Fiji Bureau of Statistics
Modyl Plaza : Lot 1 Karsanji Street Vatuwaqa, Suva, Fiji
P O Box 2221
Government Buildings
Suva
FIJI
Telephone: [679] 331 5822
Fax No: [679] 330 3656
E-mail: info@statsfiji.gov.fj
Website: www.statsfiji.gov.fj
STATISTICAL NEWS
FBoS Release No.80, 2024. October, 2024

EXPERIMENTAL GIS FIJI POPULATION GRID 2023

In 2023, the Fiji Bureau of Statistics (FBoS), supported by the Statistics for Development Division (SDD) from the Pacific Community (SPC), made substantial progress in developing and refining the population grid. The population grids generated by Fiji Bureau of Statistics are modeled using the most recent 2017 census data projected for the year 2023.

The Fiji Population Grid 2023 represents a significant advancement in the spatial analysis of demographic data within the country. Utilizing Geographic Information Systems (GIS) and spatial analysis techniques, this population grid provides a detailed, grid-based representation of population data. The grid format, consisting of 100m x 100m cells, allows for precise population estimates across the country, enhancing the ability to study the interrelationships between human activities and the environment.

What grids we have generated for this year?

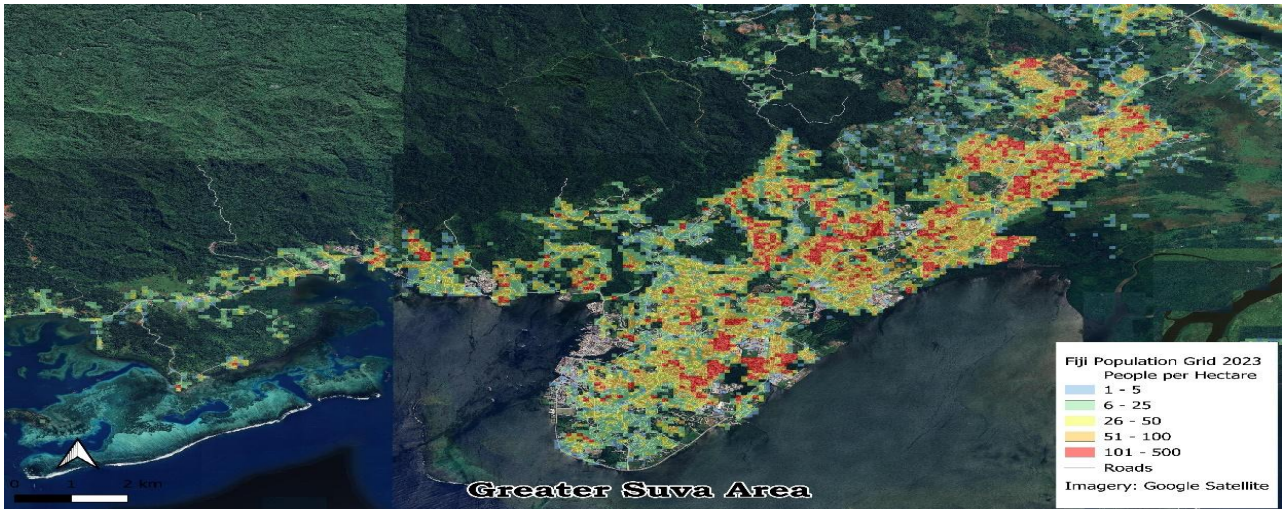
The Fiji Population Grid 2023 consists of 66 grids, providing a detailed breakdown of population by sex, major ethnicity (iTaukei, Indo-Fijian, and other ethnic groups), and 5-year age groups by sex as well. Compared to the previous year, the population data reveals shift in demographic patterns, with notable changes in the distribution of certain ethnic groups and age cohorts. The data highlights trends in gender distribution within each ethnic group and across age groups, offering a comparative view of population dynamics between 2022 and 2023

The Population grids represent data using square "cells" which is produced by 100m x 100m (1 hectare)[1].

Below is the link to access the Fiji Population Grid 2023 in the raster format – 66 grids & size is 435 MB

https://drive.google.com/file/d/1slxDjjYlrGkGm4gD0mzKzSASAyOPYmb7/view?usp=sharing

Map 1. An example of the FIJI POPULATION GRID 2023 for the Greater Suva area overlayed with the Satellite Imagery.



[1] SPC, https://sdd.spc.int/innovation-sdd/population-grids

Table 1. Summary of the 66 population grids for 2023.

Grids		Total Population by Age Groups		Male Population by Age Groups		Female Population by Age Groups	
		7	0-4 years Population	27	0-4 years Male Population	47	0-4 years Female Population
Total = 66 grids		8	5-9 years Population	28	5-9 years Male Population	48	5-9 years Female Population
1	Total Population	9	10-14 years Population	29	10-14 years Male Population	49	10-14 years Female Population
2	Male Population	10	15-19 years Population	30	15-19 years Male Population	50	15-19 years Female Population
3	Female Population	11	20-24 years Population	31	20-24 years Male Population	51	20-24 years Female Population
4	Itaukei Population	12	25-29 years Population	32	25-29 years Male Population	52	25-29 years Female Population
5	Indo-Fijian Population	13	30-34 years Population	33	30-34 years Male Population	53	30-34 years Female Population
6	Other Ethnic Groups	14	35-39 years Population	34	35-39 years Male Population	54	35-39 years Female Population
		15	40-44 years Population	35	40-44 years Male Population	55	40-44 years Female Population
		16	45-49 years Population	36	45-49 years Male Population	56	45-49 years Female Population
		17	50-54 years Population	37	50-54 years Male Population	57	50-54 years Female Population
		18	55-59 years Population	38	55-59 years Male Population	58	55-59 years Female Population
		19	60-64 years Population	39	60-64 years Male Population	59	60-64 years Female Population
		20	65-69 years Population	40	65-69 years Male Population	60	65-69 years Female Population
		21	70-74 years Population	41	70-74 years Male Population	61	70-74 years Female Population
		22	75-79 years Population	42	75-79 years Male Population	62	75-79 years Female Population
		23	80-84 years Population	43	80-84 years Male Population	63	80-84 years Female Population
		24	85-89 years Population	44	85-89 years Male Population	64	85-89 years Female Population
		25	90-94 years Population	45	90-94 years Male Population	65	90-94 years Female Population
		26	95-99 years Population	46	95-99 years Male Population	66	95-99 years Female Population

The Fiji Population Grid 2023 contains data for 66 grids, categorizing the total population by age group, sex, and major ethnicities. The population is broken down into 5-year age groups, starting from 0-4 years up to 95-99 years. The total population, male population, and female population are separately listed for each age group. Additionally, the data includes separate population counts for key ethnic groups such as iTaukei, Indo-Fijian, and other ethnic groups. This demographic breakdown helps in understanding the age and gender distribution across different ethnicities in Fiji's population grid for 2023.

Fiji Population Grid 2023 by Sex, Age Group, and Major Ethnicity

This new modelling approach included in the 2023 Population Grid presents population disaggregated by age, by sex and by ethnicity. The main purpose of this approach is to offer further understanding of the spatial distribution of the population alongside comprehensive demographic aspects. It is expected that the information provided by this enhanced population product will provide specific insights to better understand on where and how the population is located across Fijian territory. Therefore, these population models are designed to provide critical information for better decision making and resource allocation for gender policies, healthcare, education, or cultural demographics among others.

Production of Statistics Grids

Normally, the production of Statistics grids requires the existence of geo-referenced datasets with high spatial accuracy (see Figure 1); in most cases, these are buildings, business or address registers geocoded with geographic coordinates to which the statistical information can be referenced. In the case of Fiji Population Grid population information linked to Household locations have been aggregated to 100 x 100 m cells (or pixel).

Figure 1. Point data overlaid on a statistical grid

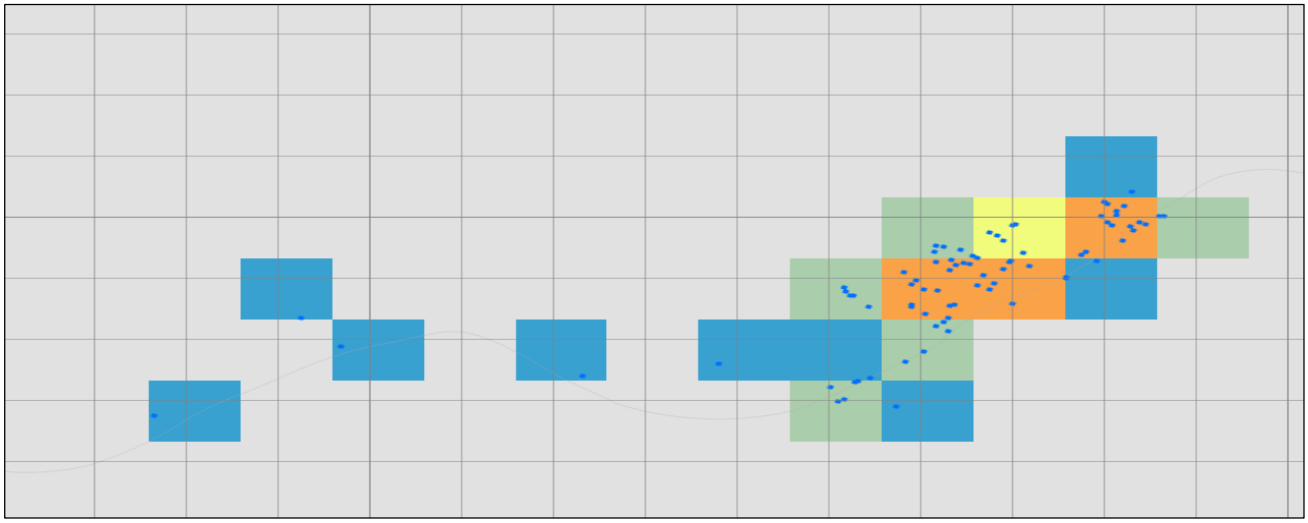
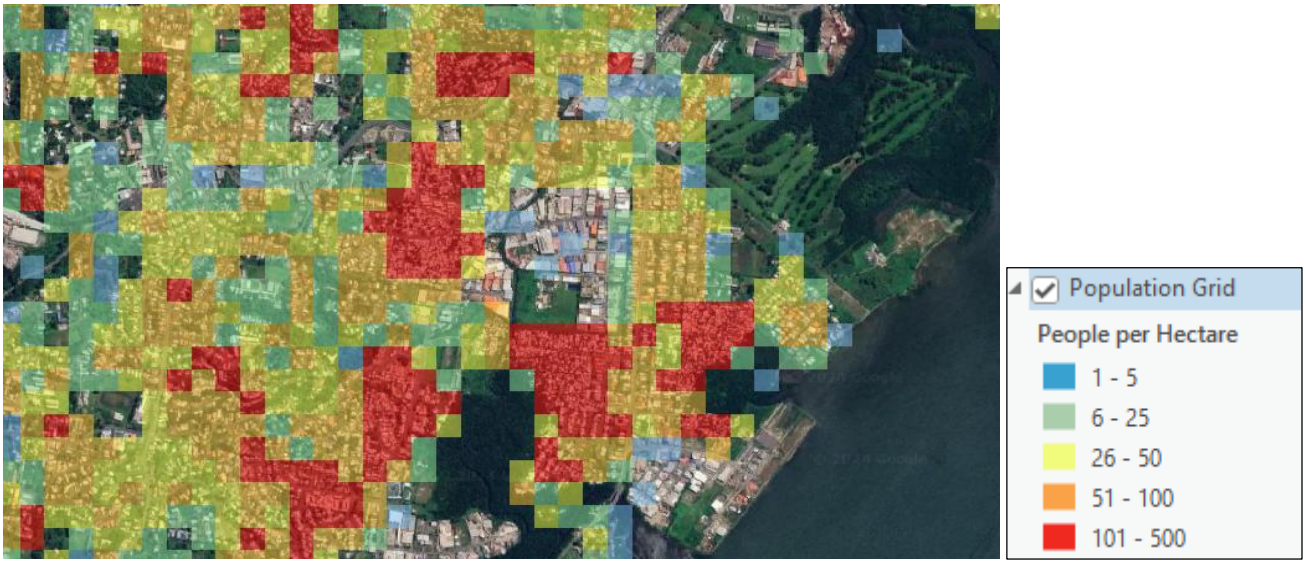


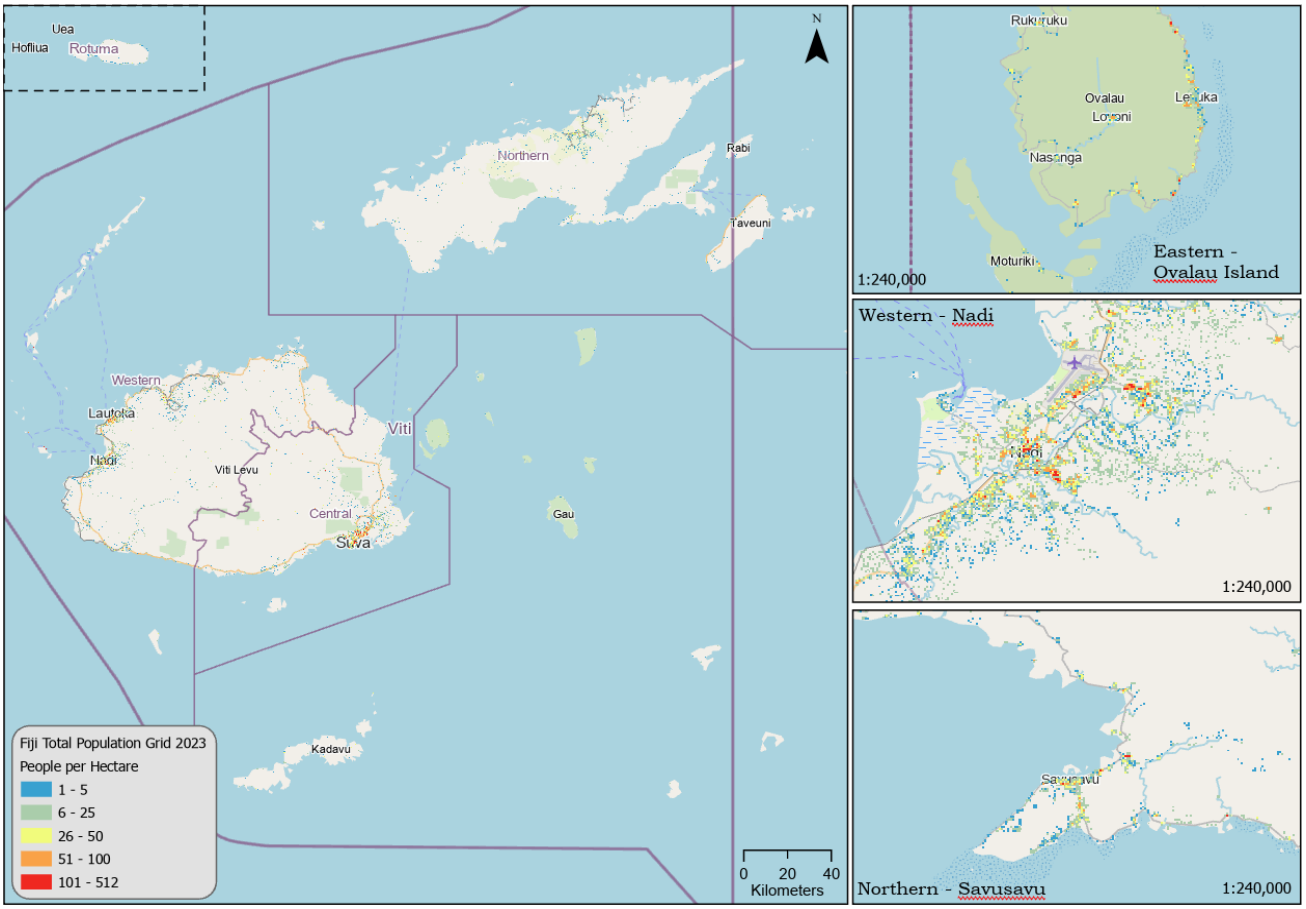
Figure 2. Population Grid – people per hectare



The image illustrates the spatial distribution of population across the area through a grid system. Diverse colors denote varying degrees of population density, providing a visual representation of demographic patterns. Notably, areas lacking pixels indicate zones with no population, despite the presence of buildings or other structures, indicating non private dwellings such as institutions and commercial or industrial spaces. This visual depiction enhances our understanding of population concentrations, aiding in urban planning and resource allocation. The absence of pixels in certain areas underscores the significance of considering land use and function in addition to structural presence when analyzing population distribution patterns.

Overview of the 2023 Fiji Population Grid

Map 2. Fiji Population Grid overlays with open street mapping basemap



The Fiji Total Population Grid 2023 map provides an overview of population density across the country, measured in people per hectare. The map highlights various regions such as Viti Levu, Ovalau Island, Nadi, and Savusavu. Population density is categorized into five classes:

1. ** 1-5 people per hectare ** (light green),
2. ** 6-25 people per hectare ** (light blue),
3. ** 26-50 people per hectare ** (yellow),
4. ** 51-100 people per hectare ** (orange),
5. ** 101-512 people per hectare ** (red).

More densely populated areas, represented by red and orange, are concentrated around urban centers such as Suva, Nadi, and Lautoka, whereas rural and outlying areas are less densely populated, shown in green and blue. Insets provide detailed views of specific regions like Ovalau Island, Nadi, and Savusavu, illustrating population distribution in those areas.

Population Distribution in the Grid Dataset

Table 2. Population Grid Size Classes

Size Class (number of persons per pixel)	Grid Cells (2017)	Grid Cells (%)	Population (2017)	Population 2017 (%)	Grid Cells (2023)	Grid Cells (%)	Population (2023)	Population 2023 (%)
0 to 1	238	0.5	162	0.0	195	0.4	184	0.0
2 to 5	18,085	35.3	81,420	9.2	17,094	33.4	77,598	8.6
6 to 10	12,538	24.5	98,618	11.1	13,078	25.6	101,461	11.2
11 to 20	9,237	18.0	141,611	16.0	9,346	18.3	143,079	15.8
21 to 50	7,402	14.5	243,331	27.5	7,537	14.7	247,749	27.3
51 to 100	2,850	5.6	199,414	22.5	2,979	5.8	209,497	23.1
101 to 150	679	1.3	81,211	9.2	695	1.4	84,060	9.3
151 to 200	123	0.2	20,986	2.4	145	0.3	24,612	2.7
201 to 600	72	0.1	18,134	2.1	71	0.1	17,884	2.0
Total	**51,224**	**100.00**	**884,887**	**100.00**	**51,224**	**100.00**	**906,124**	**100.00**

Note: [1.] SPC - Population projection 2023 https://pacificdata.org/data/dataset/population-projections-df-pop-proj

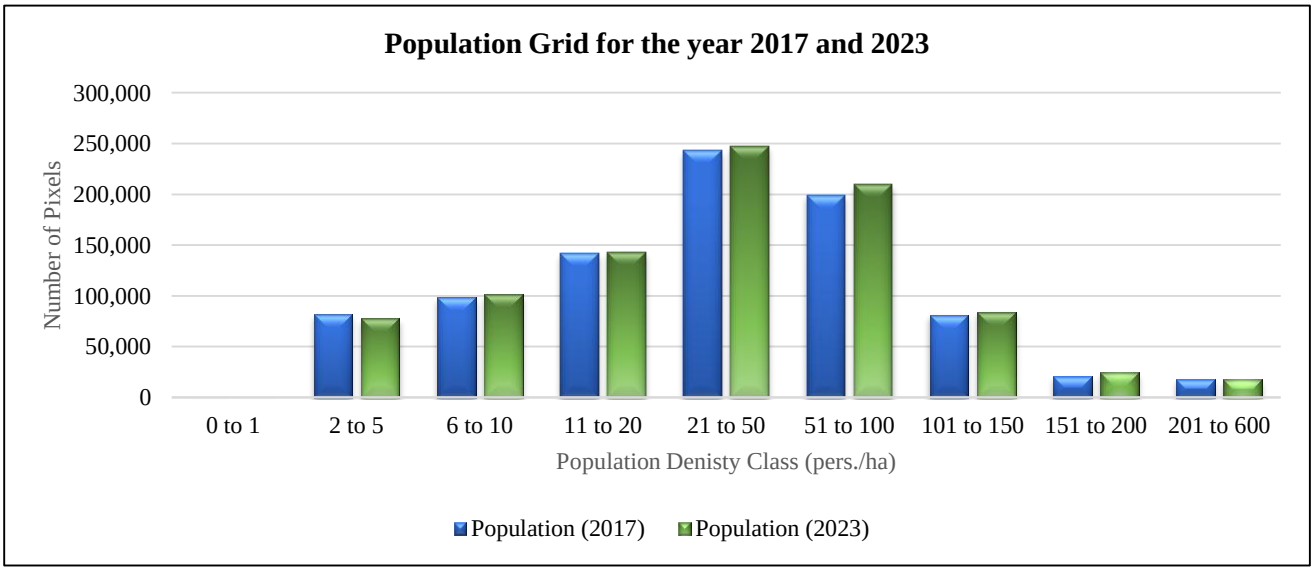
[2.] Baseline used from the Fiji Census 2017 Population

The table compares Fiji's population distribution across different grid sizes between 2017 and 2023. The total population increased from 884,887 in 2017 to 906,124 in 2023, with the grid cells remaining constant at 51,224.

- The **largest population group** falls within the **21 to 50 persons per pixel** size class, comprising 27.5% of the population in 2017 and 27.3% in 2023.
- The **6 to 10 persons per pixel** category saw a small increase in both grid cells and population, with 25.6% of grid cells and 11.2% of the population in 2023.
- The **population in the 51 to 100 persons per pixel** range grew from 22.5% in 2017 to 23.1% in 2023.
- Meanwhile, lower density classes (0 to 1 and 2 to 5 persons per pixel) slightly declined in population percentages, showing small population shifts to higher density grids.

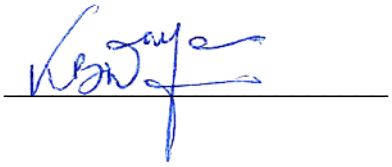
Overall, the distribution pattern of grid cells by size class remained relatively stable, with minimal changes in the percentage of population across various grid sizes.

Figure 3. Population Distribution by Size Class (https://pacificdata.org/data/dataset/population-projections-df-pop-proj)



We extend our sincere appreciation to the Statistics for Development Division (SDD) from the Pacific Community (SPC) for their invaluable collaboration on the 2023 Fiji Population Grid project. Their expertise and partnership significantly contributed to the successful development of this comprehensive tool for understanding and visualizing population distribution in Fiji.

For any further enquiries please contact Mr. Fiu Penjueli by email at pfiu@statsfiji.gov.fj, or Telephone at 3315822 (ext. 386248), direct line 3230848.



Kemueli Naiqama [Mr.]

Chief Executive – Fiji Bureau of Statistics

Reproduction of Material

Any table or material published in this release may be reproduced and published without the Fiji Bureau of Statistics' prior approval. However, the sources of information should always be identified and acknowledged in all modes of presentation.