

# Methodology Statement

## Esri Thailand: 2024 Demographic Data

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### Introduction

Esri Thailand demographic data provides key population and household attributes reported by both government agencies including the Department of Provincial Administration, National Statistical Office, Community Development Department, and Thai private sector company GlobeTech Co., Ltd.

Esri Thailand uses this information to create the Esri Thailand demographic dataset. In this document, methods and definitions of the data are explained in detail.

### Geographic Levels

This dataset covers the administrative boundaries of province, district, and sub-district for the whole country of Thailand.

- 77 provinces
- 928 districts
- 7,436 subdistricts

## Data Collection and Source

The total population of Thailand in 2024 was 65,951,210 people which is reported by Department of Provincial Administration. The source of each data topic is provided in the following table:

Variable	Area	Data Source
Population by Age	The whole country	Department of Provincial Administration
Population by Education	The whole country	Ministry of Education, Ministry of Higher Education, Science, Research and Innovation and Department of Provincial Administration (DOPA)
Population by Occupation	Bangkok	National Statistical Office and NOSTRA
	All Other Provinces	The Community Development Department (CDD)
Income	Bangkok	National Statistical Office and The Community Development Department
	All Other Provinces	The Community Development Department
Spending	Bangkok	National Statistical Office and The Community Development Department
	All Other Provinces	The Community Development Department

- Department of Provincial Administration (DOPA) provides population data by age. This is the most reliable source of Thai data, and it is updated and reported annually. The data is reported at the sub-district level, and the latest version of data was published in December 2024.
- National Statistical Office (NSO) of Thailand is another source of Thai data. However, most NSO data is provided at the province level, not the district and sub-district level.
- The Community Development Department (CDD) is responsible for supporting the community in the area of education and people engagement. It aims to increase community development and stability. Every year except the year 2020, the CDD collects quality-of-living data from a sample of people who have lived in their household for more than 6 months. The data is collected in each sub-district in every province of Thailand.
- GlobeTech Co., Ltd. Develops and provides digital maps with comprehensive database and high coverage under the “NOSTRA” brand in Thailand.

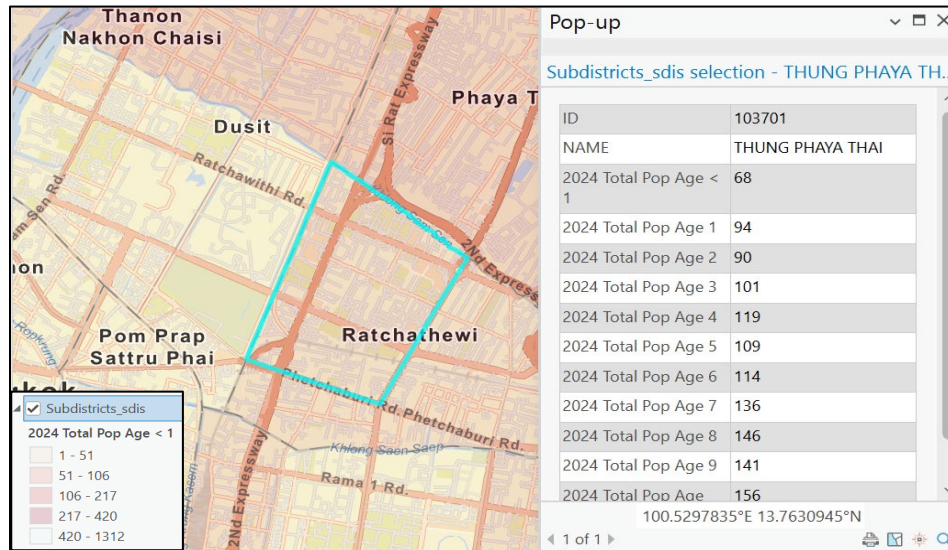
### 1.1 Age

Population by Age is provided by the Department of Provincial Administration (DOPA) and is current as of December 2024. The data includes:

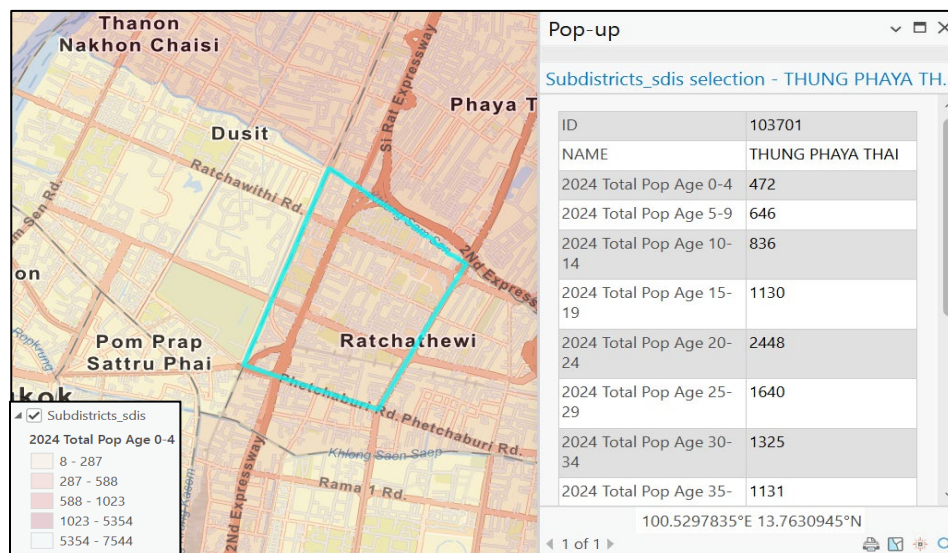
- Population by age, age less than 1 year old to age greater than 101 years old.
- Population by age groups by 5 years range, for example, ages 0 – 4, ages 5 – 9, up to age greater than 100 years old.

However, total population by age or age ranges do not include the following population:

- Central house registered male and female population
- Male and female population of other nationalities (non-Thai residence)
- Male and female migrant population.



Picture 1: Sample Data of Population by age

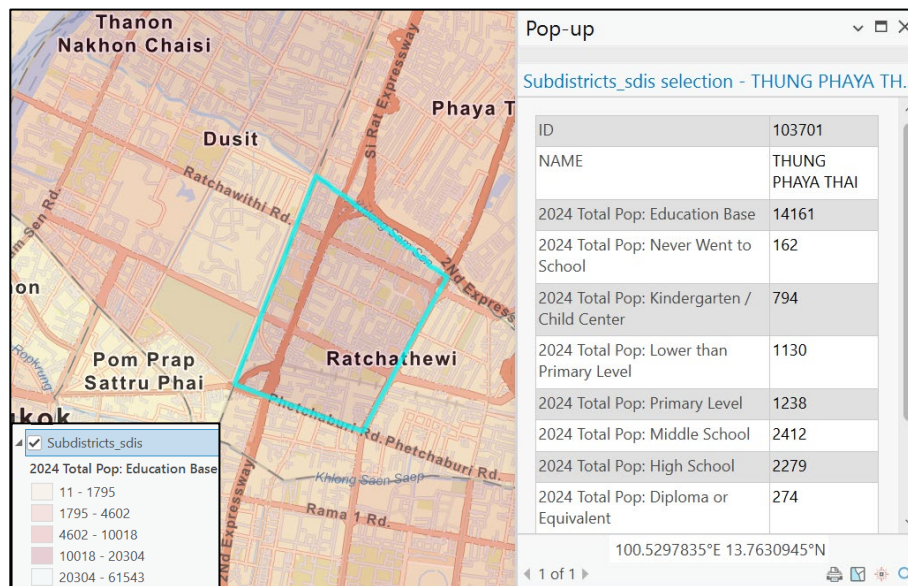


Picture 2: Sample Data of Population by age groups by 5 years range

## 1.2 Education

Population by education was categorized into two groups as follows:

- Uneducated population or population that never went to school.
- Educated population categories include:
  - Kindergarten/ Child Center
  - Lower than Primary Level
  - Primary Level
  - Middle School
  - High School
  - Diploma or Equivalent
  - Bachelor's Degree or Equivalent
  - Postgraduate Degree



Picture 3: Sample Data of Education

Esri Thailand uses two data sources for Population by Education

1. For the kindergarten to high school categories, the data was provided by the Ministry of Education at the sub-district level.
2. For the Diploma or Equivalent category, the data was provided by the Ministry of Education at the sub-district level and the Ministry of Higher Education, Science, Research and Innovation at the province level, using the proportion of population by age from the Department of Provincial Administration (DOPA) to distribute the data into the sub-district level. (Because there are educational institutions in both Ministries).

The details of population by age from DOPA are as follows:

- Population by age 18-22 years for Diploma or Equivalent.

3. For the Bachelor or Postgraduate Degree categories, the data was provided by the Ministry of Higher Education, Science, Research and Innovation at the province level and using the proportion of population by age from the Department of Provincial Administration (DOPA) to distribute data into the sub-district level.

The details of population by age from DOPA are as follows:

- Population by age 18-22 years for bachelor's degrees.
  - Population by age 23-39 years for postgraduate degrees.
4. Uneducated Population and Never Went to School categories, the data was provided by the Department of Provincial Administration (DOPA) with population by age 0-1 year.

### 1.3 Occupation

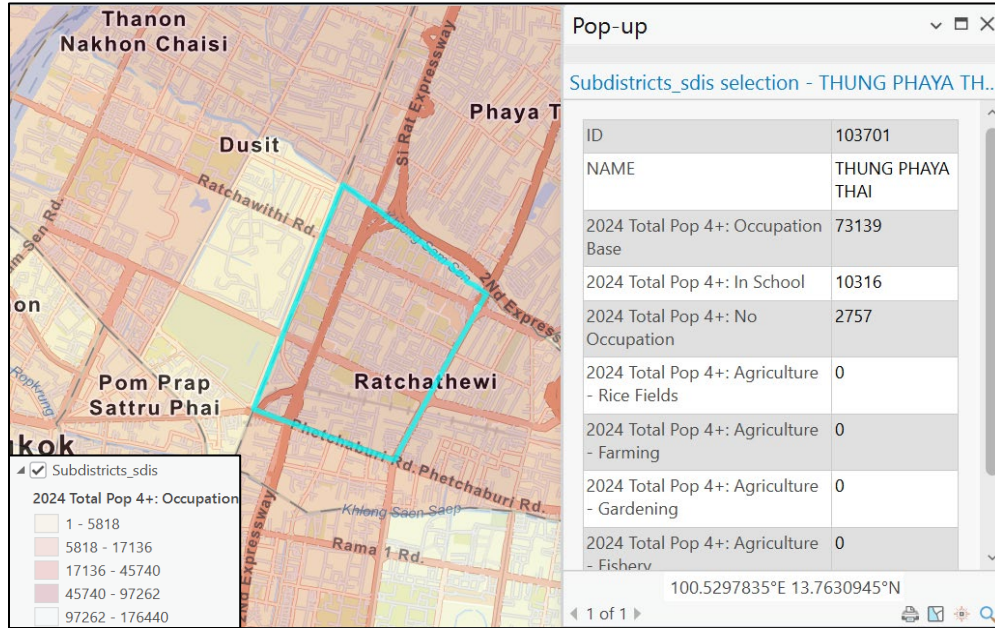
Population by occupation was categorized into groups as follows:

- Employed population which are grouped by:
  - Agriculture - Rice Fields
  - Agriculture - Farming
  - Agriculture - Gardening
  - Agriculture - Fishery
  - Agriculture - Livestock
  - In Civil Service
  - State Enterprise Employees
  - Company Employees
  - General Contractors
  - In Trade
  - In Personal Business
  - Other Occupations
- Unemployed population which are grouped by:
  - No Occupation (population age 0-1 years and 65+ years) and Population who are unemployed.
  - Population by Education from Ministry of Education from Kindergarten– Bachelor's degree.

Esri Thailand uses three data sources for Population by Occupation

1. In the Bangkok area, the data was provided by the National Statistical Office (NSO) and NOSTRA. Since NSO announced the data at the province level only, we use the population density number from NOSTRA POIs categorized by group of occupation at the district and sub-district level.

- In other provinces, the data was provided by The Community Development Department (CDD). The data is collected by population sampling for the discriminant indicators of the quality-of-life survey. The population samplings are only from household members who have lived for over 6 months in the household.

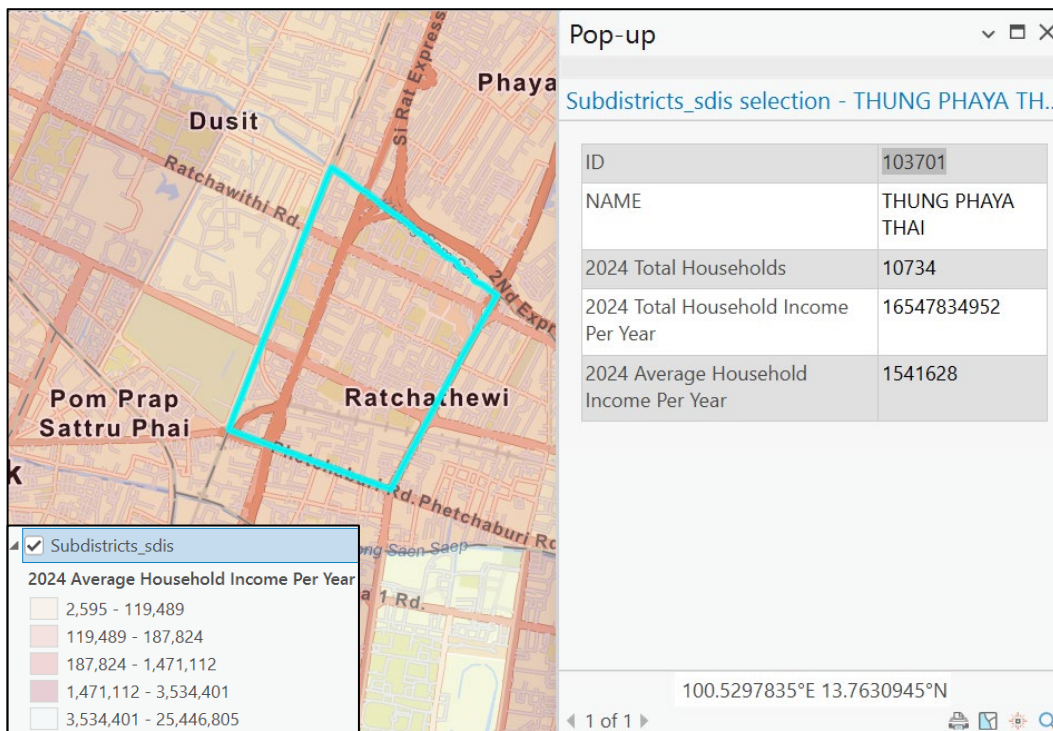


Picture 4: Sample data of Population by Occupation

### 1.4 Average Income

Average household income (Baht/year) was classified by sub-district level from 2 data sources.

1. In the Bangkok area, the data was provided by the National Statistical Office (NSO) and the Community Development Department (CDD). Since NSO announces the data for the province level only, we use the proportional average household income to calculate the average income of each occupation from CDD by the district and sub- district level.
2. In other provinces, the data was provided by The Community Development Department (CDD). The data is collected by population sampling for the discriminant indicators of the quality-of-life survey. The population samplings are only from household members who have lived for over 6 months in the household.

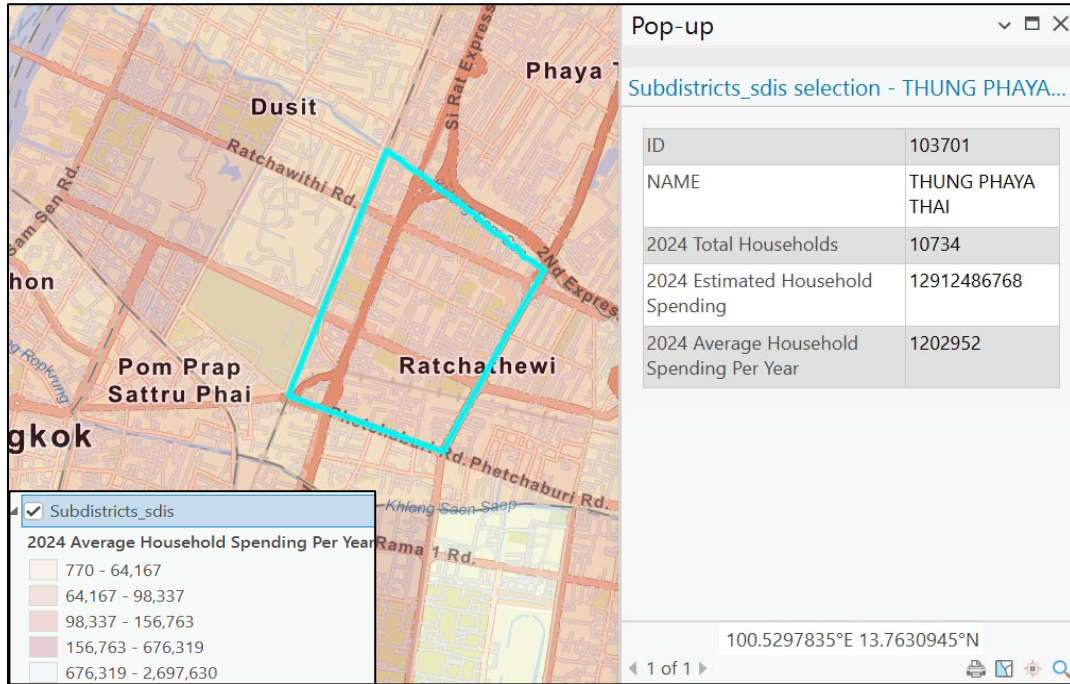


Picture 5: Sample data of Average Income

### 1.5 Average Spending

Average spending household (Baht/Year) was classified by the sub-district level from 2 data sources.

1. In the Bangkok area, the data was provided by the National Statistical Office (NSO) and the Community Development Department (CDD). Since NSO announces the data at the province level only, we use the proportional average household spending to calculate the average spending for each occupation from CDD at the district and sub- district level.
2. In other provinces, the data was provided by The Community Development Department (CDD). The data is collected by population sampling for the discriminant indicators of the quality-of-life survey. The population samplings are only from household members who have lived for over 6 months in the household.



Picture 6: Sample data of Average Spending

## Methodology

Due to the variety of data sources, we strive to make data variables related. The summary of methodology for each dataset is as shown in the following table.

Variables	Area	Data Source	Base	Data updated in year	Frequency	Methodology	Remark
Household	The whole country	Department of Provincial Administration (DOPA)	Actual Numbers in sub-district (Registered population)	2024	Annual	Actual number from the data source	Thai and non-Thai residence
Population by Age	The whole country	Department of Provincial Administration (DOPA)	Actual Numbers in sub-district (Registered population)	2024	Annual	Actual number from the data source	Thai residence only
Population by Education	The whole country	Ministry of Education, Ministry of Higher Education, Science, Research and Innovation and Department of Provincial Administration (DOPA)	Actual Numbers in sub-district	2024	Annual	<ul style="list-style-type: none"> <li>Kindergarten to High school use actual numbers from the Ministry of Education</li> <li>Diploma or Equivalent, the data was provided by the Ministry of Education at the sub-district level and provided by the Ministry of Higher Education, Science, Research and Innovation at the province level and using the proportion of population by age from the Department of Provincial Administration (DOPA) to distribute data into the sub-district level. (Because there are educational institutions in both Ministries)                             <ul style="list-style-type: none"> <li>Population age 18-22 years for Diploma or Equivalent</li> </ul> </li> <li>Bachelor and Postgraduate degrees use the proportion between the number of degrees/student (at the province level) from the Ministry of Higher Education, Science, Research</li> </ul>	Ministry of Higher Education, Science, Research and Innovation only provides the number of Diplomas or Equivalent, Bachelor or Post-graduate degree students at the province level

Methodology: Esri Thailand 2024 Demographic Data

Variables	Area	Data Source	Base	Data updated in year	Frequency	Methodology	Remark
						and Innovation and degrees per population by age from DOPA, detailed as follows: <ul style="list-style-type: none"> <li>Population age 18-22 years for bachelor's degree</li> <li>Population age 23-39 years for Postgraduate degrees</li> </ul> <ul style="list-style-type: none"> <li>Never Went to School use Population by age from DOPA age 0-1 years</li> </ul>	
Population by Occupation	Bangkok	National Statistical Office (NSO) and NOSTRA	Actual number in province level from NSO, at the district and sub-district level use population density from NOSTRA POIs which does not exceed the total population from NSO	2024	Annual	<ul style="list-style-type: none"> <li>The population density from NOSTRA POIs categorized by occupation at the district and sub-district level</li> <li>Unemployed population is provided by:                             <ul style="list-style-type: none"> <li>No Occupation (population age 0-1 years and 65+ years) and Population who are unemployed.</li> </ul> </li> <li>Population by Education from Ministry of Education in Kindergarten–bachelor's degree.</li> </ul>	National Statistical Office (NSO) only provides the data at the province level.
	Other Provinces	The Community Development Department (CDD)	Actual number in the subdistrict	2024	Annual	<ul style="list-style-type: none"> <li>Actual number from the data source</li> <li>Unemployed population is provided by:                             <ul style="list-style-type: none"> <li>No Occupation (population age 0-1 years and 60+ years) and Population who are unemployed.</li> </ul> </li> </ul>	Thai residence only
Income	Bangkok	National Statistical Office (NSO) and The Community Development Department (CDD)	Actual number at the province level from NSO, at the district and sub-district level use the number from proportion of CDD	2024	Annual	Using the difference proportion of average household income calculated with average income of each occupation.	<ul style="list-style-type: none"> <li>Thai residence only.</li> <li>National Statistical Office (NSO) only provides the number of average household income at the province level.</li> <li>The average income of each occupation is provided by the Community Development Department (CDD).</li> </ul>

Methodology: Esri Thailand 2024 Demographic Data

Variables	Area	Data Source	Base	Data updated in year	Frequency	Methodology	Remark
	Other Provinces	The Community Development Department (CDD)	Actual number of average household income per year in the sub-district	2024	Annual	Actual number from the data source	Thai residence only.
Spending	Bangkok	National Statistical Office (NSO) and The Community Development Department (CDD)	Actual number at the province level from NSO, at the district and sub-district level use the number from proportion of CDD	2024	Annual	Using the difference proportion of average household spending calculated with average spending of each occupation.	<ul style="list-style-type: none"> <li>• Thai residence only.</li> <li>• National Statistical Office (NSO) only provides the average household spending numbers at the province level.</li> <li>• The average spending of each occupation is provided by the Community Development Department (CDD).</li> </ul>
	Other Provinces	The Community Development Department (CDD)	Actual number of average household spending per year at the sub-district level	2024	Annual	Actual number from the data source	Thai residence only.