NEWSLETTER
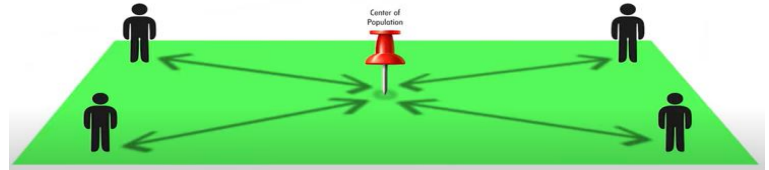
WHERE IS CENTER OF POPULATION IN MALAYSIA?

DID you know DOSM calculates a single point in Malaysia as the **Center of Population**.
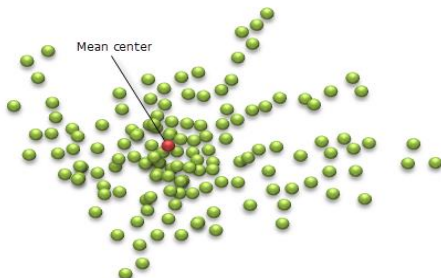

What is the meaning of Mean Center of Population?

➢ The mean center, or centroid, is the point on which a **rigid, weightless map** would balance perfectly, if the population members are represented as points of equal mass.

➢ In demographics, the center of population (or population center) of a region is a geographical point that describes a **centerpoint** of the region's population.

➢ The mean center of population provides a different way to consider how growth is occurring throughout the country.

How Mean Center works:

➢ The mean center is a point constructed from the **average x and y values** for the input feature centroids.

➢ The mean center is the average x- and y-coordinate of all the features in the area. It's useful for **tracking changes** in the distribution or for comparing the distributions of different types of features.

The Mean Center is given as:

$$\bar{X} = \frac{\sum_{i=1}^{n} x_i}{n} \quad , \quad \bar{Y} = \frac{\sum_{i=1}^{n} y_i}{n} \qquad (1)$$

where x_i and y_i are the coordinates for feature i, and n is equal to the total number of features.

The Weighted Mean Center extends to the following:

$$\bar{X}_w = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i} \quad , \quad \bar{Y}_w = \frac{\sum_{i=1}^{n} w_i y_i}{\sum_{i=1}^{n} w_i} \qquad (2)$$

where w_i is the weight at feature i.

Mapping changes in the mean center of a country's population location over time is a useful tool for starting discussions about population redistribution
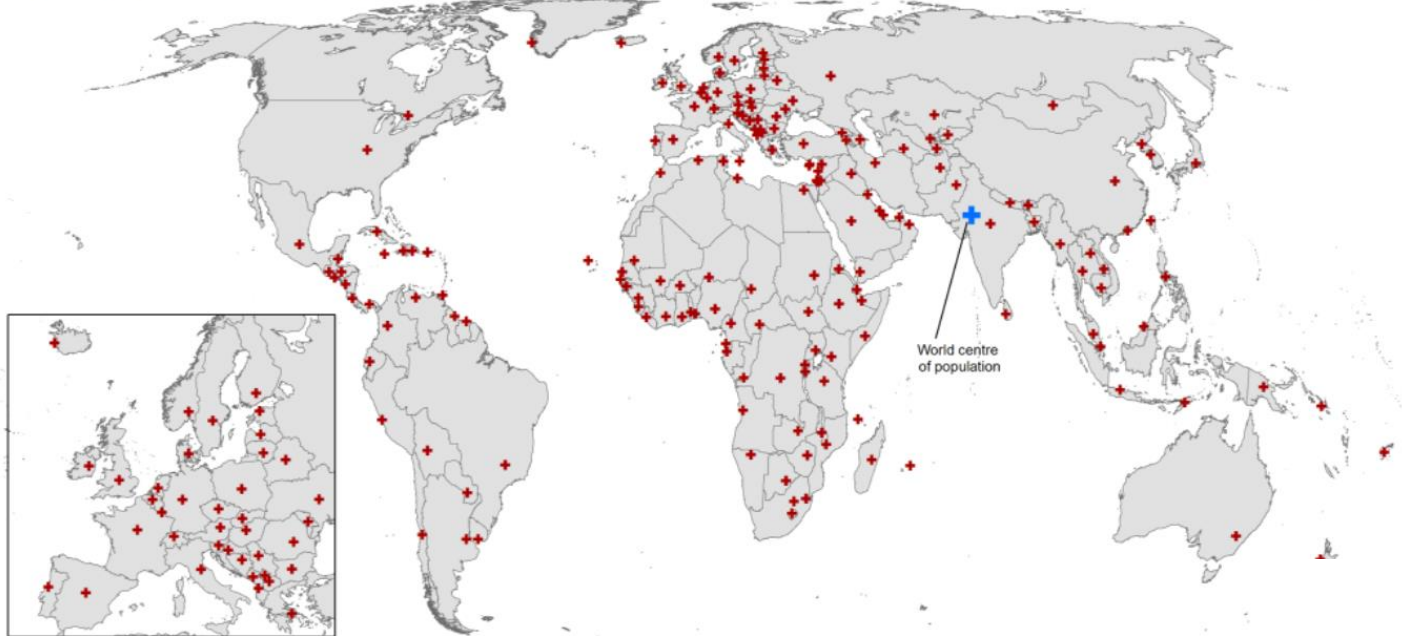(Ulf Ernstson, 2015)

Sources:-https://desktop.arcgis.com/en/arcmap/latest/tools/spatial-statistics-toolbox/h-how-mean-center-spatial-statistics-works.htm
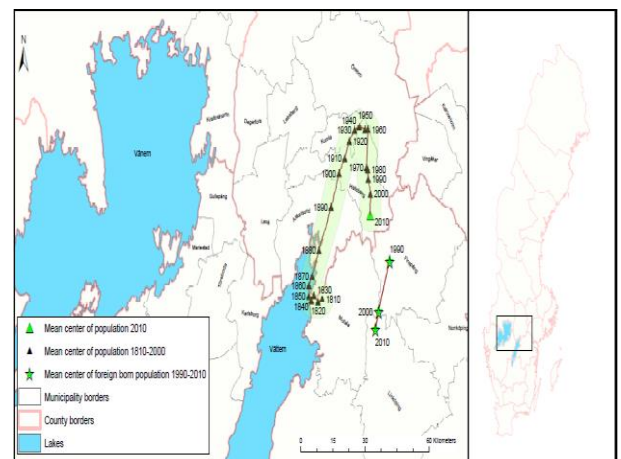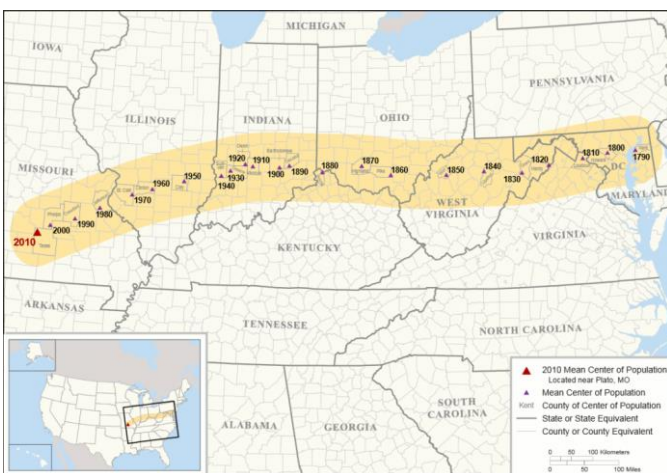
CENTER OF POPULATION AROUND THE WORLD

The map below shows the center of population for each nation globally, the same number of people east and west and north and south of the point. The map was created using gridded population data of the Socioeconomic Data and Applications Center.

Centre of population for each country in the world (equal number of people north and south and east and west of point)

The map below :the mean center of the United States population from 1790 to 2010.

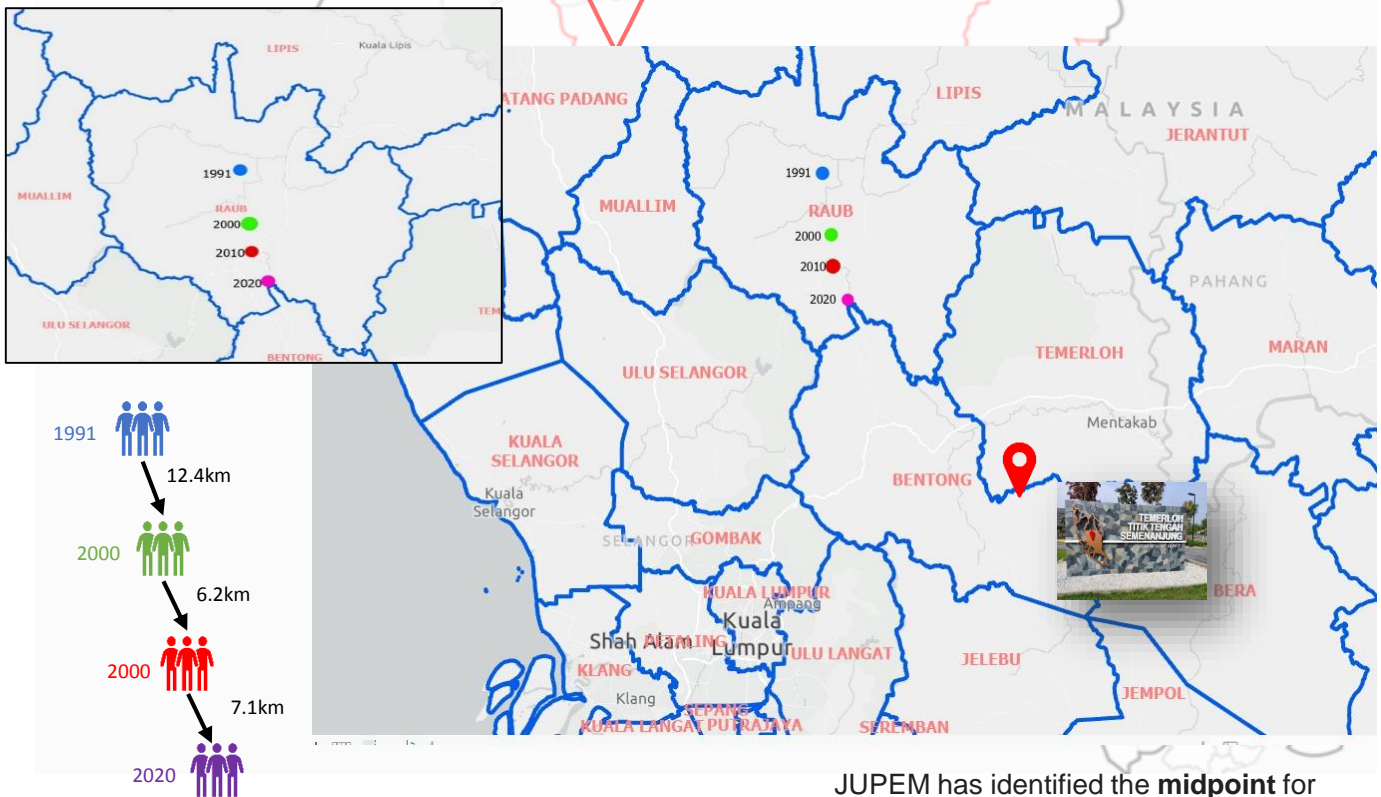The map below: the mean center of the Sweden population from 1810 to 2010.

https://vividmaps.com/centre-of-population/

CENTER OF POPULATION
OVER THE LAST 30 YEARS – PENINSULAR MALAYSIA

DOSM has released the mean center of population for Malaysia based on the 2020 Census by using the smallest unit of statistical boundary. This measure represents the middle point of the country from a population-weighted perspective.

The mean center of population for Peninsular Malaysia is located in **Raub district** based on census data for 1991,2000,2010 and 2020. The analysis of mean center shows that over the last 30 years, the population has moved from **north to south**, showing the overall population shifting to the southwest (Bentong district). It is estimated that this transition distance over the census period is between **6 - 12km**.

This phenomenon indicates that the distribution of the population is more concentrated in the west coast of the peninsular Malaysia especially in the Klang Valley. Based on the findings of the 2020 census, the composition of the population of Klang Valley was **7.7 million**, which is **23.8%** of the entire Peninsular Malaysia.

1991
12.4km
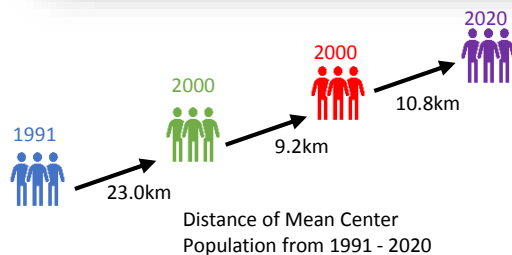2000
6.2km
2000
7.1km
2020

Distance of Mean Center
Population from 1991 - 2020
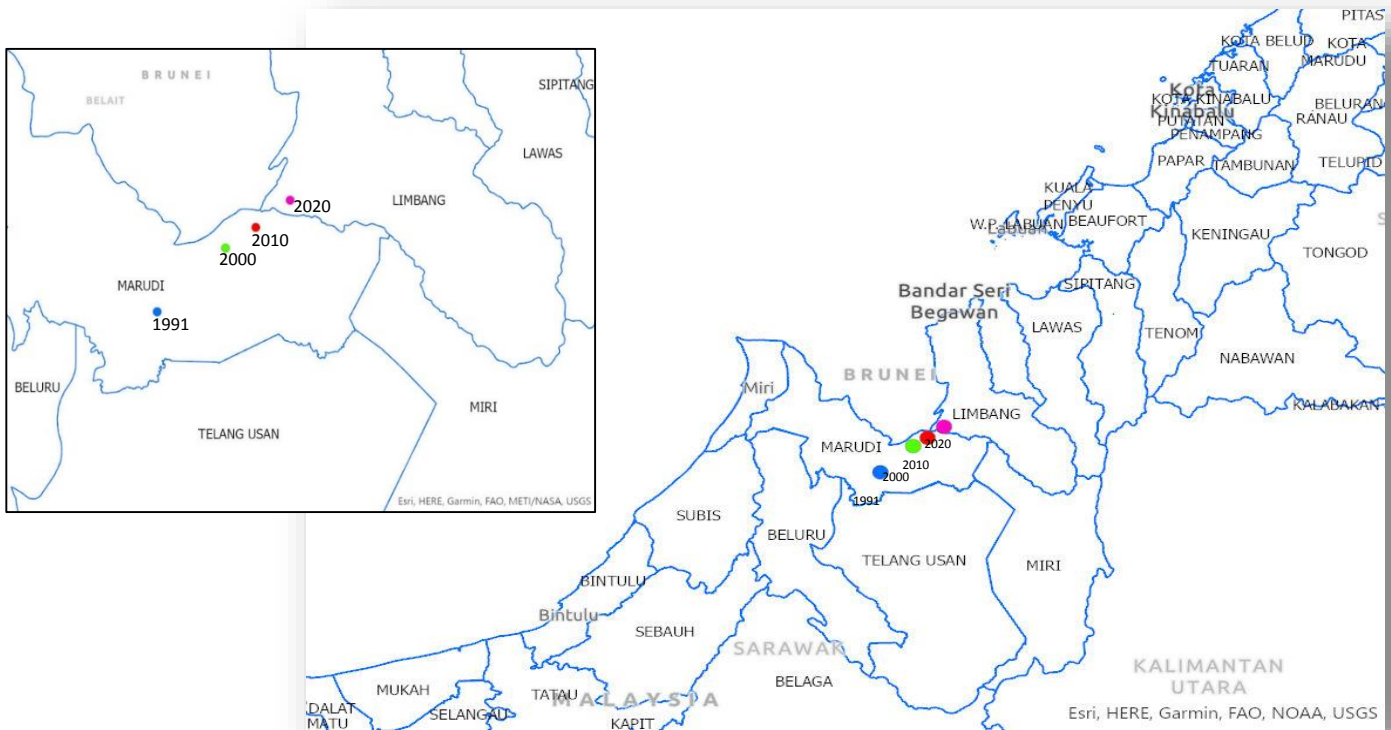
QUICK FACT !!
Population growth rate in Peninsular Malaysia
1991 - 2000 (2.2%);
2000 - 2010 (2.1%); and
2010 - 2020 (1.9%)

JUPEM has identified the **midpoint** for peninsular Malaysia is located in **Kampung Paya Siput, Lanchang,Temerloh**

CENTER OF POPULATION
OVER THE LAST 30 YEARS – EAST MALAYSIA

Meanwhile, in East Malaysia (consisting of Sabah, WP Labuan, and Sarawak), over the last 30 years, the main population center has moved from **west to east**, showing the population shifting to the east (Limbang district). It is estimated that this transition distance over the census period is between **9 and 23 km**.

This situation indicates that the population is more concentrated in the east of East Malaysia, which is in the State of Sabah. Based on the findings of the 2020 census, the population of Sabah is 3.4 million, compared to Sarawak (2.5 million) and Labuan (0.09 million).

QUICK FACT ‼
Population growth rate in East Malaysia
1991 - 2000 (2.8%);
2000 - 2010 (2.2%); and
2010 - 2020 (0.6%)

Distance of Mean Center Population from 1991 - 2020

1991 → 2000 : 23.0km
2000 → 2000 : 9.2km
2000 → 2020 : 10.8km