kanton (89 percent) the only islands to have less than 96 percent of households responding that waste was a problem. In fact, nine islands had a 100% response to this question (Figure 57).

TABLE 57
Households identifying waste as a problem by waste problem, strata, gender and age of household head, Kiribati: 2020

	Urban/rural			HH head gender		HH head age group		
	National	Urban	Rural	Male	Female	15–24 years	25–59 years	60+ years
Total Households	20 354	10 652	9 702	14 956	5 398	783	16 489	3 082
Waste problem								
Unhygenic (source of illness)	16 822	8 769	8 053	12 310	4 512	636	13 662	2 524
Bad smell	12 919	7 001	5 918	9 408	3 511	468	10 503	1 948
Source of insects (incl. mosquitos)	12 678	6 134	6 544	9 303	3 375	481	10 222	1 975
Bad sight	15 147	8 109	7 038	11 085	4 062	566	12 289	2 292
Other	871	498	373	651	220	21	705	145
Total	20 165	10 586	9 579	14 815	5 350	775	16 336	3 054

SOURCE: 2020 Census

FIGURE 57
Proportion of households identifying waste as a problem by strata and island, 2020



SOURCE: 2020 Census

8.3 Saltwater Inundation, Sea Level Rises and Shoreline Erosion

The 2020 Kiribati Census did not seek information from households on the impact of climatic events such as king tides, storm surges, cyclones, floods and drought on their agriculture or fishing activities.

However, the 2019 Kiribati Household Income and Expenditure Survey (HIES) did ask questions at the village level on the occurrences of saltwater inundation, its frequency and extent of damage; as well as sea level rise and flooding and shoreline erosion over the previous ten (10) years. The questions included:

- Have crops in your village been negatively affected by saltwater inundation?
- How often does this saltwater inundation happen?
- To what extent is the damage during the saltwater inundation?
- Has saltwater inundation increased, decreased, or stayed the same in the last 10 years?
- Has sea level rise and flooding increased, decreased, or not shown an effect on the availability of freshwater in your village in the last 10 years?
- Has the sea level rise and flooding forced people to relocate?
- Has shoreline erosion in your village increased, decreased, or stayed the same in the last 10 years?

Across Kiribati, 112 village respondents were surveyed in the HIES. This was generally one household per village, except in Makin where 3 households were surveyed. All surveyed respondents were deemed to be "highly considered" within their villages, and well-versed on their village status. These respondents included elected leaders (Councillor), Unimane/Unaine, Teacher/Principal, Health Worker, Agriculture Extension Worker, Pastor or other senior positions within the village.

Of the 112 responding village representatives, 64 (or 57 percent) advised that saltwater inundation of groundwater had negatively affected crops in their village, mostly during high tides (Table 58). The most affected villages were in the Southern Gilbert region, which includes the atolls of Nonouti, South and North Tabiteuea, Beru, Nikunau, Onotoa, Tamana and the most southerly island of Arorae. Over 70 percent of the 35 village respondents in the Southern region reported saltwater inundation as an issue (Figure 59).

The extent of damage caused by saltwater inundation was mostly considered extensive by village respondents from the Northern and Southern Gilbert regions and South Tarawa, while the assessment of village respondents on the Central Gilbert and Line and Pheonix Island groups was either some or minor damage (Table 59).

Of the 64 village respondents who indicated that saltwater inundation was a concern for their village, approximately one-third reported that saltwater inundation had increased in the last ten years, one-third responded that it had decreased and one-third considered that there had been no change (Table 60). In the Southern Gilbert region, over half of the village respondents felt that saltwater inundation had decreased compared with one-third indicating it had increased in the past decade.

Just under one half (48 percent) of village respondents nationally reported that rising sea levels and flooding had increased, 17 percent felt it had decreased and 35 percent felt that there had been no effect (Table 61).

Of the 54 respondents who felt that rising sea levels and flooding had increased in their village the last ten years, half indicated that people had been forced to relocate as a result (Figure 58). This was particularly evident in the Southern region where over 70 percent of the villages affected by rising sea levels and flooding also reported that some villagers were forced to relocate.

Shoreline erosion was reported as having increased in the last ten years by almost three-quarters of the responding villages. Just under 86 percent of villages in the Southern Gilbert region reported that shoreline erosion had increased, as did 80 percent of village respondents in the Line and Pheonix Islands and 79 percent of village respondents in the Central Gilbert region.

TABLE 58
Number of village respondents identifying saltwater inundation by frequency and region, Kiribati: 2019

Region	Number of village respondents	Villages identifying saltwater inundation	Frequency of saltwater inundation				
			Frequently	Almost every month	During high tide	During heavy rain	Other
KIRIBATI	112	64	2	2	52	5	3
South Tarawa	13	8	0	0	8	0	0
Northern	30	17	0	1	10	5	1
Central	19	8	1	0	7	0	0
Southern	35	25	1	1	21	0	2
Line and Phoenix Islands	15	6	0	0	6	0	0

SOURCE: 2019 HIES

TABLE 59
Number of village respondents identifying saltwater inundation by extent of damage and region, Kiribati: 2019

Region	Number of village respondents	Villages identifying saltwater inundation	Extent of damage due to saltwater inundation			
			Extensive damage	Some damage	Minor damage	Other
KIRIBATI	112	64	31	30	3	0
South Tarawa	13	8	5	3	0	0
Northern	30	17	10	6	1	0
Central	19	8	0	7	1	0
Southern	35	25	16	9	0	0
Line and Phoenix Islands	15	6	0	5	1	0

SOURCE: 2019 HIES

TABLE 60
Number of village respondents identifying saltwater inundation by change in last 10 years and region, Kiribati: 2019

Region	Number of village respondents	Villages identifying saltwater inundation	Change to saltwater inundation in last 10 years		
			Increased	Decreased	Stayed the same
KIRIBATI	112	64	22	22	20
South Tarawa	13	8	3	3	2
Northern	30	17	5	5	7
Central	19	8	4	1	3
Southern	35	25	8	13	4
Line and Phoenix Islands	15	6	2	0	4

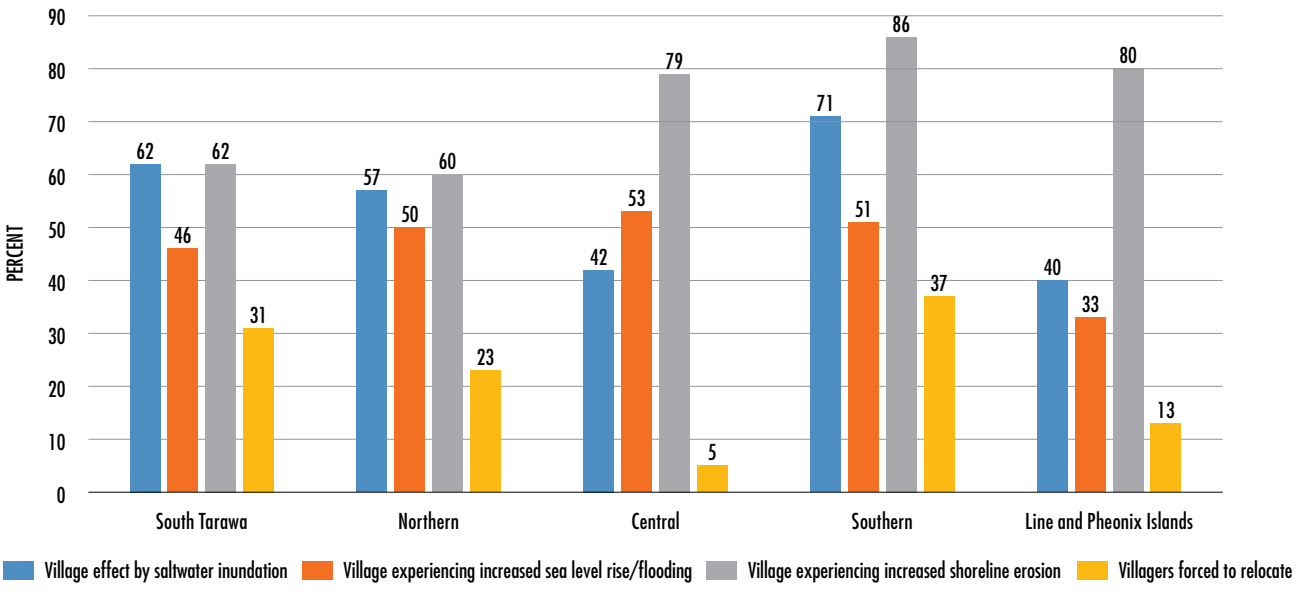
SOURCE: 2019 HIES

TABLE 61
Number of village respondents identifying rising sea level, relocation of villagers and shoreline erosion by extent and region, Kiribati: 2019

Region	Number of village respondents	Effect of rising sea level/flooding			Forced to relocate		Effect of shoreline erosion		
		Increased	Decreased	No effect	Yes	No	Increased	Decreased	No effect
KIRIBATI	112	54	19	39	27	27	83	10	19
South Tarawa	13	6	3	4	4	2	8	2	3
Northern	30	15	3	12	7	8	18	4	8
Central	19	10	4	5	1	9	15	1	3
Southern	35	18	3	14	13	5	30	2	3
Line and Phoenix Islands	15	5	6	4	2	3	12	1	2

SOURCE: 2019 HIES

FIGURE 58
Percentage of villages impacted by climatic events in last ten years by type and region, Kiribati (2019)



SOURCE: 2019 HIES

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CHAPTER 9
WEALTH INDEX AND FOOD SECURITY

9.1 Household Wealth Index

Based on each household's responses to questions in the 2020 Census, a wealth index score was derived for each household. The wealth index is a composite measure of a household's cumulative living standard and is calculated using data on a household's ownership of selected assets, such as a television, fridge or boat; materials used for housing construction including roofing and flooring; types of water access and sanitation facilities used by the household and whether the household owned pigs or chickens.

Each household is assigned a standardized score for each asset, depending on whether or not the household owned that asset. These scores are summed by household. Generated with a statistical procedure known as principal components analysis, the wealth index places individual households on a continuous scale of relative wealth, which is then divided into population quintiles -- five groups with the same number of individuals in each. The five wealth quintiles can then be used to compare the influence of wealth on various population, health and nutrition indicators.[11]

The following is an example of how a wealth index can be used to compare the various groups of agriculture and fishing households from the 2020 Census.

Table 62 shows that of the estimated 8,979 cropping households in 2020, 2,049 households (or 22.8 percent) fell within the lowest quintile, or the grouping of households determined as having less wealth than those in the higher quintiles. At the other end of the scale, less than 35 percent of cropping households were ranked in either quintile 4 or the highest quintile.

For households producing handicrafts and fishing households, the wealth index shows that significantly more households fell within the lower two wealth quintiles, with 72 percent of handicraft households and 56 percent of fishing households respectively scored in quintiles 1 or 2. As a result, fewer handicraft or fishing households were assigned to the higher wealth index quintiles, compared with cropping or livestock households.

A number of the Appendix Tables in this report present wealth index data as a background characteristic for consideration by data users.

TABLE 62
Number of households engaged in agriculture/fishing by strata and wealth index quintile, Kiribati: 2020

	Urban/rural			Number of Households					Proportion of Households %				
				Wealth index (Quintiles)					Wealth index (Quintiles) %				
	National	Urban	Rural	Lowest Q	Q2	Q3	Q4	Highest Q	Lowest Q	Q2	Q3	Q4	Highest Q
Cropping Households	8 979	3 739	5 240	2 049	2 121	1 681	1 483	1 645	22.8%	23.6%	18.7%	16.5%	18.3%
Livestock Households	13 811	6 335	7 476	3 148	3 080	2 838	2 521	2 224	22.8%	22.3%	20.5%	18.3%	16.1%
Fishing Households	9 663	3 545	6 118	2 869	2 492	1 904	1 376	1 022	29.7%	25.8%	19.7%	14.2%	10.6%
Handicraft Households	4 406	809	3 597	1 711	1 447	704	323	221	38.8%	32.8%	16.0%	7.3%	5.0%
Total Households	20 354	10 652	9 702	4 095	4 047	4 073	4 070	4 069	20%	20%	20%	20%	20%

SOURCE: 2020 Census

[11] Demographic and Health Surveys (DHS) Program: https://dhsprogram.com/topics/wealth-index/

9.2 Food Security

The 2020 Census did not collect any details of crop production volumes or land area utilized for crops, therefore it is not possible to determine the level of crop production across Kiribati in the twelve months leading up to Census night in November 2020 or what changes may have occurred since the previous Census was conducted in 2015.

The 2019 Kiribati Household Income and Expenditure Survey (HIES) did ask householders aged 15 years and over a series of questions relating to food security including whether in the past 12 months the:

- household worried about not having enough food to eat because of lack of money or other resources;
- household was unable to eat healthy and nutritious food because of lack of money or other resources;
- household ate only a few kinds of food because of lack of money or other resources;
- household had to skip a meal because not enough money or other resources to get food;
- household ate less than thought they should because of lack of money or other resources;
- household ran out of food because of lack of money or other resources;
- household were hungry but did not eat because there was not enough money or other resources for food; or
- household went without eating for a whole day because of lack of money or other resources.

The responses indicated that, nationally, during the previous 12 months up to the HIES enumeration in 2019, over half of all households were worried about not having enough food to eat because of lack of money or other resources (Table 63). This was slightly higher on the urban islands (56 percent) than the rural islands (47 percent). Furthermore, 60 percent of urban households reported that they were unable to eat healthy and nutritious food because of lack of money or other resources and 58 percent of households responded that they ate only a few kinds of food because of lack of money or other resources.

Just under a quarter of households nationally reported that they had to skip a meal or had run out of food because of lack of money or other resources.

It is concerning that one in ten households nationally indicated that, during the past 12 months prior to the HIES, they went without eating for a whole day because of lack of money or other resources.

Generally, the reported instances of food insecurity were less common for rural island households than urban households. This could be attributed to the higher proportion of rural island households growing their own food crops, raising livestock, fishing or collecting shellfish or storing food stocks than urban island households.

TABLE 63
Number of households identifying food-related deprivation by strata, Kiribati: 2019

In the last 12 months:	KIRIBATI		Urban		Rural	
	No. of Households	Percent	No. of Households	Percent	No. of Households	Percent
TOTAL	19 609	100%	8 994	100%	10 615	100%
Household worried about not having enough food to eat because of lack of money or other resources						
Yes	10 089	51%	5 059	56%	5 030	47%
No	9 507	48%	3 935	44%	5 572	52%
Refused	13	0%	0	0%	13	0%
Household unable to eat healthy and nutritious food because of lack of money or other resources						
Yes	10 562	54%	5 401	60%	5 161	49%
No	9 039	46%	3 584	40%	5 455	51%
Do not know	8	0%	8	0%	0	0%
Household ate only a few kinds of food because of lack of money or other resources						
Yes	10 156	52%	5 255	58%	4 901	46%
No	9 448	48%	3 739	42%	5 709	54%
Refused	5	0%	0	0%	5	0%
Household had to skip a meal because not enough money or other resources to get food						
Yes	4 643	24%	2 580	29%	2 063	19%
No	14 954	76%	6 414	71%	8 540	80%
Do not know	12	0%	0	0%	12	0%
Household ate less than thought they should because of lack of money or other resources						
Yes	7 490	38%	3 885	43%	3 605	34%
No	12 050	61%	5 089	57%	6 961	66%
Do not know	32	0%	0	0%	32	0%
Refused	37	0%	20	0%	17	0%
Household ran out of food because of lack of money or other resources						
Yes	4 458	23%	2 401	27%	2 058	19%
No	15 100	77%	6 555	73%	8 545	81%
Do not know	31	0%	19	0%	12	0%
Refused	20	0%	20	0%	0	0%
Household were hungry but did not eat because there was not enough money or other resources for food						
Yes	2 483	13%	1 420	16%	1 064	10%
No	17 060	87%	7 536	84%	9 524	90%
Do not know	46	0%	18	0%	28	0%
Refused	20	0%	20	0%	0	0%
Household went without eating for a whole day because of lack of money or other resources						
Yes	2 022	10%	1 113	12%	908	9%
No	17 543	89%	7 861	87%	9 683	91%
Do not know	24	0%	0	0%	24	0%
Refused	20	0%	20	0%	0	0%

SOURCE: 2019 HIES

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CHAPTER 10
CONCLUSIONS AND RECOMMENDATIONS

This final chapter provides some key findings from the agricultural content of the 2020 Kiribati Population and Housing Census and several recommendations, particularly around future agricultural survey activities.

Agriculture has traditionally been the preoccupation of Kiribati people and involves the cultivation of trees and crops and raising a limited number of pigs and chickens. Crop production is primarily for subsistence, crops comprising coconut, breadfruit, bananas, babai (swamp taro), pumpkin, sweet potatoes, cabbage and cassava. Home gardening is practiced but is constrained by damage caused by roaming animals (pigs and chickens), the lack of inputs and water availability.

The nation's small size, isolation from markets, and a harsh physical environment are significant constraints to the country's development. Land resources are few and the soil is considered amongst the most infertile in the world, being young, shallow and alkaline, limiting conventional agricultural methods. The highest point of land on most atolls is less than six meters above sea level and the low-lying atolls face occasional cyclones and the prospect of saltwater inundation of groundwater and rising sea levels.

The *Kiribati Agriculture Strategy 2020-2030* (KAS) identified declining agriculture production and local engagement in Kiribati as a concern, with the main issues identified as:

- Decline in food crops and livestock production;
- Low demand due to heavy reliance on imported food;
- Scarcity of natural capital including land, water and poor soils;
- Threats of climate change;
- Weak enabling environment and inadequate marketing supply chains;
- Inadequate agricultural extension support and weak biosecurity; and
- Limited local capacity and erosion of local knowledge.

It is acknowledged that the development of agriculture in Kiribati must confront many fundamental issues and challenges. Nevertheless, there is considerable scope for increasing production for local consumption and reversing recent production declines. Key challenges will be to revitalize and expand agriculture extension services, encourage people to once again turn to local rather than imported foods for better nutritional health, and improved transport and marketing of local produce.

With this in mind, the *Kiribati Agriculture Strategy 2020-2030* identified seven key objectives for the agriculture sector, including:

- Sustainable atoll crop production systems developed and promoted;
- Sustainable small-animal livestock production systems developed and promoted;
- Enabling environment and marketing mechanisms developed;
- Climate change mitigation and adaptation enhanced;
- Improved Biosecurity;
- National nutrition and health education and awareness-raising about consuming local produce; and
- Capacity building for government officials and stakeholders

10.1 Key Findings/Conclusions

The largely subsistence nature of Kiribati's agricultural sector is evidenced by the number of households in the Census who reported undertaking some form of agricultural activity. Of the 20,354 total households, 15,467 (76 percent) reported some type of agricultural activity, including livestock raising (reported by 68 percent of all households), crop growing (44 percent), fishing activity (47 percent) and handicrafts (22 percent). Many households undertake a combination of these activities, including mixed farming (both cropping and raising livestock), cropping and/or raising livestock as well as fishing etc.

Of the 4,887 households across the country who did not report growing any crops or engaging in livestock raising, the majority (63 percent) were located on the more densely populated capital, South Tarawa and Betio Islands, where 3,102 or one-third of the Islands' 9,444 total households were not involved in any form of cropping or livestock activity. These islands also reported the lowest number of households engaged in fishing or handicraft activities.

Households on the Rural Islands were more likely to be undertaking some form of agricultural activity, with the majority of these islands reporting over 85 percent of households growing crops or raising livestock. It was a similar response for fishing and handicrafts with a greater proportion of Rural Island households reporting undertaking these activities.

Of the 8,979 households who reported growing crops in 2020, the vast majority (92 percent) reported that crops were grown only for home consumption or mainly for home consumption but with some sales, i.e. primarily subsistence production. Only 1 percent of households reported growing their crops only for sale while a further 5 percent indicated that they grew crops mainly for sale but had some home consumption. Three percent of households on the rural islands reported growing their crops mainly for customary practices.

It has been estimated that Kiribati will require 50 percent more food by 2030 to feed its growing population. Extreme weather conditions and rising sea levels threaten agriculture production and livelihoods. Overfishing and unregulated commercial development is reducing costal fisheries and marine stocks.

The challenge for households is to increase their production levels to a more commercial scale of operation to overcome problems such as poverty, famine, hunger and poor nutrition. However, there are obstacles to be overcome to further develop commercial farming, such as the availability of suitable arable land. Most agriculture, fishing and handicraft production takes place on the outer islands and there is a growing observance that traditional skills are being lost, as many of the younger generation migrate to the urban areas of South Tarawa and Betio in search of employment or are reluctant to engage in the traditional subsistence lifestyle. Slowing the migration of population to the urban islands, and improving the quality of life and income earning opportunities for those on the outer and rural islands remains a high priority.

Possibly the most concerning aspect of the 2020 Census was that significantly less Kiribati households reported undertaking agriculture or fishing activities compared with the data collected in the previous Census conducted in 2015. The number of households raising livestock or poultry, growing crops, fishing or producing handicrafts all decreased significantly between 2015 and 2020.

10.1.1 Cropping

Whilst the number of households growing most of the main crop types showed increases between 2010 and 2015, this trend appears to have reversed between 2015 and 2020. The level of reduction reported on the urban islands of South Tarawa, Betio and Kiritimati for coconut trees, breadfruit, bananas and babai was around 1.5 times the level of reported reduction on the rural islands. The reduced crop production on the more heavily populated South Tarawa and Betio is a major concern, and which, unless addressed will further increase the reliance on crop production from the outer/rural islands or the importation from other countries, and with it the additional financial burden of transportation and refrigerated storage.

One possible reason for the significant reductions in households growing specific crops over a relatively short period may be attributed to some cropping households increasing their land area and thereby operating larger holdings for economies of scale. However, as information on household agricultural land or cropping area was not collected in either the 2015 or 2020 Censuses it is not possible to verify this observation.

While it is clear that the lack of suitable land area and soil quality throughout Kiribati has meant that grains, including rice, will continue to be imported, unless the production of local fruit and vegetable crops can be increased the heavy reliance on imported food items will remain. Improving fruit

and vegetable productivity and yields remain critical to Kiribati's desire for greater food security and enhanced self-sufficiency towards its goal of import substitution.

The 2020 Census did not collect any information on the area of land used by households for agricultural production or the size of home gardens, crop cycles, quantities of vegetables harvested including from home gardens, fertilizer use or agriculture tools owned.

It is therefore not possible to determine definitively whether the decrease in the number of households growing crops has actually resulted in a decrease in fruit and vegetable production across each of the islands. It could be the case that some households are acquiring or leasing their neighbour's or nearby land for the purpose of cropping, resulting in less households actually engaged in cropping activities but larger average agricultural holdings for those households who are still cropping.

Such larger holdings can potentially realize efficiencies and 'economies of scale' including labour requirements, infrastructure such as tractors, rotary hoes or other equipment, storage facilities as well as larger scale marketing and supply options.

As the 2020 Census did not collect actual measures of land size or production levels for each household, it is not possible to examine the extent of the larger scale agricultural operations or the efficiencies that scale may present, or their contribution to overall production levels compared with subsistence households.

To be able to accurately monitor and model these trends in household agricultural activities into the future, it is critical that consistent data, such as land size, land use, cropping frequency and fruit tree numbers and stage of production are collected whenever a Census or survey is conducted.

10.1.2 Livestock raising

Between 2015 and 2020, reductions in the number of households raising livestock and/or poultry were recorded across both strata (urban and rural islands) and every livestock type. Whilst the level of reduction in livestock households between Censuses was not quite as significant as with crop growing households, nonetheless there was a 5.1 percent decrease in households raising local pigs and an 18 percent decrease in households with local chickens.

The number of households raising cross-breed pigs and cross-breed chickens between 2015 and 2020 decreased by 35 percent and 39 percent respectively, and there was a significant reduction of 73 percent in households raising ducks.

The number of households raising local chickens, the main poultry type, reduced by almost 900 nationally, or an 18 percent decrease across the board. There appeared to be a move away from the raising of both cross-breed pigs and cross-breed chickens throughout Kiribati, where the number of households raising these livestock/poultry decreased by 35 percent and 39 percent respectively between 2015 and 2020.

The number of pigs and poultry owned by households all declined between 2015 and 2020. Poultry flock numbers experienced the largest decline, with duck numbers decreasing by 85 percent between 2015 and 2020, and local and cross-breed chicken numbers experiencing declines of 12 percent and 30 percent respectively.

The reduction in local pig numbers nationally was less dramatic at 3 percent, however cross-breed pig numbers in 2020 were down some 43 percent on those recorded in 2015.

These reductions are consistent with and reflective of the reduced number of livestock and poultry households reported in 2020.

10.1.3 Fishing

There is a great reliance on marine resources for livelihoods, government revenue, and especially nutrition in Kiribati. By several estimates, Kiribati has the highest per capita consumption of fish of any country in the world.

The 2020 Census reported that 47 percent of all Kiribati households were engaged in some form of fishing activity, including 63 percent of households located on the rural islands. The majority of the fishing activity was undertaken for home consumption only but 20 percent of fishing households nationally and almost one quarter (24 percent) of households on the rural islands also had some fish sales.

The 2020 Census also identified significant concerns in relation to the number of households engaged in fishing or collecting seafood compared with the previous 2015 Census. While the total number of households across Kiribati increased by 15 percent, the number of fishing households reduced by 21 percent nationally, including decreases of 30 percent on the urban islands and 14 percent on the rural islands.

In 2015, 69 percent of all households reported undertaking fishing activities while in 2020 this had dropped to 47 percent of all households. The proportion of urban island households engaged in fishing fell from 57 percent in 2015 to 33 percent in 2020 while rural island fishing households fell from 80 percent in 2015 to 63 percent in 2020.

These reductions in households engaged in fishing activities between Censuses were mirrored by significant reductions in boat ownership across the five years where the overall number of boats owned fell by 47 percent nationally. There were reductions of 65 percent reduction recorded on the urban islands and 39 percent on the rural islands. While all boat types were affected, the number of wooden and aluminium fishing boats owned fell by 75 percent and 54 percent respectively. Even ownership of the popular canoe fell by 26 percent nationally, including by over half on the urban islands.

It is unclear why such dramatic decreases have occurred, other than perhaps a shift towards households purchasing fish and seafood rather than catching or collecting it themselves.

10.1.4 Handicrafts

Just over one-fifth (22 percent) of households in Kiribati reported that they were engaged in handicraft production in 2020, including 37 percent of rural island households and 8 percent of urban households.

No information in relation to handicraft activity was collected in either of the previous 2010 and 2015 Censuses, therefore any comparison with data from the 2020 Census is not possible. However, the 2019 Kiribati Household Income and Expenditure Survey (HIES) did collect information on handicrafts and food processing production. Whilst the data from the 2019 HIES and 2020 Census are not directly comparable, the data is quite consistent in terms of the proportion of households either creating handicrafts or processing food stocks.

What is clear is that the processing and preserving of food stocks is a more common practice on the rural islands than the urban islands. This was true for all types of food stocks reported and is possibly due to urban households having more disposable income and ready access to markets to buy raw and prepared food products than households on the rural or remote islands.

10.1.5 General

One of the main challenges facing Kiribati, as it is with many other Pacific Island nations, is to encourage educated people at productive age to become engaged in the agriculture and fishing sectors. If agriculture and fisheries are not viewed as an attractive job option for young people, then the availability of labor resources to support a developing agriculture sector might prove a challenge in the future. This could become increasingly problematic if the current trend of younger persons migrating from the outer islands to the capital, South Tarawa and Betio continues.

Furthermore, with over one quarter of agricultural households currently headed by females, it will also be important to actively encourage and engage females in the agricultural workforce if program objectives are to be realized. These female-headed households are critically important to enhancing household food security and nutrition and to the overall health and wellbeing of the household.

The 2020 Population and Housing Census provided a unique opportunity to identify all agricultural households, including in urban areas, for developing an up-to-date, reliable frame as a starting point for future agricultural censuses and surveys.

Building a frame of household-operated agricultural holdings (or land parcels) is a larger and more complex task. It effectively means establishing the extent and scale of households' agricultural activity, including how many separate land holdings are operated by each household and their geographical location. Minimum size limits, on variables such as numbers of livestock, numbers of trees (tree crops), area of land (temporary crops), value of annual sales, and the purpose of production (breeding livestock) are used in many countries to determine whether a household's agricultural activity qualifies as a holding or not.

The relatively small size and number of households in Kiribati lends itself to continue including agricultural and fisheries content in the 5-yearly Population and Housing Census, where basic information can be collected on the smaller holdings and more detailed information collected on households above a minimum size limit through a supplementary questionnaire. With such an approach, enumerator effort and resources can then be focused on the more productive agriculture holdings.

10.2 Recommendations

It is important that the relevant Agriculture and Fisheries Ministries continue to build capacity and capability to enable the ongoing collection, production and dissemination of up-to-date and accurate agricultural statistics in a timely and coherent manner. Such information is critical for informed decision making and for the development of policy planning to promote economic growth not only in rural areas but nationally, to reduce poverty, improve nutrition and provide food security.

For future Population and Housing Censuses, line ministries and institutions responsible for the Kiribati Census development are encouraged to continue utilising the Core and Supplementary Agriculture and Fishing Module approach developed by the Pacific Community (SPC). This approach addresses the key agriculture and fisheries data requirements and importantly provides guidance on the data elements necessary to ensure relevance, consistency and comparability between Censuses.

The current lack of detailed information regarding actual land area farmed, the number and type of holdings owned or operated, crop production levels, crop area harvested or yields per crop type, bearing and non-bearing orchard and plantation tree numbers, and access to agricultural equipment remain as significant data gaps.

It is recommended that initiatives also be introduced to encourage and enable farmers and graduates to work together to conduct research and trial new approaches to improve livestock husbandry and health, increase crop production and productivity, including environmentally-friendly land and livestock management, soil fertilization and pest control, as well as to enhance fisheries activities.

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CONTACT DETAILS

For any technical enquiries on the data provided in this Report please contact the following:

Kiribati National Statistics Office, Ministry of Finance and Economic Development Bairiki / Tarawa

Phone: (686) 740 21 806

Email: statistics@nso.gov.ki

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ANNEX 1
2020 Kiribati Census of population and housing: Household questionnaire – Module J (Agriculture, fishing, handicraft, food stock content) and Module K (environment)

MODULE J AGRICULTURE, FISHING, HANDICRAFT, FOOD STOCK AND TOURISM

E dwelling_type = 1 & occupancy = 1

J1. Has any household member conducted or undertaken any of the following activities in the last 12 months?

V1 self.Missing.Length = 0

M1 All Yes/No categories have to be asked and answered!

MULTI-SELECT: YES/NO ownacct_activity

01 ☐/☐ Growing food crops
02 ☐/☐ Raising livestock
03 ☐/☐ Fishing and seafood gathering
04 ☐/☐ Handicrafts

MODULE J: AGRICULTURE, FISHING, HANDICRAFT, FOOD STOCK AND TOURISM

FOOD CROPS

E ownacct_activity.Yes.Contains (1)

FC1. Has this household grown any of the following crops in the last 12 months?

V1 self.Missing.Length = 0

M1 All Yes/No categories have to be asked and filled

V2 ownacct_activity.Yes.Contains (1) & self.Yes.Length ! = 0

M2 At least one category has to be a 'Yes'. They cannot be all 'No'

MULTI-SELECT: YES/NO crop_list

01 ☐/☐ Banana
02 ☐/☐ Pumpkin
03 ☐/☐ Kumala
04 ☐/☐ Cassava
05 ☐/☐ Cabbage
06 ☐/☐ Tomato
07 ☐/☐ Cucumber
08 ☐/☐ Watermelon
09 ☐/☐ Eggplant
10 ☐/☐ Breadfruit
11 ☐/☐ Babai
12 ☐/☐ Coconut tree
13 ☐/☐ Other (specify)

FC1a. How many OTHER crops do you grow in the last 12 months?

E crop_list.Yes.Contains (13)

V1 self.InRange (1,3)

M1 Number of OTHER crops should be between 1-3

NUMBERIC: INTERGER othercrop_num

.....

FC1a_oth1. Specify the 1st OTHER food crop? E crop_list.Yes.Contains (13) & othercrop_num.InRange (1,3)	TEXT other_crop1 .....
FC1a_oth2. Specify the 2nd OTHER food crop? E crop_list.Yes.Contains (13) & othercrop_num > = 2 & IsAnswer (other_crop1)	TEXT other_crop2 .....
FC1a_oth3. Specify the 3rd OTHER food crop? E crop_list.Yes.Contains (13) & othercrop_num > = 3 & IsAnswer (other_crop2)	TEXT other_crop3 .....
FC2. What is the purpose of growing the food crops? I Customary practices includes preserve of traditional knowledge and skills of planting and cultivation, preserve of traditional plants and crops for food in different festive events, provide raw materi And 96 other svmbois [5]	SINGLE-SELECT crop_purpose 01 ◯ Only for home consumption 02 ◯ Mainly home consumption, but some sale 03 ◯ Mainly sale, but some home consumption 04 ◯ Only for sale 05 ◯ Customary practices 06 ◯ Other purposes
FC3. Does the household cut toddy?	SINGLE-SELECT toddy 01 ◯ Yes 02 ◯ No
FC4. How many toddy trees does the household have? I Type '0' if they don't have any toddy trees. E toddy = 1	NUMBERIC: INTERGER toddy_trees .....

MODULE J: AGRICULTURE, FISHING, HANDICRAFT, FOOD STOCK AND TOURISM

LIVESTOCK

E ownacct_activity.Yes.Contains (2)

LS1. Is any member of the Household currently raising any of the following LIVESTOCK? V1 self.Missing.Length = 0 M1 All Yes/No categories have to be asked and filled V2 ownacct_activity.Yes.Contains (2) & self.Yes.Length ! = 0 M2 At least one category has to be a 'Yes'. They cannot be all 'No'	MULTI-SELECT: YES/NO livestock_list 01 ☐/☐ Local pigs 02 ☐/☐ Cross-breed pigs 03 ☐/☐ Local chickens 04 ☐/☐ Cross-breed chickens 05 ☐/☐ Other (specify)
LS1a. How many OTHER livestocks are you currently raising? E livestock_list.Yes.Contains (5) V1 self.InRange (1,3) M1 Number of OTHER livestocks should be between 1-3	NUMBERIC: INTERGER otherlvstck_num .....

LS1a_oth1. Specify the 1st OTHER livestock raised? E livestockl_list.Yes.Contains (5) & otherlvstck_num. InRange (1,3)	TEXT other_livestock1 .....
LS1a_oth2. Specify the 2nd OTHER livestock raised? E livestockl_list.Yes.Contains (5) & othercrop_num > = 2 & IsAnswer (other_livestockl1)	TEXT other_livestock2 .....
LS1a_oth3. Specify the 3rd OTHER livestock raised? E livestockl_list.Yes.Contains (5) & othercrop_num > = 3 & IsAnswer (other_livestockl2)	TEXT other_livestock3 .....
LS1b. How many LOCAL PIGS do you have in your holding? E livestock_list.Yes.Contains (1) V1 self.InRange (1,1000) M1 Number of local pigs should be between 1-1000	NUMBERIC: INTERGER local_pigs .....
LS1c. How many CROSS-BREED PIGS do you have in your holding? E livestock_list.Yes.Contains (2) V1 self.InRange (1,1000) M1 Number of crossbreed pigs should be between 1-1000	NUMBERIC: INTERGER crossbreed_pigs .....
LS1d. How many LOCAL CHICKENS do you have in your holding? E livestock_list.Yes.Contains (3) V1 self.InRange (1,1000) M1 Number of local chickens should be between 1-1000	NUMBERIC: INTERGER local_chickens .....
LS1e. How many CROSS-BREED CHICKENS do you have in your holding? E livestock_list.Yes.Contains (4) V1 self.InRange (1,1000) M1 Number of cross-breed chickens should be between 1-1000	NUMBERIC: INTERGER crossbreed_chickens .....
LS1f. How many OTHER livestock do you have in your holding? E livestock_list.Yes.Contains (5) V1 self.InRange (1,1000) M1 Number of other livestock should be between 1-1000	NUMBERIC: INTERGER other_livestock .....

LS2. What is the purpose of raising livestocks? I Customary practices includes preserve of traditional knowledge and skills of planting and cultivation, preserve of traditional plants and crops for food in different festive events, provide raw materi And 96 other svmbois [6]	SINGLE-SELECT livestock_purpose 01 ◯ Only for home consumption 02 ◯ Mainly home consumption, but some sale 03 ◯ Mainly sale, but some home consumption 04 ◯ Only for sale 05 ◯ Customary practices 06 ◯ Other purposes
LS3. How far is the household pigsty from your neighbour? E livestock_list.Yes.ContainsAny (1,2)	SINGLE-SELECT pigsty_distance 01 ◯ Very close (near) 02 ◯ A bit far 03 ◯ Very far
LS4. Does the household clean the pigsty regularly? E livestock_list.Yes.ContainsAny (1,2)	SINGLE-SELECT pigsty_clean 01 ◯ Yes 02 ◯ No

MODULE J: AGRICULTURE, FISHING, HANDICRAFT, FOOD STOCK AND TOURISM

FISHING

E ownacct_activity.Yes.Contains (3)

FS0. What is the purpose of fishing?	SINGLE-SELECT fishing_purpose 01 ◯ Only for home consumption 02 ◯ Mainly home consumption, but some sale 03 ◯ Mainly sale, but some home consumption 04 ◯ Only for sale 05 ◯ Customary practices 06 ◯ Other purposes
FS1. What types of fishing methods does this household use? I Please read out each category and record the answer – yes or no V1 self.Missing.Length = 0 M1 All Yes/No categories have to be answered	MULTI-SELECT: YES/NO trad_fish_method 01 ☐/☐ Te uu 02 ☐/☐ Te waiboo 03 ☐/☐ Te kabwangawaro 04 ☐/☐ Te kabora 05 ☐/☐ Te kibee
FS1a. Does this household own traditional fish trap (Te Maa, Nei Fish pond)?	SINGLE-SELECT fish_trap 01 ◯ Yes 02 ◯ No

FS2. Where does this household normally fish?	MULTI-SELECT fish_location 01 ☐ Lagoon 02 ☐ Lagoon flat 03 ☐ Ocean 04 ☐ Reef flat 05 ☐ Outer reef 06 ☐ Other (specify)
FS2_oth. Describe the other place of fishing? E fish_location.Contains (6)	TEXT oth_fish_location .....
FS3. Does this household own any of the following fishing boats? V1 self.Missing.Length = 0 M1 All Yes/No categories to be answered	MULTI-SELECT: YES/NO fish_boat 01 ☐/☐ Wooden fishing boat 02 ☐/☐ Aluminium fishing boat 03 ☐/☐ Fiberglass boat 04 ☐/☐ Canoes 05 ☐/☐ Double canoes (outrigger) 06 ☐/☐ Other fishing boats
FS3a. How many WOODEN FISHING BOATS does the household own? E fish_boat.Yes.Contains (1) V1 self.InRange (1,10) M1 Number of wooden fishing boats should be between 1-3	NUMBERIC: INTERGER wooden_boat .....
FS3b. How many ALUMINIUM FISHING BOATS does the household own? E fish_boat.Yes.Contains (2) V1 self.InRange (1,10) M1 Number of aluminium fishing boats should be between 1-3	NUMBERIC: INTERGER aluminium_boat .....
FS3c. How many FIBERGLASS BOATS does the household own? E fish_boat.Yes.Contains (3) V1 self.InRange (1,10) M1 Number of fiberglass boats should be between 1-3	NUMBERIC: INTERGER fiberglass_boat .....
FS3d. How many CANOES does the household own? E fish_boat.Yes.Contains (4) V1 self.InRange (1,10) M1 Number of canoes should be between 1-3	NUMBERIC: INTERGER canoes .....

FS3e. How many DOUBLE CANOES does the household own? E fish_boat.Yes.Contains (5) V1 self.InRange (1,10) M1 Number of double canoes should be between 1-3	NUMBERIC: INTERGER double_canoes .....
FS3f. How many OTHER FISHING BOATS does the household own? E fish_boat.Yes.Contains (6) V1 self.InRange (1,10) M1 Number of other boats should be between 1-3	NUMBERIC: INTERGER other_boat .....
J2. What is the purpose of producing HANDICRAFTS? I Customary practices include fan, mat, coconut oil as a gift in honor of Te Unimaane festive event, dancing costumes, gifts/soveniers etc. E ownacct_activity.Yes.Contains (4)	SINGLE-SELECT handicraft 01 ◯ Only for home consumption 02 ◯ Mainly home consumption, but some sale 03 ◯ Mainly sale, but some home consumption 04 ◯ Only for sale 05 ◯ Customary practices 06 ◯ Other purposes
J3. Does your household have the following food stock? I Please read out each category and record the answer – yes or no V1 self.Missing.Length = 0 M1 All Yes/No categories have to be answered	MULTI-SELECT: YES/NO food_stock 01 ☐/☐ Te tuae 02 ☐/☐ Te tari ni ika 03 ☐/☐ Te kamwaimwai 04 ☐/☐ Te kabubu 05 ☐/☐ Te kabwibwi n mai 05 ☐/☐ Te kabwibwi n ika

STATIC TEXT

TOURISM PERCEPTION

J12. What Tourism can have positive and negative impacts on the community. In your opinion, have you benefited from tourism (employment, income, etc)?	SINGLE-SELECT tourism_benefit 01 ◯ Yes 02 ◯ No
J13. Kiribati culture is one of the attractions many visitors want to experience while in Kiribati. In your opinion, do you think tourism has a positive or a negative impact on our culture?	SINGLE-SELECT tourism_impact 01 ◯ Positive impact 02 ◯ Negative impact 03 ◯ Don't know
J14. There are multiple tourist activities (fishing, swimming, snorkeling, sightseeing, birdwatching, village tours, etc) undertaken by visitors while in Kiribati. Have you experienced any disturbances while they carry out these activities?	SINGLE-SELECT tourism_disturbance 01 ◯ Yes 02 ◯ No 03 ◯ Don't know

J15. The Tourism Authority of Kiribati (TAK) conducts a radio awareness announcement on Radio Kiribati once a month. Have you heard any of these announcements?	SINGLE-SELECT tourism_announce 01 ◯ Yes 02 ◯ No

MODULE K ENVIRONMENT

E dwelling_type = 1 & occupancy = 1

K1. Has anyone from this household has eaten the following fishes in the last 12 months? V1 self.Missing.Length = 0 M1 All Yes/No categories have to be asked and filled	MULTI-SELECT: YES/NO eat_fish 01 ☐/☐ Turtle 02 ☐/☐ Shark 03 ☐/☐ Bonefish
K2. Has any Household member cut any of the following trees in the last 12 months to build local houses? V1 self.Missing.Length = 0 M1 All Yes/No categories have to be asked and filled	MULTI-SELECT: YES/NO cut_trees 01 ☐/☐ Te tongo 02 ☐/☐ Te nii 03 ☐/☐ Te ngea 04 ☐/☐ Te mao 05 ☐/☐ Te uri 06 ☐/☐ Te kaina
K3. Do you see waste as a problem on your Island?	SINGLE-SELECT waste_problem 01 ◯ Yes 02 ◯ No
K4. State reason(s) of wastes being a problem? E waste_problem = 1	MULTI-SELECT waste_reason 01 ☐ Unhygienic (source of illness) 02 ☐ Bad smell 03 ☐ Source of insects (including mosquitoes) 04 ☐ Bad sight 05 ☐ Other (specify)
K4_oth. Describe other reason of waste problem? E waste_reason.Contains (5)	TEXT oth_waste_problem .....

APPENDIX TABLE

APPENDIX TABLE 1
Number of households by type of agriculture/fishing activity and island, gender and age of household head and wealth index, 2020

	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Cropping	8 979	3 739	5 240	49	232	473	245	545	515	2 408	822	273	381	112	111	430	355	200
Livestock	13 811	6 335	7 476	52	322	561	326	851	930	4 112	1 281	371	381	209	176	467	639	271
Fishing	9 663	3 545	6 118	65	226	408	261	733	799	2 112	638	293	357	108	139	468	465	250
Handicraft	4 406	809	3 597	13	235	313	182	472	395	497	103	145	156	29	53	244	234	154
Total	**20 354**	**10 652**	**9 702**	**85**	**371**	**618**	**575**	**1 065**	**1 310**	**6 825**	**2 619**	**449**	**674**	**250**	**259**	**611**	**753**	**279**

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Cropping	309	206	157	128	123	171	218	509	7	6 814	2 165	251	7 304	1 424	2 049	2 121	1 681	1 483	1 645
Livestock	436	368	265	150	186	250	256	942	9	10 487	3 324	486	11 225	2 100	3 148	3 080	2 838	2 521	2 224
Fishing	346	224	238	98	97	217	319	795	7	7 877	1 786	447	7 972	1 244	2 869	2 492	1 904	1 376	1 022
Handicraft	276	141	113	37	91	144	169	209	1	3 463	943	153	3 434	819	1 711	1 447	704	323	221
Total	**533**	**423**	**326**	**192**	**210**	**312**	**398**	**1 208**	**9**	**14 956**	**5 398**	**783**	**16 489**	**3 082**	**4 095**	**4 047**	**4 073**	**4 070**	**4 069**

APPENDIX TABLE 2

Number of households by type of crop grown and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Banana	4 162	1 534	2 628	35	161	372	100	240	183	1 153	259	142	269	37	42	252	98	59
Pumpkin	4 175	1 595	2 580	26	103	334	82	304	267	1 017	295	145	211	53	31	252	180	75
Kumala	2 266	804	1 462	19	134	134	19	183	97	459	142	137	166	6	12	232	104	59
Cassava	1 682	1 190	492	42	20	148	10	15	35	656	445	23	30	7	0	21	9	2
Cabbage	2 096	1 419	677	7	42	46	28	36	75	924	312	35	49	2	4	50	89	40
Tomato	781	557	224	6	10	20	3	3	25	335	130	17	5	2	0	8	24	14
Cucumber	895	671	224	4	10	26	5	6	26	429	153	12	13	1	2	8	16	17
Watermelon	607	503	104	2	3	7	2	6	31	317	120	7	3	1	1	3	6	9
Eggplant	712	517	195	12	4	14	5	26	19	325	121	14	12	2	3	8	17	7
Breadfruit	5 202	1 514	3 688	22	201	428	166	289	375	1 022	235	172	300	81	91	293	153	137
Babai	3 901	166	3 735	0	213	443	227	383	257	124	29	206	246	95	92	184	177	177
Coconut tree	6 715	2 096	4 619	41	220	449	201	416	440	1 416	308	224	342	109	106	373	288	191
Chilies	169	114	55	0	1	1	0	7	10	75	35	6	3	1	0	2	9	0
Pawapaw	246	148	98	0	1	0	0	9	19	103	20	4	6	3	4	7	13	1
Beans	37	35	2	0	0	0	0	0	1	19	15	0	0	0	0	0	1	0
Spinach	118	79	39	0	0	0	2	4	3	65	14	0	2	2	1	8	3	4
Taro	127	78	49	0	0	2	0	4	2	44	15	1	3	5	0	12	6	0
Kang Kong	36	28	8	0	0	0	0	0	2	22	6	0	0	0	1	3	0	0
Pandanus	62	23	39	0	0	1	0	2	7	10	0	0	0	0	3	2	4	3
Other	1 639	813	826	9	2	26	8	66	115	507	154	64	49	10	35	57	98	15

APPENDIX TABLE 2
Number of households by type of crop grown and island, gender and age of household head and wealth index, 2020 *(continued)*

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Banana	137	62	41	70	56	121	150	122	1	3 162	1 000	109	3 356	697	943	1 028	822	625	744
Pumpkin	80	91	80	42	45	103	73	283	3	3 199	976	118	3 401	656	898	1 041	871	644	721
Kumala	25	29	5	13	20	25	38	203	5	1 722	544	46	1 845	375	505	573	430	354	404
Cassava	2	12	1	1	9	64	41	89	0	1 169	513	41	1 399	242	106	215	309	454	598
Cabbage	25	45	20	23	25	10	25	183	1	1 492	604	40	1 753	303	160	307	397	544	688
Tomato	12	23	5	9	21	6	11	92	0	549	232	9	659	113	49	101	154	205	272
Cucumber	6	27	3	12	14	3	11	89	2	647	248	11	746	138	62	105	166	239	323
Watermelon	3	4	0	6	3	2	3	66	2	439	168	9	511	87	33	50	114	178	232
Eggplant	3	29	0	10	4	2	4	71	0	490	222	8	597	107	35	83	145	204	245
Breadfruit	205	166	100	102	106	120	176	257	5	4 057	1 145	143	4 118	941	1 431	1 479	985	655	652
Babai	225	156	131	118	107	135	163	13	0	3 266	635	110	3 046	745	1 545	1 453	643	175	85
Coconut tree	285	196	145	127	116	143	201	372	6	5 354	1 361	196	5 361	1 158	1 879	1 855	1 254	853	874
Chilies	0	2	3	2	3	1	4	4	0	121	48	2	142	25	21	17	29	48	54
Pawapaw	1	2	5	2	4	4	13	25	0	180	66	5	192	49	37	32	56	52	69
Beans	0	0	0	0	0	0	0	1	0	25	12	1	31	5	0	3	6	13	15
Spinach	0	5	2	1	0	1	0	0	1	80	38	1	101	16	7	11	17	35	48
Taro	1	2	1	6	0	3	1	19	0	99	28	0	106	21	11	24	32	17	43
Kang Kong	0	1	0	0	0	0	1	0	0	24	12	0	30	6	0	6	8	8	14
Pandanus	0	3	0	0	0	4	10	13	0	44	18	1	51	10	12	14	20	6	10
Other	20	36	46	64	31	16	59	152	0	1,210	429	38	1,330	271	272	348	340	309	370

APPENDIX TABLE 3

Number of households growing crops by purpose and island, gender and age of household head and wealth index, 2020

Purpose	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Only for home consumption	6 418	2 828	3 590	44	199	171	193	278	358	1 706	697	208	270	86	89	347	251	144
Mainly home consumption, but some sale	1 856	638	1 218	4	30	239	39	172	125	479	94	43	101	14	11	70	73	30
Mainly sale, but some home consumption	426	217	209	1	2	52	12	47	21	181	21	6	7	2	2	9	21	2
Only for sale	46	25	21	0	0	2	0	2	4	23	2	1	0	2	0	1	1	1
Customary practices	185	19	166	0	1	9	0	31	5	12	5	13	1	0	9	3	8	22
Other purposes	48	12	36	0	0	0	1	15	2	7	3	2	2	8	0	0	1	1

Purpose	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Only for home consumption	211	158	81	83	107	143	162	425	7	4 733	1 685	181	5 248	989	1 324	1 422	1 199	1 064	1 409
Mainly home consumption, but some sale	59	42	41	43	10	24	48	65	0	1 521	335	56	1 480	320	525	520	346	292	173
Mainly sale, but some home consumption	16	3	1	0	2	1	2	15	0	337	89	9	350	67	100	96	92	90	48
Only for sale	4	0	1	1	0	1	0	0	0	37	9	1	40	5	9	9	10	14	4
Customary practices	19	1	33	1	4	1	5	2	0	149	36	2	147	36	81	59	23	15	7
Other purposes	0	2	0	0	0	1	1	2	0	37	11	2	39	7	10	15	11	8	4

APPENDIX TABLE 4

Number of households cutting toddy by island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Total Households	20 354	10 652	9 702	85	371	618	575	1 065	1 310	6 825	2 619	449	674	250	259	611	753	279
Cutting toddy	2 704	874	1 830	1	103	227	44	231	136	537	103	82	70	23	26	140	115	75

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Total Households	533	423	326	192	210	312	398	1 208	9	14 956	5 398	783	16 489	3 082	4 095	4 047	4 073	4 070	4 069
Cutting toddy	93	32	57	54	73	101	140	234	7	2,239	465	75	2 224	405	760	717	521	357	349

APPENDIX TABLE 5

Number of households by type of livestock raised and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Local pigs	13 407	6 129	7 278	38	314	528	323	839	911	4 011	1224	368	366	198	169	459	634	267
Cross-breed pigs	1 108	512	596	4	21	70	3	25	82	267	91	24	28	43	26	37	21	37
Local chickens	4 052	811	3 241	34	197	430	87	239	224	397	144	104	128	75	89	225	204	118
Cross-breed chickens	179	51	128	3	0	6	2	11	2	30	18	7	20	1	8	11	7	5
Duck	33	22	11	1	0	2	0	0	3	7	1	0	3	0	0	1	0	0
Other	250	86	164	0	0	5	0	5	45	72	10	4	8	0	0	0	1	0

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Local pigs	435	362	259	141	181	232	245	894	9	10 199	3 208	467	10 894	2 046	3 070	3 002	2 746	2 457	2 132
Cross-breed pigs	11	44	29	13	13	50	15	154	0	851	257	27	940	141	183	233	224	196	272
Local chickens	158	96	187	123	147	196	174	270	6	3 313	739	155	3 191	706	1 564	1 218	741	305	224
Cross-breed chickens	10	1	2	0	5	21	5	3	1	143	36	5	147	27	44	61	36	19	19
Duck	0	0	0	0	0	1	0	14	0	28	5	1	29	3	0	6	6	13	8
Other	6	0	8	0	0	2	80	4	0	212	38	9	206	35	44	73	54	43	36

APPENDIX TABLE 6

Number of livestock by livestock type and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Local pigs	39 548	18 284	21 264	55	976	1 472	898	2 174	2 721	11 991	3 526	1 020	901	546	515	1 348	1 684	1 006
Cross-breed pigs	1 959	958	1 001	6	42	140	4	37	155	526	161	29	41	95	39	65	45	46
Local chickens	44 026	6 634	37 392	290	1 952	5 445	999	2 641	2 788	3 676	905	1 217	1 083	919	991	2 467	2 018	1 505
Cross-breed chickens	1 849	1 095	754	14	0	28	28	58	3	1 063	26	144	140	2	11	97	15	22
Duck	68	34	34	2	0	2	0	0	7	14	1	0	6	0	0	3	0	0
Other	409	143	266	0	0	7	0	7	60	126	13	4	9	0	0	0	1	0

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Local pigs	1 422	1 088	989	422	550	709	737	2 767	31	30 391	9 157	1 172	32 089	6 287	8 122	8 901	7 894	6 950	7 681
Cross-breed pigs	15	62	41	27	18	69	25	271	0	1 450	509	51	1 601	307	293	368	382	348	568
Local chickens	1 894	806	2 497	1 280	1 842	2 449	2 126	2 053	183	36 814	7 212	1 654	33 688	8 684	17 109	14 052	8 154	2 681	2 030
Cross-breed chickens	22	1	21	0	12	113	6	6	17	1 568	281	12	1 259	578	237	413	121	282	796
Duck	0	0	0	0	0	14	0	19	0	60	8	1	62	5	0	10	12	35	11
Other	20	0	12	0	0	3	143	4	0	350	59	12	340	57	63	124	84	82	56

APPENDIX TABLE 7

Number of households raising local pigs by size of local pig holding and island, gender and age of household head and wealth index, 2020

Number of local pigs in holding	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
1	3 511	1 809	1 702	25	56	123	60	242	259	1 145	422	95	133	57	30	95	154	35
2	3 537	1 531	2 006	10	89	166	106	265	222	1 010	295	104	108	51	48	134	184	54
3 to 5	5 051	2 093	2 958	3	140	195	138	290	342	1 402	382	142	101	77	75	193	268	129
6 to 9	1 070	545	525	0	25	39	18	36	69	367	83	22	20	9	14	31	28	45
10 to 14	188	114	74	0	3	4	1	4	15	70	27	5	3	4	2	5	0	4
15 to 19	37	27	10	0	1	1	0	2	1	11	12	0	1	0	0	1	0	0
20 and more	13	10	3	0	0	0	0	0	3	6	3	0	0	0	0	0	0	0

Number of local pigs in holding	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
1	58	71	32	33	20	65	58	242	1	2 544	967	170	2 839	502	829	708	738	763	473
2	116	106	44	41	49	52	54	226	3	2 723	814	130	2 899	508	915	837	723	583	479
3 to 5	213	157	136	55	100	89	112	309	3	3 916	1 135	134	4 098	819	1 149	1 177	1 044	858	823
6 to 9	45	22	40	8	12	21	19	95	2	849	221	28	863	179	161	234	202	218	255
10 to 14	2	6	6	3	0	5	2	17	0	135	53	3	154	31	15	38	32	30	73
15 to 19	1	0	1	1	0	0	0	4	0	20	17	1	31	5	1	6	5	4	21
20 and more	0	0	0	0	0	0	0	1	0	12	1	1	10	2	0	2	2	1	8

APPENDIX TABLE 8

Number of households raising cross-breed pigs by size of cross-breed pig holding and island, gender and age of household head and wealth index, 2020

Number of cross-breed pigs in holding	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
1	723	314	409	2	10	39	2	22	55	158	64	20	17	21	18	18	18	31
2	209	105	104	2	7	17	1	1	13	60	14	3	9	10	5	12	2	4
3 to 5	134	70	64	0	3	11	0	1	8	35	8	1	2	9	3	7	0	2
6 to 9	31	17	14	0	1	2	0	0	5	9	4	0	0	2	0	0	0	0
10 and more	11	6	5	0	0	1	0	1	1	5	1	0	0	1	0	0	1	0

Number of cross-breed pigs in holding	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
1	8	36	22	9	10	40	11	92	0	558	165	13	626	84	124	172	150	125	152
2	2	3	2	1	1	6	3	31	0	161	48	8	173	28	39	33	42	38	57
3 to 5	1	4	5	2	2	3	0	27	0	105	29	6	110	18	18	21	22	28	45
6 to 9	0	1	0	1	0	1	1	4	0	22	9	0	23	8	1	5	8	4	13
10 and more	0	0	0	0	0	0	0	0	0	5	6	0	8	3	1	2	2	1	5

APPENDIX TABLE 9

Number of households raising local chickens by size of local chicken holding and island, gender and age of household head and wealth index, 2020

Number of local chickens in holding	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
1	359	153	206	5	11	19	4	13	18	69	36	8	18	7	14	15	15	8
2	429	127	302	2	22	28	7	23	33	56	25	13	13	9	10	24	20	7
3 to 5	912	201	711	9	56	93	14	55	49	98	36	19	35	15	13	54	55	19
6 to 9	608	107	501	5	29	67	23	38	22	53	21	8	20	6	13	41	26	25
10 to 14	571	78	493	6	32	64	15	32	29	30	10	18	21	11	13	29	34	10
15 to 19	495	48	447	5	20	71	8	39	29	25	6	22	10	7	5	22	29	20
20 to 29	441	53	388	1	21	61	9	26	26	40	4	10	6	15	13	26	15	21
30 to 49	196	33	163	1	5	22	6	13	12	19	5	6	4	4	7	13	9	8
50 and over	40	10	30	0	1	5	1	0	6	6	1	0	1	1	1	1	1	0

Number of local chickens in holding	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
1	7	11	7	0	2	11	13	48	0	282	77	16	304	39	121	74	78	50	36
2	16	18	17	5	3	17	15	46	0	330	99	20	356	53	153	117	84	45	30
3 to 5	22	27	28	25	30	45	48	67	0	740	172	37	730	145	360	265	152	76	59
6 to 9	32	8	14	29	43	28	24	33	0	472	136	21	483	104	228	200	109	41	30
10 to 14	27	12	42	36	19	24	19	38	0	489	82	25	430	116	250	178	88	32	23
15 to 19	24	10	23	22	27	26	27	17	1	426	69	11	363	121	202	156	98	23	16
20 to 29	24	7	48	4	13	25	15	9	2	379	62	14	341	86	166	152	84	23	16
30 to 49	5	2	6	2	9	19	8	9	2	161	35	9	154	33	71	67	37	11	10
50 and over	1	1	2	0	1	1	5	3	1	33	7	2	29	9	13	9	10	4	4

APPENDIX TABLE 10

Number of households raising cross-breed chickens by size of cross-breed chicken holding and island, gender and age of household head and wealth index, 2020

Number of cross-breed chickens in holding	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
1	69	23	46	0	0	1	0	4	1	6	16	0	1	0	5	4	5	3
2	28	4	24	2	0	1	0	0	1	3	0	0	3	1	3	2	1	0
3 to 5	23	7	16	0	0	2	0	4	0	4	2	1	3	0	0	1	0	1
6 to 9	14	0	14	0	0	2	0	1	0	0	0	0	5	0	0	1	1	0
10 to 14	16	1	15	1	0	0	1	1	0	1	0	2	8	0	0	0	0	1
15 and over	29	16	13	0	0	0	1	1	0	16	0	4	0	0	0	3	0	0

Number of cross-breed chickens in holding	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
1	6	1	1	0	2	8	4	1	0	51	18	2	58	9	18	22	18	8	3
2	2	0	0	0	2	5	1	1	0	23	5	1	24	3	5	13	5	1	4
3 to 5	1	0	0	0	0	3	0	1	0	21	2	2	19	2	6	5	7	4	1
6 to 9	1	0	0	0	1	2	0	0	0	12	2	0	10	4	3	9	2	0	0
10 to 14	0	0	0	0	0	1	0	0	0	12	4	0	14	2	9	4	2	1	0
15 and over	0	0	1	0	0	2	0	0	1	24	5	0	22	7	3	8	2	5	11

APPENDIX TABLE 11

Number of households raising livestock by purpose and island, gender and age of household head and wealth index, 2020

Purpose	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Only for home consumption	5 979	2 607	3 372	41	208	127	224	245	430	1 671	429	85	291	133	84	353	211	69
Mainly home consumption, but some sale	1 476	602	874	2	52	72	27	116	179	382	81	17	47	6	20	40	52	6
Mainly sale, but some home consumption	365	215	150	0	4	16	4	55	21	150	38	0	4	2	6	7	15	0
Only for sale	171	124	47	2	1	2	0	11	9	90	24	4	0	1	0	4	8	1
Customary practices	4 880	2 337	2 543	7	53	336	6	277	162	1 610	565	239	21	34	65	61	322	194
Other purposes	940	450	490	0	4	8	65	147	129	209	144	26	18	33	1	2	31	1

Purpose	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Only for home consumption	249	247	16	24	21	157	148	507	9	4 459	1 520	226	4 884	869	1 339	1 340	1 250	1 047	1 003
Mainly home consumption, but some sale	121	20	4	2	2	29	60	139	0	1 204	272	42	1 190	244	426	399	269	229	153
Mainly sale, but some home consumption	4	3	0	1	0	5	3	27	0	287	78	7	297	61	80	63	83	81	58
Only for sale	0	1	0	0	0	2	1	10	0	128	43	4	148	19	23	28	46	44	30
Customary practices	55	91	245	123	163	51	38	162	0	3 675	1 205	166	3 922	792	1 076	1 066	985	949	804
Other purposes	7	6	0	0	0	6	6	97	0	734	206	41	784	115	204	184	205	171	176

APPENDIX TABLE 12

Number of households raising pigs by location of pigsty from neighbour and cleaning of pigsty and island, gender and age of household head and wealth index, 2020

	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Very close from neighbour	1 752	1 164	588	4	21	40	14	71	75	736	312	30	60	27	3	23	44	49
A bit far from neighbour	6 798	3 248	3 550	24	190	375	216	411	424	2 113	677	203	163	131	52	278	253	121
Very far from neighbour	5 082	1 844	3 238	13	105	135	94	362	424	1 226	269	137	148	49	121	164	338	101
Cleaned regularly	12 347	5 824	6 523	39	313	469	297	759	829	3 775	1 227	296	363	182	175	403	536	222
Not cleaned regularly	1 285	432	853	2	3	81	27	85	94	300	31	74	8	25	1	62	99	49

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Very close from neighbour	28	59	9	3	3	11	13	116	1	1 303	449	49	1 425	278	303	275	400	468	306
A bit far from neighbour	168	190	99	35	35	66	115	458	1	5 128	1 670	261	5 533	1 004	1 516	1 476	1 411	1 293	1 102
Very far from neighbour	239	117	154	107	144	162	117	349	7	3 924	1 158	165	4 126	791	1 284	1 289	978	737	794
Cleaned regularly	349	329	253	139	147	203	211	822	9	9 340	3 007	415	10 054	1 878	2 665	2 708	2 532	2 347	2 095
Not cleaned regularly	86	37	9	6	35	36	34	101	0	1 015	270	60	1 030	195	438	332	257	151	107

APPENDIX TABLE 13

Number of households engaged in fishing by purpose of fishing and island, gender and age of household head and wealth index, 2020

Purpose	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Only for home consumption	6 715	2 578	4 137	54	158	266	207	425	436	1 527	438	203	255	86	96	383	336	169
Mainly home consumption, but some sale	1 971	497	1 474	7	46	95	34	193	312	297	82	67	87	13	32	68	73	65
Mainly sale, but some home consumption	869	408	461	4	21	41	19	111	47	241	109	17	13	8	10	14	52	14
Only for sale	74	49	25	0	1	4	1	3	2	40	6	1	0	0	1	3	2	1
Customary practices	17	4	13	0	0	2	0	0	1	3	1	3	1	1	0	0	2	0
Other purposes	17	9	8	0	0	0	0	1	1	4	2	2	1	0	0	0	0	1

Purpose	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Only for home consumption	218	177	134	49	81	184	213	613	7	5 303	1 412	329	5 504	882	1 888	1 644	1 377	995	811
Mainly home consumption, but some sale	103	37	79	48	8	18	89	118	0	1 747	224	75	1 641	255	732	623	319	191	106
Mainly sale, but some home consumption	23	7	22	1	8	13	16	58	0	743	126	38	742	89	229	202	184	165	89
Only for sale	0	1	2	0	0	2	1	3	0	58	16	3	59	12	16	11	17	18	12
Customary practices	2	0	1	0	0	0	0	0	0	12	5	1	13	3	4	5	4	1	3
Other purposes	0	2	0	0	0	0	0	3	0	14	3	1	13	3	0	7	3	6	1

APPENDIX TABLE 14

Number of households engaged in fishing by fishing method and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Te uu (eel trap)	861	104	757	1	0	29	2	47	47	62	19	22	22	8	20	141	89	78
Te waiboo (seaworm fishing)	902	97	805	0	1	40	1	136	145	44	35	25	26	5	43	70	109	95
Te kabwangawaro (mantis shrimp fishing)	1 068	184	884	0	2	24	2	147	225	139	23	74	110	3	11	104	35	47
Te kabora (drop-stone fishing)	2 157	506	1 651	53	33	90	16	204	135	283	82	81	49	33	54	78	126	68
Te kibee (scoop net fishing)	6 373	1 840	4 533	41	154	301	190	481	638	1 349	271	236	252	81	93	398	330	200
Traditional fish traps	525	44	481	4	7	13	33	85	101	32	7	38	7	1	2	21	31	71

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Te uu (eel trap)	78	13	93	13	1	19	33	23	1	760	101	36	674	151	399	271	115	48	28
Te waiboo (seaworm fishing)	24	0	45	0	0	0	40	18	0	785	117	35	739	128	450	276	96	62	18
Te kabwangawaro (mantis shrimp fishing)	44	0	6	0	0	0	49	22	1	927	141	66	864	138	425	332	184	93	34
Te kabora (drop-stone fishing)	87	107	101	32	78	150	76	141	0	1 884	273	101	1 764	292	804	619	441	194	99
Te kibee (scoop net fishing)	307	188	176	62	96	171	133	220	5	5 310	1 063	337	5 229	807	2 172	1 774	1 190	754	483
Traditional fish traps	33	2	15	0	0	3	14	5	0	463	62	20	399	106	228	173	87	28	9

APPENDIX TABLE 15

Number of households engaged in fishing by fishing location and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Lagoon	4 874	1 664	3 210	0	4	203	156	355	622	902	297	196	296	25	64	358	227	146
Lagoon flat	3 829	1 339	2 490	0	4	304	19	487	156	867	239	150	191	24	58	207	285	176
Ocean	2 858	933	1 925	37	76	106	97	197	405	496	210	45	40	39	50	126	118	69
Reef flat	4 100	1 146	2 954	33	161	182	167	279	198	833	100	159	161	64	33	224	254	217
Outer reef	1 574	572	1 002	47	43	77	22	104	25	344	62	58	49	18	27	81	80	34
Other	138	113	25	0	6	2	0	1	1	11	16	5	1	0	0	2	4	0

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Lagoon	171	0	82	0	1	0	297	465	7	4 025	849	218	4 047	609	1 541	1 273	864	657	539
Lagoon flat	165	0	203	9	4	6	39	233	3	3 088	741	179	3 112	538	1 237	985	718	534	355
Ocean	77	99	35	71	50	47	134	227	7	2 417	441	127	2 375	356	755	807	603	395	298
Reef flat	215	195	73	64	66	200	7	213	2	3 426	674	209	3 370	521	1 429	1 177	758	435	301
Outer reef	61	109	3	0	21	107	36	166	0	1 335	239	70	1 305	199	511	382	326	200	155
Other	1	0	0	0	0	2	0	86	0	109	29	4	117	17	15	19	35	36	33

APPENDIX TABLE 16

Number of households engaged in fishing by type of fishing boat owned and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Wooden fishing boat	177	121	56	0	6	0	0	12	14	85	29	4	3	1	1	2	8	0
Aluminium boat	370	133	237	2	5	13	12	14	24	63	39	12	14	4	9	20	30	13
Fiberglass boat	92	49	43	0	0	1	0	2	9	23	12	1	3	1	2	2	9	2
Canoes	1 403	124	1 279	37	47	79	52	144	63	45	29	66	32	13	31	49	54	57
Double canoes	60	11	49	0	0	1	0	6	5	4	3	1	2	1	0	4	2	0
Other fishing boat	33	10	23	0	1	2	0	8	1	6	2	1	0	0	0	2	1	0

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Wooden fishing boat	1	1	0	0	0	0	2	7	1	143	34	2	148	27	14	24	30	43	66
Aluminium boat	5	10	15	0	0	8	26	31	1	311	59	7	296	67	56	104	79	57	74
Fiberglass boat	1	2	4	0	0	0	4	14	0	73	19	3	81	8	5	18	23	17	29
Canoes	93	78	95	67	52	50	120	50	0	1 279	124	52	1 140	211	552	492	259	68	32
Double canoes	1	0	0	0	23	0	3	4	0	54	6	2	48	10	14	14	17	7	8
Other fishing boat	0	3	0	0	0	0	4	2	0	27	6	0	25	8	6	9	11	4	3

APPENDIX TABLE 17

Number of fishing boats by type and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Wooden fishing boat	207	150	57	0	6	0	0	13	14	107	32	4	3	1	1	2	8	0
Aluminium boat	385	136	249	2	6	15	14	16	25	64	39	12	14	4	10	20	31	13
Fiberglass boat	96	51	45	0	0	1	0	2	9	24	12	1	3	1	2	2	10	2
Canoes	1 510	135	1 375	38	49	84	52	149	64	48	34	67	34	14	32	54	57	61
Double canoes	62	13	49	0	0	1	0	6	5	5	3	1	2	1	0	4	2	0
Other fishing boat	36	13	23	0	1	2	0	8	1	9	2	1	0	0	0	2	1	0

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Wooden fishing boat	1	1	0	0	0	0	2	11	1	170	37	3	171	33	14	24	31	51	87
Aluminium boat	5	11	15	0	0	8	27	33	1	325	60	7	308	70	56	111	84	57	77
Fiberglass boat	1	2	4	0	0	0	5	15	0	75	21	3	84	9	5	18	23	19	31
Canoes	103	79	113	81	56	51	137	53	0	1 380	130	55	1 216	239	587	537	274	76	36
Double canoes	1	0	0	0	23	0	3	5	0	56	6	2	49	11	14	14	18	7	9
Other fishing boat	0	3	0	0	0	0	4	2	0	30	6	0	28	8	6	9	14	4	3

APPENDIX TABLE 18

Number of households engaged in handicrafts by purpose and island, gender and age of household head and wealth index, 2020

Purpose	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Only for home consumption	2 052	387	1 665	11	90	107	128	163	154	208	56	67	82	12	32	179	127	76
Mainly home consumption, but some sale	1 251	144	1 107	1	96	151	28	144	146	89	8	21	54	3	8	34	40	47
Mainly sale, but some home consumption	531	79	452	0	37	45	18	111	43	59	3	7	3	5	9	17	25	15
Only for sale	340	169	171	1	6	6	6	38	32	115	33	14	1	5	4	13	6	3
Customary practices	177	21	156	0	6	4	0	7	16	19	2	33	14	4	0	1	15	13
Other purposes	55	9	46	0	0	0	2	9	4	7	1	3	2	0	0	0	21	0

Purpose	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Only for home consumption	97	82	14	15	73	86	69	123	1	1 638	414	84	1 594	374	738	655	384	156	119
Mainly home consumption, but some sale	123	38	61	19	12	17	64	47	0	1 005	246	36	972	243	571	450	141	59	30
Mainly sale, but some home consumption	43	12	21	2	6	15	18	17	0	404	127	17	414	100	242	179	66	28	16
Only for sale	4	4	5	0	0	10	13	21	0	233	107	7	273	60	82	88	63	61	46
Customary practices	9	3	12	1	0	15	3	0	0	140	37	6	140	31	58	58	40	15	6
Other purposes	0	2	0	0	0	1	2	1	0	43	12	3	41	11	20	17	10	4	4

APPENDIX TABLE 19

Number of households having food stock by type and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Te uu (eel trap)	3 787	1 189	2 598	19	8	7	11	40	113	822	292	44	55	8	37	274	490	232
Te waiboo (seaworm fishing)	7 209	2 009	5 200	63	238	341	336	523	571	1 213	387	264	228	213	153	241	375	173
Te kabwangawaro (mantis shrimp fishing)	2 968	1 131	1 837	1	48	65	65	148	210	703	247	87	72	26	42	146	182	112
Te kabora (drop-stone fishing)	425	98	327	0	1	4	6	12	22	71	16	7	4	3	3	10	14	16
Te kibee (scoop net fishing)	1 049	331	718	0	7	21	40	72	57	154	54	11	12	8	17	23	54	29
Traditional fish traps	591	108	483	5	11	20	28	48	48	63	20	15	28	8	12	38	34	18

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Te uu (eel trap)	444	311	267	68	77	30	61	75	2	2 814	973	90	2 879	818	1 110	966	565	415	731
Te waiboo (seaworm fishing)	426	268	227	84	170	97	202	409	7	5 614	1 595	280	5 714	1 215	2 056	2 015	1 344	790	1 004
Te kabwangawaro (mantis shrimp fishing)	140	21	189	71	57	66	82	181	7	2 261	707	78	2 339	551	645	681	528	430	684
Te kabora (drop-stone fishing)	8	54	132	5	11	4	11	11	0	331	94	14	306	105	139	125	66	45	50
Te kibee (scoop net fishing)	22	19	16	37	32	59	181	123	1	779	270	27	809	213	242	286	192	150	179
Traditional fish traps	15	25	31	11	41	7	39	25	1	479	112	28	459	104	183	185	115	71	37

APPENDIX TABLE 20

Number of households by agricultural/fishing activity, gender of household head and island, 2020

Cropping

	Island																							
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Male	43	195	381	192	458	433	1 630	516	234	282	90	91	343	285	170	254	162	121	100	95	131	193	411	4
Female	6	37	92	53	87	82	778	306	39	99	22	20	87	70	30	55	44	36	28	28	40	25	98	3
Total	**49**	**232**	**473**	**245**	**545**	**515**	**2 408**	**822**	**273**	**381**	**112**	**111**	**430**	**355**	**200**	**309**	**206**	**157**	**128**	**123**	**171**	**218**	**509**	**7**

Livestock

	Island																							
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Male	45	270	451	252	712	799	2 865	835	320	297	156	138	364	476	218	354	288	200	122	140	194	221	764	6
Female	7	52	110	74	139	131	1 247	446	51	84	53	38	103	163	53	82	80	65	28	46	56	35	178	3
Total	**52**	**322**	**561**	**326**	**851**	**930**	**4 112**	**1 281**	**371**	**381**	**209**	**176**	**467**	**639**	**271**	**436**	**368**	**265**	**150**	**186**	**250**	**256**	**942**	**9**

APPENDIX TABLE 20
Number of households by agricultural/fishing activity, gender of household head and island, 2020 *(continued)*

Fishing

	Island																							
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Male	61	207	345	228	644	705	1 556	438	269	288	85	126	379	370	206	304	177	183	87	77	192	287	658	5
Female	4	19	63	33	89	94	556	200	24	69	23	13	89	95	44	42	47	55	11	20	25	32	137	2
Total	**65**	**226**	**408**	**261**	**733**	**799**	**2 112**	**638**	**293**	**357**	**108**	**139**	**468**	**465**	**250**	**346**	**224**	**238**	**98**	**97**	**217**	**319**	**795**	**7**

Handicraft

	Island																							
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Male	10	191	251	149	399	337	339	64	121	118	17	42	183	171	130	217	103	81	27	69	116	150	177	1
Female	3	44	62	33	73	58	158	39	24	38	12	11	61	63	24	59	38	32	10	22	28	19	32	0
Total	**13**	**235**	**313**	**182**	**472**	**395**	**497**	**103**	**145**	**156**	**29**	**53**	**244**	**234**	**154**	**276**	**141**	**113**	**37**	**91**	**144**	**169**	**209**	**1**

APPENDIX TABLE 21

Number of households engaged in agriculture (cropping/livestock) by household size, gender of household head and island, 2020

Household size		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	1 to 3	27	74	165	119	272	294	847	215	107	186	70	67	208	181	81	207	126	117	53	62	88	67	213	4
	4 to 5	24	124	220	129	317	343	1 275	359	144	174	77	74	171	224	104	156	144	94	60	70	77	117	298	1
	6 or more	14	134	203	133	311	382	2 653	993	148	139	69	44	161	265	89	96	112	65	59	62	100	115	490	4
	Average	4.0	5.2	5.0	4.9	4.9	5.2	6.7	7.3	5.0	4.5	4.8	4.4	4.5	5.3	4.9	4.0	4.7	4.2	4.9	4.8	5.1	5.2	6.2	4.6
Male	1 to 3	23	50	119	85	216	252	557	120	79	146	52	49	149	123	61	162	99	90	38	44	69	52	167	2
	4 to 5	22	113	186	95	262	287	886	238	128	131	55	61	142	172	89	124	106	65	53	51	58	111	236	1
	6 or more	12	116	169	114	271	327	1 847	637	136	105	55	37	129	202	69	85	95	54	47	52	78	99	401	3
	Average male	4.1	5.4	5.1	5.0	5.0	5.2	6.7	7.4	5.2	4.4	4.8	4.5	4.5	5.3	4.9	4.1	4.7	4.2	5.0	5.0	5.2	5.3	6.2	4.7
Female	1 to 3	4	24	46	34	56	42	290	95	28	40	18	18	59	58	20	45	27	27	15	18	19	15	46	2
	4 to 5	2	11	34	34	55	56	389	121	16	43	22	13	29	52	15	32	38	29	7	19	19	6	62	0
	6 or more	2	18	34	19	40	55	806	356	12	34	14	7	32	63	20	11	17	11	12	10	22	16	89	1
	Average female	3.8	4.4	4.3	4.3	4.4	5.1	6.6	7.1	4.2	4.6	4.6	4.0	4.3	5.2	5.0	3.6	4.5	4.0	4.4	4.2	4.8	4.6	6.0	4.3

APPENDIX TABLE 22

Number of agriculture household heads by highest education level completed, gender and island, 2020

Education level completed		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	No qualification	1	2	14	27	39	30	94	37	7	17	5	0	6	7	2	41	5	5	2	1	5	12	23	0
	Primary	6	38	97	40	171	167	508	144	78	66	10	16	107	120	41	118	56	32	60	13	48	29	77	2
	Lower secondary	31	187	321	188	400	463	1 707	591	187	225	104	97	264	342	145	158	188	150	66	143	129	167	452	2
	Upper secondary	27	91	135	120	266	323	2 027	669	123	158	88	64	151	166	71	122	106	82	38	34	65	74	352	4
	Tertiary	0	14	21	6	24	36	439	126	4	33	9	8	12	35	15	20	27	7	6	3	18	17	97	1
	Total	**65**	**332**	**588**	**381**	**900**	**1 019**	**4 775**	**1 567**	**399**	**499**	**216**	**185**	**540**	**670**	**274**	**459**	**382**	**276**	**172**	**194**	**265**	**299**	**1 001**	**9**
Male	No qualification	0	2	11	18	31	25	69	17	5	12	4	0	3	5	0	24	3	1	1	1	5	11	17	0
	Primary	5	28	73	36	149	145	358	92	63	50	7	14	83	90	33	98	45	24	49	9	40	24	67	1
	Lower secondary	28	161	267	156	352	399	1 236	390	164	184	81	83	213	275	122	142	157	120	52	113	108	151	371	1
	Upper secondary	24	75	114	84	201	273	1 360	420	107	117	64	45	115	114	53	100	81	61	32	23	46	65	283	3
	Tertiary	0	13	9	0	16	24	267	76	4	19	6	5	6	13	11	7	14	3	4	1	6	11	66	1
	Total male	**57**	**279**	**474**	**294**	**749**	**866**	**3 290**	**995**	**343**	**382**	**162**	**147**	**420**	**497**	**219**	**371**	**300**	**209**	**138**	**147**	**205**	**262**	**804**	**6**
Female	No qualification	1	0	3	9	8	5	25	20	2	5	1	0	3	2	2	17	2	4	1	0	0	1	6	0
	Primary	1	10	24	4	22	22	150	52	15	16	3	2	24	30	8	20	11	8	11	4	8	5	10	1
	Lower secondary	3	26	54	32	48	64	471	201	23	41	23	14	51	67	23	16	31	30	14	30	21	16	81	1
	Upper secondary	3	16	21	36	65	50	667	249	16	41	24	19	36	52	18	22	25	21	6	11	19	9	69	1
	Tertiary	0	1	12	6	8	12	172	50	0	14	3	3	6	22	4	13	13	4	2	2	12	6	31	0
	Total female	**8**	**53**	**114**	**87**	**151**	**153**	**1 485**	**572**	**56**	**117**	**54**	**38**	**120**	**173**	**55**	**88**	**82**	**67**	**34**	**47**	**60**	**37**	**197**	**3**

APPENDIX TABLE 23

Number of households engaged in fishing activity by household size, gender of household head and island, 2020

Household size		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	1 to 3	25	42	110	70	206	224	341	83	65	108	30	42	177	112	76	150	59	97	26	25	64	72	152	3
	4 to 5	27	88	149	88	259	273	568	120	111	143	42	56	148	151	97	120	81	82	28	37	66	127	233	1
	6 or more	13	96	149	103	268	302	1 203	435	117	106	36	41	143	202	77	76	84	59	44	35	87	120	410	3
	Average	4.1	5.4	5.1	5.1	5.0	5.3	7.0	7.9	5.3	4.7	5.0	4.6	4.5	5.4	4.8	4.1	5.1	4.3	5.5	5.2	5.3	5.2	6.4	4.6
Male	1 to 3	24	35	89	59	174	204	270	56	58	95	24	38	140	82	62	132	47	78	25	19	61	64	131	2
	4 to 5	26	83	130	75	229	241	425	90	101	112	31	51	124	127	84	103	59	58	25	28	59	120	188	1
	6 or more	11	89	126	94	241	260	861	292	110	81	30	37	115	161	60	69	71	47	37	30	72	103	339	2
	Average male	4.1	5.5	5.2	5.2	5.0	5.2	6.8	7.7	5.3	4.5	5.0	4.6	4.5	5.4	4.7	4.1	5.1	4.2	5.4	5.4	5.2	5.2	6.3	4.2
Female	1 to 3	1	7	21	11	32	20	71	27	7	13	6	4	37	30	14	18	12	19	1	6	3	8	21	1
	4 to 5	1	5	19	13	30	32	143	30	10	31	11	5	24	24	13	17	22	24	3	9	7	7	45	0
	6 or more	2	7	23	9	27	42	342	143	7	25	6	4	28	41	17	7	13	12	7	5	15	17	71	1
	Average female	5.0	4.7	4.7	4.6	4.6	5.6	7.3	8.1	4.8	5.3	4.7	4.8	4.7	5.4	5.2	4.1	4.9	4.3	6.4	4.7	6.0	5.4	6.6	5.5

APPENDIX TABLE 24
Number of fishing household heads by highest education level completed, gender and island, 2020

Education level completed		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	No qualification	0	1	9	17	38	22	53	15	5	15	3	5	6	4	2	27	2	4	0	1	6	15	18	0
	Primary	5	26	71	36	150	136	269	66	61	48	6	20	97	96	39	91	32	22	32	10	45	41	66	1
	Lower secondary	33	131	229	126	322	385	856	260	137	171	58	65	236	247	129	121	113	134	42	73	108	177	358	1
	Upper secondary	27	62	89	78	217	233	819	262	88	105	40	46	120	110	65	99	68	73	23	12	53	73	285	4
	Tertiary	0	6	10	4	6	23	115	35	2	18	1	3	9	8	15	8	9	5	1	1	5	13	68	1
	Total	**65**	**226**	**408**	**261**	**733**	**799**	**2,112**	**638**	**293**	**357**	**108**	**139**	**468**	**465**	**250**	**346**	**224**	**238**	**98**	**97**	**217**	**319**	**795**	**7**
Male	No qualification	0	1	9	15	32	17	40	7	5	10	2	5	3	3	0	18	2	1	0	1	6	14	16	0
	Primary	5	23	56	33	134	125	200	46	52	39	5	18	78	76	32	82	27	21	29	7	39	38	59	0
	Lower secondary	31	120	200	113	294	339	657	190	127	147	46	63	198	210	112	112	94	108	38	61	99	163	301	1
	Upper secondary	25	57	77	67	179	208	580	172	83	80	32	37	95	80	50	90	51	50	19	8	44	65	234	3
	Tertiary	0	6	3	0	5	16	79	23	2	12	0	3	5	1	12	2	3	3	1	0	4	7	48	1
	Total male	**61**	**207**	**345**	**228**	**644**	**705**	**1,556**	**438**	**269**	**288**	**85**	**126**	**379**	**370**	**206**	**304**	**177**	**183**	**87**	**77**	**192**	**287**	**658**	**5**
Female	No qualification	0	0	0	2	6	5	13	8	0	5	1	0	3	1	2	9	0	3	0	0	0	1	2	0
	Primary	0	3	15	3	16	11	69	20	9	9	1	2	19	20	7	9	5	1	3	3	6	3	7	1
	Lower secondary	2	11	29	13	28	46	199	70	10	24	12	2	38	37	17	9	19	26	4	12	9	14	57	0
	Upper secondary	2	5	12	11	38	25	239	90	5	25	8	9	25	30	15	9	17	23	4	4	9	8	51	1
	Tertiary	0	0	7	4	1	7	36	12	0	6	1	0	4	7	3	6	6	2	0	1	1	6	20	0
	Total female	**4**	**19**	**63**	**33**	**89**	**94**	**556**	**200**	**24**	**69**	**23**	**13**	**89**	**95**	**44**	**42**	**47**	**55**	**11**	**20**	**25**	**32**	**137**	**2**

APPENDIX TABLE 25

Number of household members aged 15 years and over with main activity own agriculture/fishing by gender, age, weekly hours worked and island, 2020

Age group		Island																						
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	15–19	1	0	50	1	15	4	8	0	26	16	7	8	45	11	19	1	43	3	0	2	37	44	21	0
	20–24	4	0	48	11	36	31	33	10	56	46	22	17	88	24	50	3	70	7	0	15	77	66	47	0
	25–44	7	3	192	27	156	153	184	44	191	227	49	86	227	70	181	23	220	18	1	35	182	232	193	0
	45–59	0	3	70	14	53	58	102	21	76	90	23	43	120	32	79	16	80	6	3	24	76	97	64	0
	60+	2	1	19	5	23	13	26	7	11	32	3	24	49	11	17	3	31	0	0	2	15	29	10	0
	Total aged 15+	**183**	**1 087**	**1 922**	**1 613**	**3 643**	**4 447**	**29 373**	**12 055**	**1 485**	**2 171**	**711**	**746**	**1 739**	**2 565**	**833**	**1 506**	**1 253**	**937**	**706**	**674**	**1 109**	**1 172**	**4 567**	**24**
Male	15–19	1	0	44	1	15	3	8	0	25	13	7	7	38	11	19	1	42	2	0	2	34	42	20	0
	20–24	4	0	48	9	36	26	27	10	49	41	21	15	76	24	46	3	68	7	0	15	68	60	43	0
	25–44	6	3	175	21	141	115	135	41	170	197	47	64	178	63	136	23	204	18	1	28	155	200	175	0
	45–59	0	3	63	12	47	50	74	20	64	68	19	32	87	25	45	16	68	5	3	22	53	77	60	0
	60+	2	1	18	1	22	8	18	6	10	29	3	21	36	9	12	3	29	0	0	2	9	20	8	0
	Total male aged 15+	**92**	**540**	**940**	**789**	**1 825**	**2 102**	**13 544**	**5 774**	**745**	**1 058**	**354**	**377**	**878**	**1 237**	**420**	**766**	**655**	**467**	**339**	**343**	**580**	**614**	**2 380**	**13**
Female	15–19	0	0	6	0	0	1	0	0	1	3	0	1	7	0	0	0	1	1	0	0	3	2	1	0
	20–24	0	0	0	2	0	5	6	0	7	5	1	2	12	0	4	0	2	0	0	0	9	6	4	0
	25–44	1	0	17	6	15	38	49	3	21	30	2	22	49	7	45	0	16	0	0	7	27	32	18	0
	45–59	0	0	7	2	6	8	28	1	12	22	4	11	33	7	34	0	12	1	0	2	23	20	4	0
	60+	0	0	1	4	1	5	8	1	1	3	0	3	13	2	5	0	2	0	0	0	6	9	2	0
	Total female aged 15+	**91**	**547**	**982**	**824**	**1 818**	**2 345**	**15 829**	**6 281**	**740**	**1 113**	**357**	**369**	**861**	**1 328**	**413**	**740**	**598**	**470**	**367**	**331**	**529**	**558**	**2 187**	**11**

APPENDIX TABLE 25
Number of household members aged 15 years and over with main activity own agriculture/fishing by gender, age, weekly hours worked and island, 2020 *(continued)*

Number of hours worked		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	1 to 9	5	0	209	7	154	126	108	23	152	87	51	64	168	43	300	5	125	6	0	47	167	145	117	0
	10 to 24	4	3	166	37	122	112	137	34	202	123	48	107	329	65	39	18	276	14	1	24	204	198	157	0
	25 to 34	3	0	2	5	5	10	38	5	3	73	4	4	19	23	4	17	31	12	0	2	11	57	44	0
	35 or more	2	4	2	9	2	11	70	19	3	128	1	3	13	17	3	6	12	2	3	5	5	68	17	0
Male	1 to 9	4	0	191	5	138	106	73	20	127	76	48	46	143	37	226	5	119	6	0	41	138	119	109	0
	10 to 24	4	3	154	29	116	77	101	32	185	102	45	86	243	56	29	18	254	13	1	21	167	175	142	0
	25 to 34	3	0	2	4	5	8	30	5	3	58	3	4	17	23	2	17	28	11	0	2	9	45	39	0
	35 or more	2	4	1	6	2	11	58	19	3	112	1	3	12	16	1	6	10	2	3	5	5	60	16	0
Female	1 to 9	1	0	18	2	16	20	35	3	25	11	3	18	25	6	74	0	6	0	0	6	29	26	8	0
	10 to 24	0	0	12	8	6	35	36	2	17	21	3	21	86	9	10	0	22	1	0	3	37	23	15	0
	25 to 34	0	0	0	1	0	2	8	0	0	15	1	0	2	0	2	0	3	1	0	0	2	12	5	0
	35 or more	0	0	1	3	0	0	12	0	0	16	0	0	1	1	2	0	2	0	0	0	0	8	1	0

APPENDIX TABLE 26
Number of household members aged 15 years and over with main activity own agriculture/fishing by purpose of farming/fishing and island, 2020

Purpose	Island																							
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Only for sale	0	1	125	4	50	127	62	2	260	89	6	1	141	38	190	4	13	5	0	44	370	205	224	0
Mainly for sale	0	2	115	26	104	61	183	47	37	66	46	10	67	47	25	26	329	12	0	0	10	118	52	0
Mainly for family consumption	4	0	80	7	50	33	67	16	27	109	11	44	162	35	36	6	63	7	3	19	0	45	13	0
Only for family consumption	10	4	59	21	79	38	41	17	36	147	41	123	159	28	95	10	39	10	1	15	7	100	46	0
Total	**14**	**7**	**379**	**58**	**283**	**259**	**353**	**82**	**360**	**411**	**104**	**178**	**529**	**148**	**346**	**46**	**444**	**34**	**4**	**78**	**387**	**468**	**335**	**0**

APPENDIX TABLE 27
Number of household members growing food in plot or family garden in past week by gender, age and island, 2020

Age group		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	15–19	0	15	37	12	28	38	244	70	4	31	0	1	23	4	10	7	6	6	1	14	3	7	14	1
	20–24	2	22	66	30	39	61	352	95	12	41	5	4	41	25	9	30	13	10	4	26	6	8	53	2
	25–44	9	156	283	134	263	252	1 433	525	82	218	33	29	159	128	43	147	84	48	39	80	37	65	262	5
	45–59	5	63	143	75	152	146	720	275	46	108	16	20	102	63	26	99	36	58	33	63	13	49	122	5
	60+	3	36	55	24	69	52	232	85	14	44	8	8	39	27	10	24	22	21	9	10	10	22	43	0
	Total aged 15+	**183**	**1 087**	**1 922**	**1 613**	**3 643**	**4 447**	**29 373**	**12 055**	**1 485**	**2 171**	**711**	**746**	**1 739**	**2 565**	**833**	**1 506**	**1 253**	**937**	**706**	**674**	**1 109**	**1 172**	**4 567**	**24**
Male	15–19	0	6	22	8	17	16	146	38	3	19	0	1	10	3	2	3	2	3	1	9	1	5	11	1
	20–24	1	10	25	11	19	38	198	51	4	23	3	1	12	12	2	20	3	2	2	17	1	1	30	1
	25–44	6	70	96	64	124	128	707	239	21	75	16	10	57	66	13	84	24	28	20	39	12	17	126	3
	45–59	2	31	55	42	78	75	327	130	17	52	8	13	27	41	12	53	8	39	18	32	5	25	64	3
	60+	2	25	22	15	47	31	114	37	7	21	6	3	18	16	6	20	12	15	8	8	6	12	32	0
	Total male aged 15+	**92**	**540**	**940**	**789**	**1 825**	**2 102**	**13 544**	**5 774**	**745**	**1 058**	**354**	**377**	**878**	**1 237**	**420**	**766**	**655**	**467**	**339**	**343**	**580**	**614**	**2 380**	**13**
Female	15–19	0	9	15	4	11	22	98	32	1	12	0	0	13	1	8	4	4	3	0	5	2	2	3	0
	20–24	1	12	41	19	20	23	154	44	8	18	2	3	29	13	7	10	10	8	2	9	5	7	23	1
	25–44	3	86	187	70	139	124	726	286	61	143	17	19	102	62	30	63	60	20	19	41	25	48	136	2
	45–59	3	32	88	33	74	71	393	145	29	56	8	7	75	22	14	46	28	19	15	31	8	24	58	2
	60+	1	11	33	9	22	21	118	48	7	23	2	5	21	11	4	4	10	6	1	2	4	10	11	0
	Total female aged 15+	**91**	**547**	**982**	**824**	**1 818**	**2 345**	**15 829**	**6 281**	**740**	**1 113**	**357**	**369**	**861**	**1 328**	**413**	**740**	**598**	**470**	**367**	**331**	**529**	**558**	**2 187**	**11**

APPENDIX TABLE 28

Number of household members raising or tending farm animals in past week by gender, age and island, 2020

Age group		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	15–19	2	47	83	86	107	168	846	207	33	43	12	7	58	38	35	43	24	26	7	23	12	28	102	2
	20–24	5	74	113	118	152	246	1 157	317	50	54	30	28	67	88	39	108	48	68	17	43	21	40	220	1
	25–44	45	344	425	446	724	923	3 850	1 141	202	343	128	121	308	447	131	428	204	203	113	124	134	209	868	5
	45–59	21	142	200	218	318	398	1 540	483	119	158	59	78	170	198	80	272	101	168	77	85	69	98	369	3
	60+	8	69	81	64	139	118	542	146	25	53	20	25	61	69	41	90	46	72	24	26	23	38	86	0
	Total aged 15+	**183**	**1 087**	**1 922**	**1 613**	**3 643**	**4 447**	**29 373**	**12 055**	**1 485**	**2 171**	**711**	**746**	**1 739**	**2 565**	**833**	**1 506**	**1 253**	**937**	**706**	**674**	**1 109**	**1 172**	**4 567**	**24**
Male	15–19	1	33	53	65	78	103	568	140	18	24	10	6	28	26	13	26	11	20	4	16	3	14	92	2
	20–24	2	37	42	66	87	153	742	221	19	28	17	11	30	52	8	65	12	32	8	27	4	18	156	1
	25–44	22	159	156	233	354	477	2 177	639	63	130	64	44	114	240	44	212	46	103	57	63	38	53	515	3
	45–59	9	72	74	113	149	188	793	240	47	73	35	33	53	84	31	130	24	89	40	39	24	36	219	2
	60+	6	37	32	32	85	71	268	89	10	26	8	6	27	37	16	46	22	37	16	14	11	15	52	0
	Total male aged 15+	**92**	**540**	**940**	**789**	**1 825**	**2 102**	**13 544**	**5 774**	**745**	**1 058**	**354**	**377**	**878**	**1 237**	**420**	**766**	**655**	**467**	**339**	**343**	**580**	**614**	**2 380**	**13**
Female	15–19	1	14	30	21	29	65	278	67	15	19	2	1	30	12	22	17	13	6	3	7	9	14	10	0
	20–24	3	37	71	52	65	93	415	96	31	26	13	17	37	36	31	43	36	36	9	16	17	22	64	0
	25–44	23	185	269	213	370	446	1 673	502	139	213	64	77	194	207	87	216	158	100	56	61	96	156	353	2
	45–59	12	70	126	105	169	210	747	243	72	85	24	45	117	114	49	142	77	79	37	46	45	62	150	1
	60+	2	32	49	32	54	47	274	57	15	27	12	19	34	32	25	44	24	35	8	12	12	23	34	0
	Total female aged 15+	**91**	**547**	**982**	**824**	**1 818**	**2 345**	**15 829**	**6 281**	**740**	**1 113**	**357**	**369**	**861**	**1 328**	**413**	**740**	**598**	**470**	**367**	**331**	**529**	**558**	**2 187**	**11**

APPENDIX TABLE 29
Number of household members fishing, farm fishing or collecting shellfish in past week by gender, age and island, 2020

Age group		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	15–19	1	16	40	53	115	97	288	83	20	61	3	9	40	38	17	26	6	20	1	9	2	16	56	2
	20–24	5	26	59	79	144	157	504	137	28	72	7	32	53	77	8	67	13	33	10	11	8	13	153	2
	25–44	35	105	199	221	564	521	1 388	422	92	310	28	82	188	243	51	217	32	108	53	40	36	57	433	6
	45–59	8	40	73	93	235	160	414	109	43	118	8	45	81	81	22	118	16	68	25	17	12	19	144	4
	60+	1	9	26	10	84	36	84	21	7	26	1	11	23	19	13	33	0	11	11	3	2	5	26	0
	Total aged 15+	**183**	**1 087**	**1 922**	**1 613**	**3 643**	**4 447**	**29 373**	**12 055**	**1 485**	**2 171**	**711**	**746**	**1 739**	**2 565**	**833**	**1 506**	**1 253**	**937**	**706**	**674**	**1 109**	**1 172**	**4 567**	**24**
Male	15–19	1	14	34	48	91	83	240	71	16	42	3	7	28	37	9	22	5	19	1	9	2	14	56	2
	20–24	5	25	36	71	100	129	424	131	18	45	7	17	35	64	3	59	11	30	10	11	7	12	150	2
	25–44	33	99	118	196	364	396	1 123	383	60	131	28	51	113	202	31	184	26	98	53	40	32	44	397	4
	45–59	7	40	37	73	133	107	289	96	28	65	7	23	41	55	16	90	12	65	25	16	11	19	136	3
	60+	1	9	15	8	51	26	49	12	6	10	1	5	12	15	8	24	0	11	10	3	2	5	24	0
	Total male aged 15+	**92**	**540**	**940**	**789**	**1 825**	**2 102**	**13 544**	**5 774**	**745**	**1 058**	**354**	**377**	**878**	**1 237**	**420**	**766**	**655**	**467**	**339**	**343**	**580**	**614**	**2 380**	**13**
Female	15–19	0	2	6	5	24	14	48	12	4	19	0	2	12	1	8	4	1	1	0	0	0	2	0	0
	20–24	0	1	23	8	44	28	80	6	10	27	0	15	18	13	5	8	2	3	0	0	1	1	3	0
	25–44	2	6	81	25	200	125	265	39	32	179	0	31	75	41	20	33	6	10	0	0	4	13	36	2
	45–59	1	0	36	20	102	53	125	13	15	53	1	22	40	26	6	28	4	3	0	1	1	0	8	1
	60+	0	0	11	2	33	10	35	9	1	16	0	6	11	4	5	9	0	0	1	0	0	0	2	0
	Total female aged 15+	**91**	**547**	**982**	**824**	**1 818**	**2 345**	**15 829**	**6 281**	**740**	**1 113**	**357**	**369**	**861**	**1 328**	**413**	**740**	**598**	**470**	**367**	**331**	**529**	**558**	**2 187**	**11**

APPENDIX TABLE 30

Number of households cutting trees for house building by type and island, gender and age of household head and wealth index, 2020

	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Te tongo	776	153	623	0	23	152	77	33	173	146	7	42	17	4	1	22	30	17
Te nii	6 496	1 686	4 810	1	223	290	253	499	573	1 214	220	131	325	105	131	316	455	180
Te ngea	2 688	197	2 491	2	13	220	110	89	233	179	12	81	115	34	70	379	335	199
Te mao	6 358	752	5 606	1	191	357	262	538	584	424	40	171	376	142	149	516	574	229
Te uri	6 498	522	5 946	0	206	402	297	613	658	465	41	288	437	164	173	516	525	232
Te kaina	6 387	837	5 550	3	270	370	314	562	697	737	62	189	286	67	134	262	460	182
Total	**9 764**	**2 361**	**7 403**	**3**	**298**	**455**	**374**	**729**	**922**	**1 684**	**281**	**303**	**510**	**189**	**193**	**548**	**608**	**254**

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Te tongo	11	3	16	0	0	0	2	0	0	644	132	28	640	108	317	218	143	67	31
Te nii	169	234	211	164	131	216	203	252	0	5 335	1 161	287	5 151	1 058	2 148	1 922	1 202	712	512
Te ngea	305	171	129	1	2	1	2	6	0	2 279	409	111	2 114	463	1 274	898	353	108	55
Te mao	418	375	199	94	144	79	204	288	3	5 272	1 086	285	4 980	1 093	2 634	2 132	1 045	360	187
Te uri	411	359	203	155	152	5	150	16	0	5 345	1 123	272	5 108	1 088	2 695	2 178	1 065	347	183
Te kaina	440	342	206	182	141	175	268	38	0	5 337	1 050	286	5 015	1 086	2 501	2 122	1 110	413	241
Total	**473**	**392**	**237**	**183**	**181**	**242**	**306**	**396**	**3**	**7 909**	**1 855**	**440**	**7 747**	**1 577**	**3 336**	**2 894**	**1 836**	**997**	**701**

APPENDIX TABLE 31

Number of households eating specific fish by type and island, gender and age of household head and wealth index, 2020

	Area of residence			Island													
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Turtle	8 584	3 448	5 136	53	181	394	186	588	393	2 287	1 040	203	307	130	139	478	575	167
Shark	12 700	5 737	6 963	81	272	456	283	722	629	3 717	1 483	293	381	171	188	510	668	260
Bonefish	15 193	8 654	6 539	0	23	363	353	917	1 101	6 115	2 129	429	608	10	84	598	561	256
Total	**17 942**	**9 275**	**8 667**	**81**	**285**	**503**	**417**	**993**	**1 142**	**6 289**	**2 297**	**442**	**620**	**186**	**199**	**603**	**711**	**272**

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Turtle	360	214	246	116	140	86	180	121	0	6 468	2 116	360	6 977	1 247	2 169	1 998	1 681	1 421	1 315
Shark	482	379	287	189	206	202	296	537	8	9 522	3 178	480	10 273	1 947	2 856	2 829	2 523	2 311	2 181
Bonefish	477	53	266	0	16	38	377	410	9	10 988	4 205	589	12 273	2 331	2 817	2 653	2 994	3 304	3 425
Total	**512**	**387**	**310**	**189**	**210**	**213**	**383**	**689**	**9**	**13 160**	**4 782**	**688**	**14 493**	**2 761**	**3 592**	**3 534**	**3 590**	**3 608**	**3 618**

APPENDIX TABLE 32

Number of households identifying waste as a problem by type and island, gender and age of household head and wealth index, 2020

	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Unhygenic (source of illness)	16 822	8 769	8 053	51	328	557	466	723	1 107	5 579	2 296	379	656	220	224	505	613	239
Bad smell	12 919	7 001	5 918	22	223	390	400	624	748	4 569	1 949	365	573	166	112	405	368	143
Source of insects (include mosquitos)	12 678	6 134	6 544	28	123	391	473	720	824	4 128	1 660	335	609	197	168	437	398	150
Bad sight	15 147	8 109	7 038	51	168	521	472	740	808	5 318	1 886	421	605	203	194	379	543	146
Other	871	498	373	4	0	5	0	16	44	279	155	9	34	5	6	3	112	44
Total	**20 165**	**10 586**	**9 579**	**67**	**371**	**605**	**562**	**1 063**	**1 292**	**6 772**	**2 610**	**444**	**669**	**247**	**259**	**584**	**747**	**277**

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Unhygenic (source of illness)	375	359	276	186	200	273	313	894	3	12 310	4 512	636	13 662	2 524	3 244	3 375	3 423	3 384	3 396
Bad smell	244	200	295	127	179	120	212	483	2	9 408	3 511	468	10 503	1 948	2 247	2 511	2 600	2 672	2 889
Source of insects (include mosquitos)	372	279	273	79	180	220	288	346	0	9 303	3 375	481	10 222	1 975	2 579	2 687	2 489	2 419	2 504
Bad sight	278	337	312	160	176	210	307	905	7	11 085	4 062	566	12 289	2 292	2 801	2 941	3 149	3 049	3 207
Other	47	38	0	0	1	1	4	64	0	651	220	21	705	145	167	141	143	185	235
Total	**530**	**423**	**326**	**192**	**210**	**309**	**394**	**1,204**	**8**	**14 815**	**5 350**	**775**	**16 336**	**3 054**	**4 036**	**4 002**	**4 033**	**4 048**	**4 046**

APPENDIX TABLE 33
Number of households by island and wealth index quintile, 2020

Wealth index quintile	Island																							
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Lowest Q	0	122	298	318	444	439	73	2	182	265	70	126	311	359	142	233	171	146	52	23	115	107	104	0
Q2	15	184	202	179	359	393	398	30	176	260	100	97	178	220	110	210	163	119	69	90	118	159	211	0
Q3	58	54	84	63	216	314	1 573	417	83	114	62	30	96	106	27	71	77	53	51	87	53	99	285	0
Q4	12	10	29	11	40	117	2 351	996	7	29	15	5	21	37	0	14	7	6	16	10	18	27	289	5
Highest Q	0	1	5	4	6	47	2 430	1 174	1	6	3	1	5	31	0	5	5	2	4	0	8	6	319	4

APPENDIX TABLE 34
Number of individuals (total population) by island and age group, 2020

Age group		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	0–4	57	239	448	347	720	901	5 823	2 465	265	388	168	148	325	539	178	216	253	163	100	94	266	254	964	4
	5–9	44	308	462	398	760	920	4 879	2 029	319	382	163	173	344	578	176	245	271	168	97	109	249	303	983	8
	10–14	49	280	418	380	692	750	4 568	1 880	276	314	148	154	341	499	169	247	278	149	125	117	269	261	855	5
	15–19	12	112	217	158	847	722	4 209	1 437	128	480	61	52	183	469	77	194	136	82	37	49	107	121	410	3
	20–24	17	135	233	221	404	623	4 647	1 986	203	203	95	82	236	314	102	169	171	128	93	88	169	139	634	4
	25–44	98	506	855	699	1 402	1 920	12 664	5 509	644	892	322	336	730	1 053	362	579	545	343	272	252	520	553	2 221	8
	45–59	33	196	373	343	605	780	5 075	2 078	348	370	152	189	378	466	186	370	246	248	178	188	220	243	920	9
	60+	23	138	244	192	385	402	2 778	1 045	162	226	81	87	212	263	106	194	155	136	126	97	93	116	382	0
	Total	**333**	**1 914**	**3 250**	**2 738**	**5 815**	**7 018**	**44 643**	**18 429**	**2 345**	**3 255**	**1 190**	**1 221**	**2 749**	**4 181**	**1 356**	**2 214**	**2 055**	**1 417**	**1 028**	**994**	**1 893**	**1 990**	**7 369**	**41**
Male	0–4	34	129	220	176	391	469	2 958	1 242	146	199	86	81	181	287	86	99	134	94	64	50	139	146	502	3
	5–9	27	174	239	217	407	482	2 530	1 022	165	203	81	85	182	313	89	134	152	89	44	52	132	165	510	3
	10–14	30	125	227	168	349	390	2 270	941	137	154	84	81	174	244	79	118	148	82	67	67	143	135	445	1
	15–19	6	79	135	97	458	347	2 065	704	82	221	40	34	113	220	42	110	87	53	19	34	66	72	241	2
	20–24	9	69	118	107	207	303	2 207	1 044	101	121	52	40	135	170	56	92	94	61	53	52	94	81	337	2
	25–44	51	236	417	334	691	919	6 005	2 721	318	435	156	165	363	529	189	288	288	179	129	129	273	277	1 147	4
	45–59	12	97	174	171	291	364	2 235	915	180	180	75	99	167	204	88	185	110	117	82	89	105	132	491	5
	60+	14	59	96	80	178	169	1 032	390	64	101	31	39	100	114	45	91	76	57	56	39	42	52	164	0
	Total male	**183**	**968**	**1 626**	**1 350**	**2 972**	**3 443**	**21 302**	**8 979**	**1 193**	**1 614**	**605**	**624**	**1 415**	**2 081**	**674**	**1 117**	**1 089**	**732**	**514**	**512**	**994**	**1 060**	**3 837**	**20**
Female	0–4	23	110	228	171	329	432	2 865	1 223	119	189	82	67	144	252	92	117	119	69	36	44	127	108	462	1
	5–9	17	134	223	181	353	438	2 349	1 007	154	179	82	88	162	265	87	111	119	79	53	57	117	138	473	5
	10–14	19	155	191	212	343	360	2 298	939	139	160	64	73	167	255	90	129	130	67	58	50	126	126	410	4
	15–19	6	33	82	61	389	375	2 144	733	46	259	21	18	70	249	35	84	49	29	18	15	41	49	169	1
	20–24	8	66	115	114	197	320	2 440	942	102	82	43	42	101	144	46	77	77	67	40	36	75	58	297	2
	25–44	47	270	438	365	711	1 001	6 659	2 788	326	457	166	171	367	524	173	291	257	164	143	123	247	276	1 074	4
	45–59	21	99	199	172	314	416	2 840	1 163	168	190	77	90	211	262	98	185	136	131	96	99	115	111	429	4
	60+	9	79	148	112	207	233	1 746	655	98	125	50	48	112	149	61	103	79	79	70	58	51	64	218	0
	Total female	**150**	**946**	**1 624**	**1 388**	**2 843**	**3 575**	**23 341**	**9 450**	**1 152**	**1 641**	**585**	**597**	**1 334**	**2 100**	**682**	**1 097**	**966**	**685**	**514**	**482**	**899**	**930**	**3 532**	**21**

APPENDIX TABLE 35
Number of persons by main industry, age and gender, 2020

Industry by sex and age group	National					Male					Female					Average age
	15–19	20–24	25–44	45–59	60+	15–19	20–24	25–44	45–59	60+	15–19	20–24	25–44	45–59	60+	
1 Agriculture, forestry and fishing	466	1 008	3 766	1 420	369	422	885	3 193	1 153	317	44	123	573	267	52	36
2 Mining and quarrying	0	2	10	3	0	0	2	8	3	0	0	0	2	0	0	37
3 Manufacturing	17	86	563	395	164	9	40	197	62	18	8	46	366	333	146	43
4 Electricity, gas, steam and air conditioning supply	0	13	89	45	2	0	10	65	41	1	0	3	24	4	1	39
6 Construction	8	34	278	96	19	7	33	271	94	19	1	1	7	2	0	38
7 Wholesale and retail trade; repair of vehicles	243	1 102	4 695	2 028	748	129	587	2 264	828	251	114	515	2 431	1 200	497	39
8 Transportation and storage	15	88	690	211	20	10	55	481	171	18	5	33	209	40	2	37
9 Accommodation and food service activities	24	104	501	236	47	10	32	147	77	19	14	72	354	159	28	38
10 Information and communication	1	21	110	20	3	1	9	59	13	3	0	12	51	7	0	36
11 Financial and insurance activities	0	22	130	28	2	0	11	52	8	2	0	11	78	20	0	36
12 Real estate activities	3	8	55	29	3	3	6	45	26	3	0	2	10	3	0	38
13 Professional, scientific and technical activities	1	11	45	22	3	1	11	34	17	3	0	0	11	5	0	38
14 Administrative and support service activities	12	64	388	147	23	10	55	265	81	19	2	9	123	66	4	38
15 Public administration and defence; compulsory social security	38	476	2 801	949	116	15	208	1 605	659	89	23	268	1 196	290	27	37
16 Education	8	188	1 707	647	96	2	41	408	165	42	6	147	1 299	482	54	39
17 Human health and social work activities	2	93	653	187	18	1	30	167	52	3	1	63	486	135	15	37
18 Arts, entertainment and recreation	1	12	39	8	3	1	5	24	4	1	0	7	15	4	2	35
19 Other service activities	5	21	360	231	59	4	11	198	173	51	1	10	162	58	8	43
20 Activities of households as employers	80	113	310	163	73	45	40	109	49	25	35	73	201	114	48	37
21 Activities of extraterritorial organizations	0	1	25	24	4	0	0	16	9	4	0	1	9	15	0	44

APPENDIX TABLE 36
Number of persons by main industry and island, 2020

Industry by island	Island																								
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
1 Agriculture, forestry and fishing	15	192	379	225	500	184	591	292	347	348	239	271	505	474	230	245	384	161	5	224	372	393	453	0
2 Mining and quarrying	0	0	0	0	0	0	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
3 Manufacturing	1	30	67	23	67	59	409	192	57	12	4	7	37	38	26	18	45	14	4	18	6	19	72	0
4 Electricity, gas, steam and air conditioning supply	0	0	0	0	0	2	83	50	0	2	0	0	1	1	0	0	0	0	0	0	0	0	10	0
6 Construction	1	1	6	5	9	21	222	95	1	7	0	1	4	2	1	2	2	0	0	0	1	0	54	0
7 Wholesale and retail trade; repair of vehicles	13	89	341	174	422	464	3 591	1 583	132	119	51	56	227	270	129	137	82	155	12	70	78	104	517	0
8 Transportation and storage	0	6	5	1	13	49	538	295	4	6	2	2	10	3	7	1	2	1	2	1	2	4	70	0
9 Accommodation and food service activities	1	4	10	5	18	81	457	158	8	5	0	16	13	15	2	4	5	2	0	7	0	3	98	0
10 Information and communication	1	2	1	0	1	1	100	28	0	1	1	0	0	1	2	1	0	2	0	0	0	0	13	0
11 Financial and insurance activities	0	1	1	2	2	1	116	28	1	1	1	1	1	0	0	2	1	2	1	2	1	1	16	0
12 Real estate activities	0	1	0	2	0	5	49	30	0	3	0	1	0	4	0	2	0	0	0	0	0	0	1	0
13 Professional, scientific and technical activities	0	0	0	0	0	6	54	19	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
14 Administrative and support service activities	5	0	7	0	1	13	373	165	1	0	1	0	2	3	0	0	0	0	1	0	1	3	58	0
15 Public administration and defence; compulsory social security	40	46	75	43	91	161	1 779	869	73	73	49	37	80	117	49	67	76	63	49	53	56	65	365	4
16 Education	13	40	79	57	168	138	1 043	334	40	93	31	28	72	124	38	60	39	41	15	17	28	37	110	1
17 Human health and social work activities	1	6	10	13	25	39	522	132	13	18	3	7	16	38	9	4	11	13	6	4	7	9	46	1
18 Arts, entertainment and recreation	0	0	0	0	2	4	35	11	1	0	0	0	2	2	0	1	0	0	1	0	0	0	4	0
19 Other service activities	3	11	21	9	26	39	212	88	25	14	9	12	35	34	12	15	21	20	2	6	10	20	30	2
20 Activities of households as employers	42	5	156	4	20	9	154	32	20	52	5	42	78	27	4	17	3	9	0	19	0	16	25	0
21 Activities of extraterritorial organizations	0	0	0	0	0	1	43	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX TABLE 37

Average age of persons by main industry and island, 2020

Average age for each industry category	Island																							
	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
1 Agriculture, forestry and fishing	35	35	34	35	37	39	36	34	36	37	34	38	36	36	37	39	36	40	33	37	33	35	35	0
2 Mining and quarrying	0	0	0	0	0	0	33	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0
3 Manufacturing	62	38	44	43	45	43	40	42	52	46	38	51	44	47	49	54	45	47	48	48	37	41	43	0
4 Electricity, gas, steam and air conditioning supply	0	0	0	0	0	37	40	38	0	28	0	0	41	39	0	0	0	0	0	0	0	0	39	0
6 Construction	29	33	49	39	45	35	38	35	50	39	0	43	37	34	27	48	43	0	0	0	44	0	37	0
7 Wholesale and retail trade; repair of vehicles	40	42	40	40	41	38	37	36	41	42	43	44	44	42	40	46	40	42	39	43	43	42	39	0
8 Transportation and storage	0	32	43	50	34	31	36	38	35	42	46	38	41	38	37	40	33	35	35	39	34	34	37	0
9 Accommodation and food service activities	21	33	39	33	45	37	38	38	33	36	0	41	34	41	41	41	47	51	0	35	0	42	39	0
10 Information and communication	33	46	63	0	24	32	35	36	0	43	37	0	0	22	27	39	0	30	0	0	0	0	41	0
11 Financial and insurance activities	0	28	25	30	38	28	35	39	48	29	29	26	24	0	0	37	23	45	26	25	21	38	36	0
12 Real estate activities	0	61	0	45	0	36	37	37	0	37	0	47	0	43	0	46	0	0	0	0	0	0	50	0
13 Professional, scientific and technical activities	0	0	0	0	0	44	39	34	0	0	0	0	0	0	0	31	0	0	0	0	0	0	24	54
14 Administrative and support service activities	49	0	35	0	63	36	37	39	38	0	31	0	48	36	0	0	0	0	44	0	35	31	39	0
15 Public administration and defence; compulsory social security	38	37	40	44	39	37	36	37	39	41	41	41	38	37	40	39	38	39	41	41	38	39	36	44
16 Education	43	40	37	39	38	38	39	39	40	43	38	36	41	37	39	39	38	39	45	42	44	43	38	45
17 Human health and social work activities	38	39	42	41	38	38	37	36	36	37	42	40	38	37	38	33	35	40	31	31	38	40	38	57
18 Arts, entertainment and recreation	0	0	0	0	43	36	35	35	46	0	0	0	34	29	0	28	0	0	45	0	0	0	32	0
19 Other service activities	46	43	49	43	45	41	42	41	42	46	47	43	47	42	38	35	43	47	40	42	43	40	45	45
20 Activities of households as employers	40	50	33	37	38	42	39	37	38	35	32	37	40	39	31	38	38	41	0	40	0	38	38	0
21 Activities of extraterritorial organizations	0	0	0	0	0	31	46	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX TABLE 38
Number of toddy trees cut by island, gender and age of household head and wealth index, 2020

	Area of residence			Island														
	National	Urban	Rural	Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea
Households cutting toddy trees	**2 704**	**874**	**1 830**	**1**	**103**	**227**	**44**	**231**	**136**	**537**	**103**	**82**	**70**	**23**	**26**	**140**	**115**	**75**
1 toddy tree	851	329	522	0	33	88	10	42	49	200	49	24	32	11	10	41	35	22
2 toddy trees	880	276	604	0	36	75	17	79	44	171	30	31	23	4	9	46	37	30
3 toddy trees	494	130	364	1	17	36	10	57	32	76	13	15	9	6	3	37	20	9
4 toddy trees	211	53	158	0	7	14	2	29	4	30	5	5	3	2	1	9	12	7
5 toddy trees	131	35	96	0	5	11	2	9	4	22	4	6	3	0	2	7	6	4
6 toddy trees	62	21	41	0	0	2	2	9	1	14	1	0	0	0	1	0	4	1
7 toddy trees	34	15	19	0	0	0	0	3	0	12	1	0	0	0	0	0	1	2
8 toddy trees	17	5	12	0	1	1	1	0	1	5	0	0	0	0	0	0	0	0
9 toddy trees or more	24	10	14	0	4	0	0	3	1	7	0	1	0	0	0	0	0	0

	Island									Household head gender		Household head age group			Wealth index				
	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton	Male	Female	15–24 years	25–59 years	60+ years	Lowest Q	Q2	Q3	Q4	Highest Q
Households cutting toddy trees	**93**	**32**	**57**	**54**	**73**	**101**	**140**	**234**	**7**	**2 239**	**465**	**75**	**2 224**	**405**	**760**	**717**	**521**	**357**	**349**
1 toddy tree	38	11	16	7	10	26	17	80	0	680	171	20	725	106	219	202	143	140	147
2 toddy trees	27	10	13	8	21	40	52	75	2	741	139	24	735	121	251	250	174	101	104
3 toddy trees	13	8	17	12	13	21	27	41	1	406	88	14	396	84	152	119	106	62	55
4 toddy trees	5	3	7	8	13	6	21	18	0	182	29	9	156	46	62	62	40	24	23
5 toddy trees	6	0	2	6	7	5	11	9	0	110	21	6	105	20	46	43	22	12	8
6 toddy trees	0	0	1	3	7	3	5	6	2	55	7	2	48	12	16	16	16	10	4
7 toddy trees	2	0	0	1	2	0	6	2	2	30	4	0	28	6	4	13	10	2	5
8 toddy trees	2	0	1	4	0	0	1	0	0	15	2	0	13	4	4	5	4	2	2
9 toddy trees or more	0	0	0	5	0	0	0	3	0	20	4	0	18	6	6	7	6	4	1

APPENDIX TABLE 39

Number of individuals living in HHs engaged in agriculture (cropping + livestock) by island and age group, 2020

Age group of household members		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Beito	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	0–4	48	222	417	231	605	688	4 210	1 524	237	290	148	98	294	494	177	192	224	143	82	90	201	203	808	4
	5–9	35	279	433	288	670	738	3 543	1 274	291	299	135	120	312	535	176	224	237	141	83	101	176	231	834	8
	10–14	38	256	390	250	547	607	3 324	1 135	251	251	128	108	307	437	166	217	238	119	107	110	202	210	738	5
	15–19	7	102	179	113	234	349	2 868	930	108	119	57	31	141	185	77	76	95	48	33	46	80	93	357	3
	20–24	14	125	197	153	307	486	3 330	1 196	179	149	86	52	202	286	101	141	150	105	75	83	120	110	528	4
	25–44	75	448	758	460	1 187	1 483	9 012	3 396	539	666	277	215	643	932	360	507	482	280	216	234	342	423	1 836	8
	45–59	28	178	336	220	517	622	3 661	1 336	272	289	131	133	337	426	185	324	225	206	148	179	163	199	750	9
	60+	18	124	211	140	324	315	1 909	650	136	161	67	63	185	226	103	168	132	115	100	91	62	92	308	0
	Total	**263**	**1 734**	**2 921**	**1 855**	**4 391**	**5 288**	**31 857**	**11 441**	**2 013**	**2 224**	**1 029**	**820**	**2 421**	**3 521**	**1 345**	**1 849**	**1 783**	**1 157**	**844**	**934**	**1 346**	**1 561**	**6 159**	**41**
Male	0–4	29	120	207	113	325	350	2142	763	135	144	75	56	168	262	86	88	117	83	55	47	98	115	415	3
	5–9	21	159	226	157	356	385	1823	633	148	155	62	62	165	287	89	124	137	75	36	48	94	124	436	3
	10–14	26	111	213	108	267	315	1658	578	124	127	68	56	157	215	76	104	127	65	60	63	108	109	386	1
	15–19	3	71	116	71	142	186	1 443	457	69	76	37	23	87	103	42	44	62	30	18	31	51	57	211	2
	20–24	6	66	97	81	158	228	1 581	589	89	88	50	28	112	154	56	74	87	49	44	50	68	65	280	2
	25–44	39	205	362	217	582	714	4 271	1 673	261	329	133	99	320	467	187	251	253	150	102	122	181	206	930	4
	45–59	10	85	157	108	246	293	1 609	569	134	138	68	70	146	189	87	166	102	98	71	83	78	109	391	5
	60+	12	54	82	59	156	136	697	245	52	73	27	28	90	96	44	75	63	48	42	37	29	39	129	0
	Total male	**146**	**871**	**1 460**	**914**	**2 232**	**2 607**	**15 224**	**5 507**	**1 012**	**1 130**	**520**	**422**	**1 245**	**1 773**	**667**	**926**	**948**	**598**	**428**	**481**	**707**	**824**	**3 178**	**20**
Female	0–4	19	102	210	118	280	338	2068	761	102	146	73	42	126	232	91	104	107	60	27	43	103	88	393	1
	5–9	14	120	207	131	314	353	1720	641	143	144	73	58	147	248	87	100	100	66	47	53	82	107	398	5
	10–14	12	145	177	142	280	292	1666	557	127	124	60	52	150	222	90	113	111	54	47	47	94	101	352	4
	15–19	4	31	63	42	92	163	1 425	473	39	43	20	8	54	82	35	32	33	18	15	15	29	36	146	1
	20–24	8	59	100	72	149	258	1 749	607	90	61	36	24	90	132	45	67	63	56	31	33	52	45	248	2
	25–44	36	243	396	243	605	769	4 741	1 723	278	337	144	116	323	465	173	256	229	130	114	112	161	217	906	4
	45–59	18	93	179	112	271	329	2 052	767	138	151	63	63	191	237	98	158	123	108	77	96	85	90	359	4
	60+	6	70	129	81	168	179	1 212	405	84	88	40	35	95	130	59	93	69	67	58	54	33	53	179	0
	Total female	**117**	**863**	**1 461**	**941**	**2 159**	**2 681**	**16 633**	**5 934**	**1 001**	**1 094**	**509**	**398**	**1 176**	**1 748**	**678**	**923**	**835**	**559**	**416**	**453**	**639**	**737**	**2 981**	**21**

APPENDIX TABLE 40
Number of individuals living in HHs engaged in fishing by island and age group, 2020

Age group of household members		Island																							
		Banaba	Makin	Butaritari	Marakei	Abaiang	North Tarawa	South Tarawa	Betio	Maiana	Abemama	Kuria	Aranuka	Nonouti	North Tabiteuea	South Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Teeraina	Tabuaeran	Kiritimati	Kanton
Total	0–4	50	165	301	181	512	570	2055	722	187	219	85	76	263	369	154	159	143	124	59	50	174	221	705	4
	5–9	34	208	302	204	564	587	1644	557	210	231	66	99	265	380	150	163	176	124	50	51	171	252	677	7
	10–14	39	170	258	190	434	445	1504	473	190	181	51	92	264	300	146	164	148	102	61	55	170	215	579	3
	15–19	8	73	134	81	209	282	1 236	426	92	96	28	25	129	117	69	55	60	49	24	27	63	99	307	3
	20–24	17	88	164	112	281	409	1 675	568	149	123	54	48	182	218	92	125	108	90	50	46	116	127	457	2
	25–44	85	325	550	346	987	1 200	4 254	1 506	418	486	164	174	587	688	331	419	310	262	137	138	299	458	1 541	6
	45–59	21	119	232	146	425	491	1 601	532	200	211	60	89	286	292	161	228	124	179	102	101	117	205	566	7
	60+	15	76	131	75	252	211	714	232	98	116	28	43	149	143	87	119	69	85	59	37	39	90	243	0
	Total	**269**	**1 224**	**2 072**	**1 335**	**3 664**	**4 195**	**14 683**	**5 016**	**1 544**	**1 663**	**536**	**646**	**2 125**	**2 507**	**1 190**	**1 432**	**1 138**	**1 015**	**542**	**505**	**1 149**	**1 667**	**5 075**	**32**
Male	0–4	31	94	144	92	280	294	1071	360	105	111	44	39	152	194	75	71	77	75	42	25	85	128	366	3
	5–9	20	112	161	106	300	309	862	276	109	133	29	50	136	197	74	89	101	61	26	23	94	138	365	2
	10–14	26	77	146	90	211	237	733	267	94	93	27	45	135	149	68	75	74	58	34	30	100	113	300	.
	15–19	4	53	86	49	132	158	648	208	62	57	16	16	85	74	40	38	41	33	12	21	41	59	184	2
	20–24	9	44	83	55	146	203	822	291	75	75	32	24	103	125	50	69	62	45	29	27	67	73	251	1
	25–44	44	164	271	176	500	590	2 096	771	208	242	87	91	296	348	179	222	165	139	68	74	160	235	802	3
	45–59	9	59	113	77	208	234	741	240	103	107	30	46	132	140	77	120	58	92	50	49	61	116	299	4
	60+	10	34	49	33	122	89	255	83	41	53	10	14	74	63	39	55	36	36	23	12	21	38	99	0
	Total male	**153**	**637**	**1 053**	**678**	**1 899**	**2 114**	**7 228**	**2 496**	**797**	**871**	**275**	**325**	**1 113**	**1 290**	**602**	**739**	**614**	**539**	**284**	**261**	**629**	**900**	**2 666**	**15**
Female	0–4	19	71	157	89	232	276	984	362	82	108	41	37	111	175	79	88	66	49	17	25	89	93	339	1
	5–9	14	96	141	98	264	278	782	281	101	98	37	49	129	183	76	74	75	63	24	28	77	114	312	5
	10–14	13	93	112	100	223	208	771	206	96	88	24	47	129	151	78	89	74	44	27	25	70	102	279	3
	15–19	4	20	48	32	77	124	588	218	30	39	12	9	44	43	29	17	19	16	12	6	22	40	123	1
	20–24	8	44	81	57	135	206	853	277	74	48	22	24	79	93	42	56	46	45	21	19	49	54	206	1
	25–44	41	161	279	170	487	610	2 158	735	210	244	77	83	291	340	152	197	145	123	69	64	139	223	739	3
	45–59	12	60	119	69	217	257	860	292	97	104	30	43	154	152	84	108	66	87	52	52	56	89	267	3
	60+	5	42	82	42	130	122	459	149	57	63	18	29	75	80	48	64	33	49	36	25	18	52	144	0
	Total female	**116**	**587**	**1 019**	**657**	**1 765**	**2 081**	**7 455**	**2 520**	**747**	**792**	**261**	**321**	**1 012**	**1 217**	**588**	**693**	**524**	**476**	**258**	**244**	**520**	**767**	**2 409**	**17**

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