ASEAN DATA SCIENCE EXPLORERS

MAPÚA UNIVERSITY

Building a Sustainable Urban Mobility in ASEAN

Analyzing effects of transportation in ASEAN on climate change and recommending a solution that will help decongest and lessen greenhouse gasses from transportation

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Urbanization has caused increased transportation vehicles in different ASEAN cities. Transportation is one of the significant contributor of 

greenhouse gasses that leads to  **global warming and climate change.**

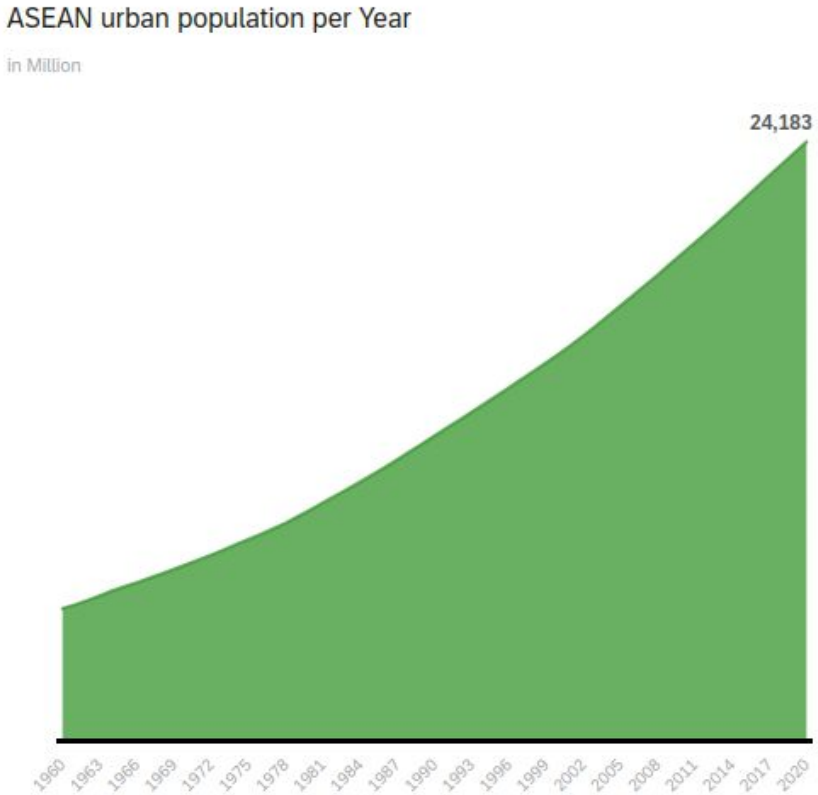
Having congested roads  also causes **unsustainable transportation system** that is not good for social well being.

There has been a steady **increase of urban population** in ASEAN countries throughout the years

264,302,585
urban population 2010

333,758,206
urban population 2020

26.49%
Increase in 10 years



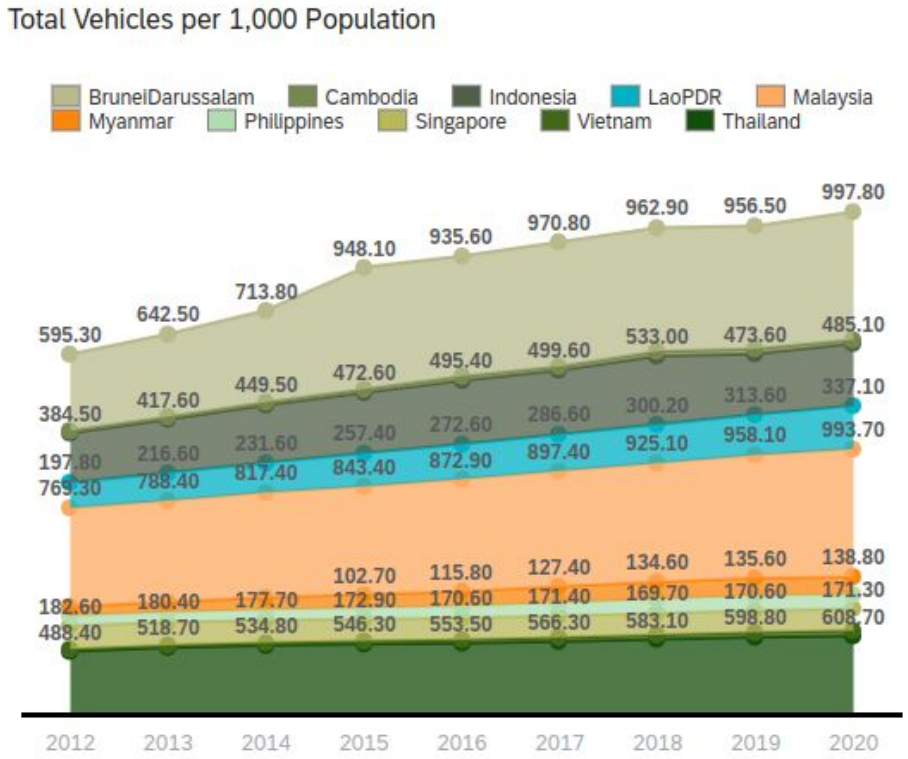
Source: ASEAN Statistical Yearbook 2022
(Urban population (% of total population))

With the increase of urban population also comes an **increase in vehicles in roads**

2,802.72
(per 1k population)
2012

3,912.20
(per 1k population)
2020

39.57%
Increase in 8 years for all ASEAN countries

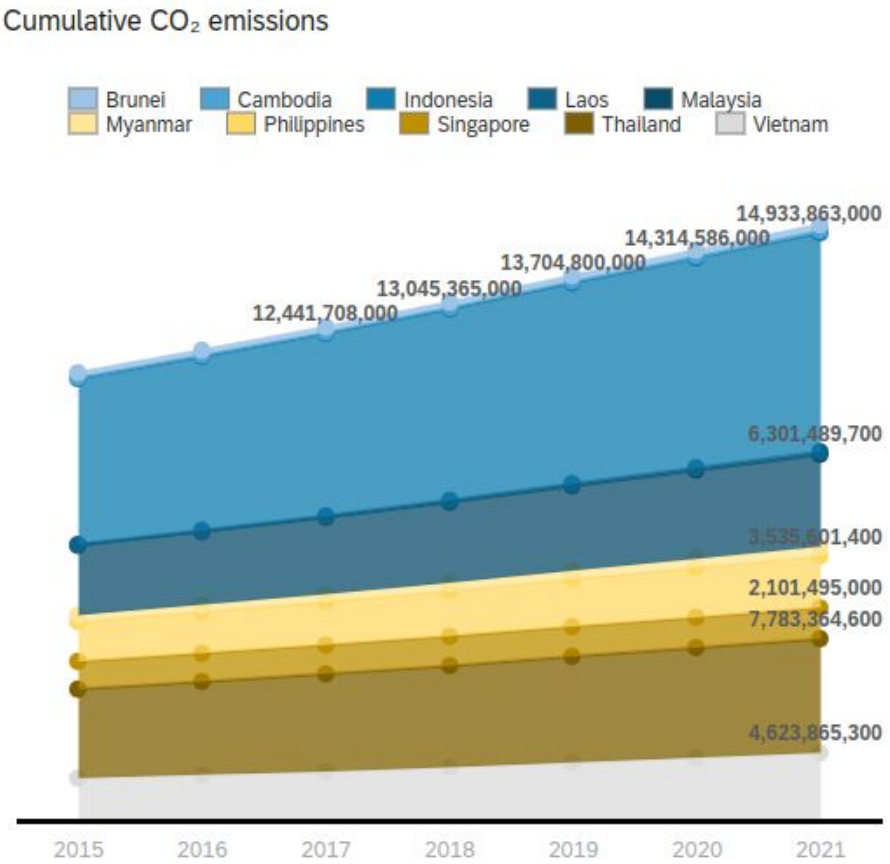


Source: ASEAN Statistical Yearbook 2022
(ASEAN Road Fleet, 2012-2021)


Increase in Urban Population


Increase in transportation Vehicles


Increase of greenhouse emissions



Source: Our World in Data based on the Global Carbon Project
OurWorldInData.org/co2-and-greenhouse-gas-emissions

This table is based on the cumulative CO2 emissions in ASEAN countries, it is the running sum of CO_2 emissions produced from fossil fuels and industry

it shows that there is a steady yearly increase for all the countries.

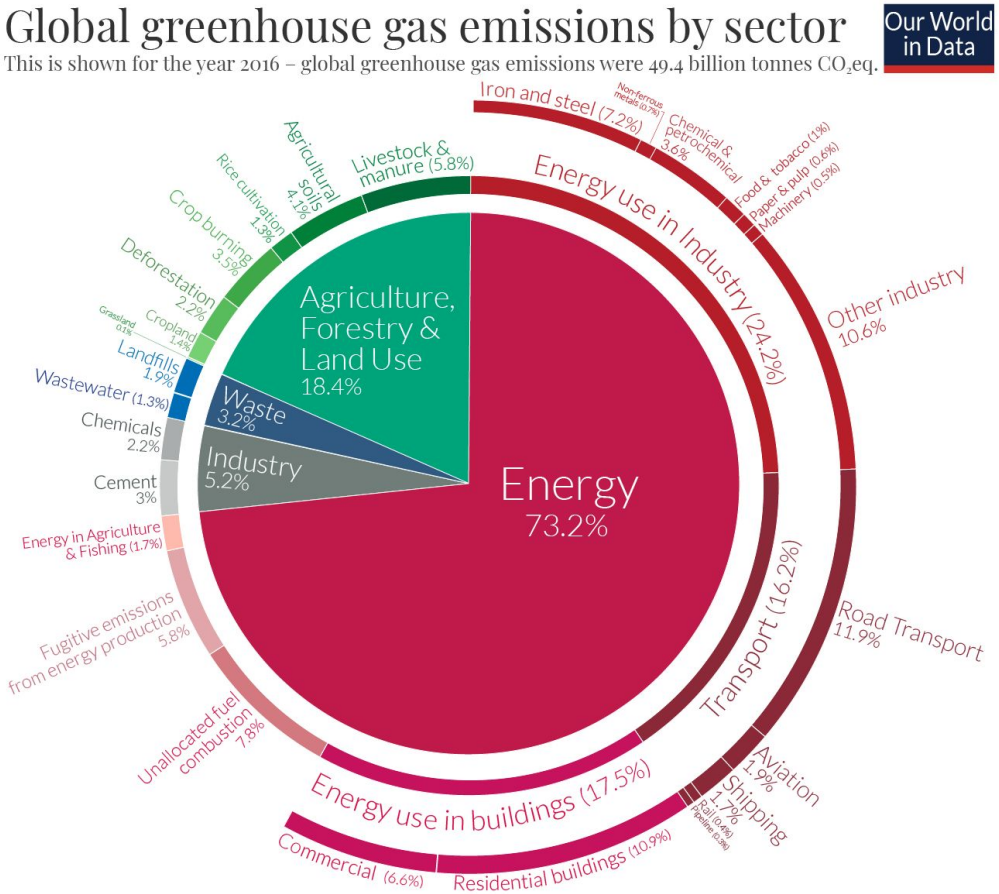
Now let's see the percentage of contribution of gas emissions for each sector

16.2%

from transportation

11.9%

Are from Road Transport



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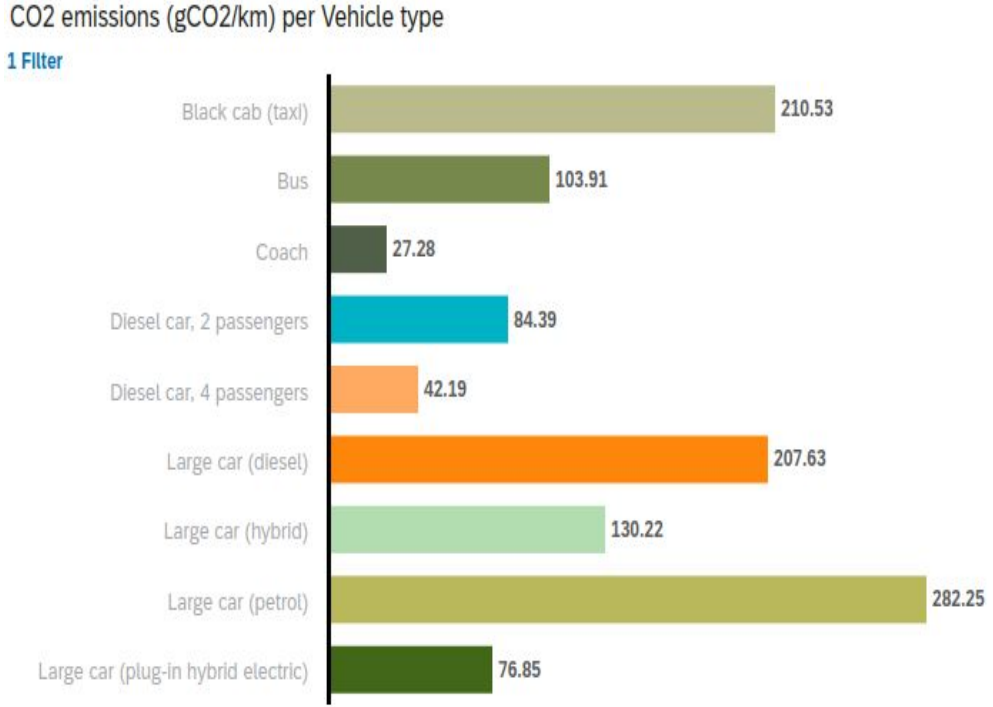
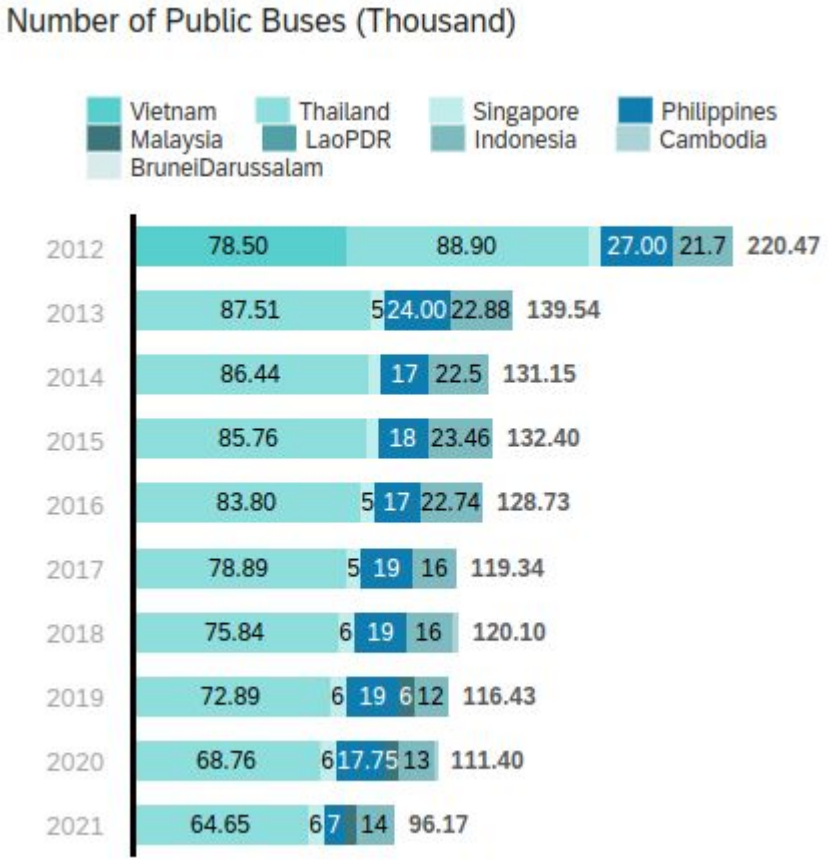


Source: Our World on Data
(CO_2 emissions by mode of transport, 2018)

To dig in further, let's see that ranking of road vehicles that emits the most CO2:

1. **Non-electric cars (taxi, small/large diesel and petrol cars)** — **826.46** gCO2/km
2. **Hybrid cars** — **207.07** gCO2/km
3. **Bus and coach** — **131.19** gCO2/km



Source: ASEAN Statistical Yearbook 2022
(ASEAN Road Fleet, 2012-2021)

From the previous slide, it shows that the **last ranking vehicle type that emits carbon emissions are buses and coach**.

However, based on data of some ASEAN countries, there are decreasing number of public buses yearly.

25.5%

Decrease in the number of public buses from 2012 to 2020

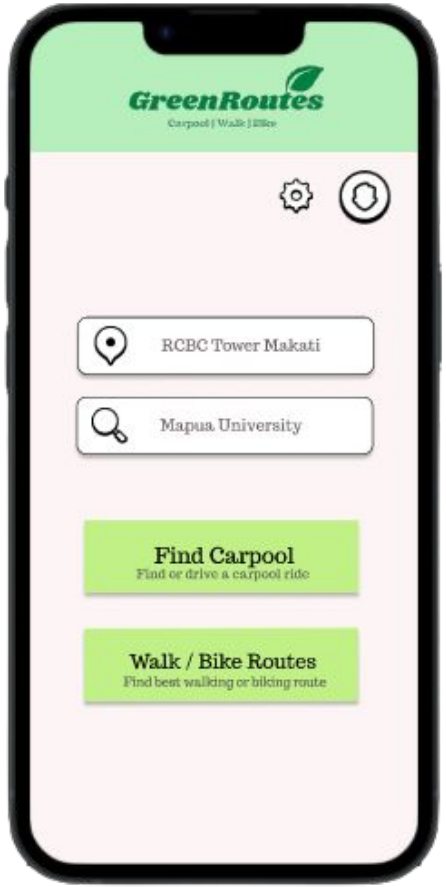
Issues	Opportunities
Increase in transportation vehicles led to increase in carbon emissions	**Lessen number of vehicles out in the road**
Number one vehicle type that emits CO_2 are large petrol and diesel cars	**Entice people to walk, bike, or carpool to have more people in one vehicle**
There are decreasing number of buses which are more eco friendly	**Make accessible alternatives aside from public transpo or private vehicles**

Recommendation

GreenRoutes

Carpool | Walk | Bike

A platform for connecting users to different commute options with the idea of creating an online network or community to promote **carpooling, biking routes, and walking routes** in their city.



Features:

Users can look for available carpools in their route. It will display carpool drivers information and their time and location of departure

If your location is near, look for the best biking or walking route where there is a community driven map where it will show updates from fellow users

Carpooling

- Users can look for available carpools in their route
- Users will pay the driver proper amount

Benefits:

- Drivers can earn from their extra income from carpooling
- Minimized number of cars out in the road; lessen single passenger cars
- Users are less stressed from struggle of inconvenient commute

Biking or walking routes

Get the best route to your destination from people in the same area

Will have an interactive community driven map where it will show updates from fellow users

Updates will include comments like:

- Safe for walking
- Shortcut to your destination
- Wide roads for bike
- Rough roads
- Less polluted route

SDG Targets

The use of a platform like GreenRoutes will help in lessening the carbon emissions from transport and reducing climate change by enticing people to use less cars, bike, or walk

The use of a platform like GreenRoutes will provide a sustainable transport systems by giving more sustainable options for commuting aside from traditional commuting vehicles like buses or taxis

Using GreenRoutes is a collective effort from its users to promote a sustainable urban mobility in their area that will help reduce climate change and carbon emissions

References

ASEAN Statistical Yearbook 2022. Retrieved from: https://www.aseanstats.org/wp-content/uploads/2023/04/ASYB_2022_423.pdf

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