

Transportation impacts on environment

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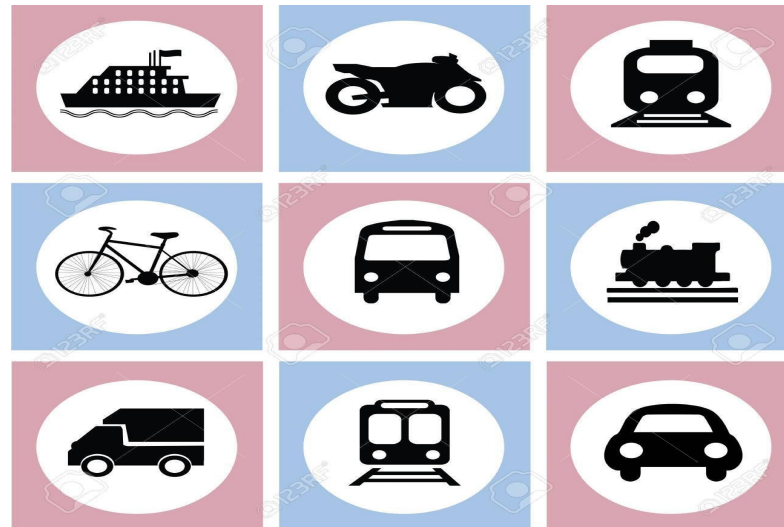
History of Transportation ?

- ▶ International trade was the driving motivator behind advancements in global transportation in the Pre Modern world. there was a single global world economy with a worldwide division of labor and multilateral trade from 1500 onward. The sale and transportation of Textile, silver and gold, spices, slaves and luxury goods throughout Afro-Eurasia and later the New World would see an evolution in overland and sea trade routes.



The development of Transportation

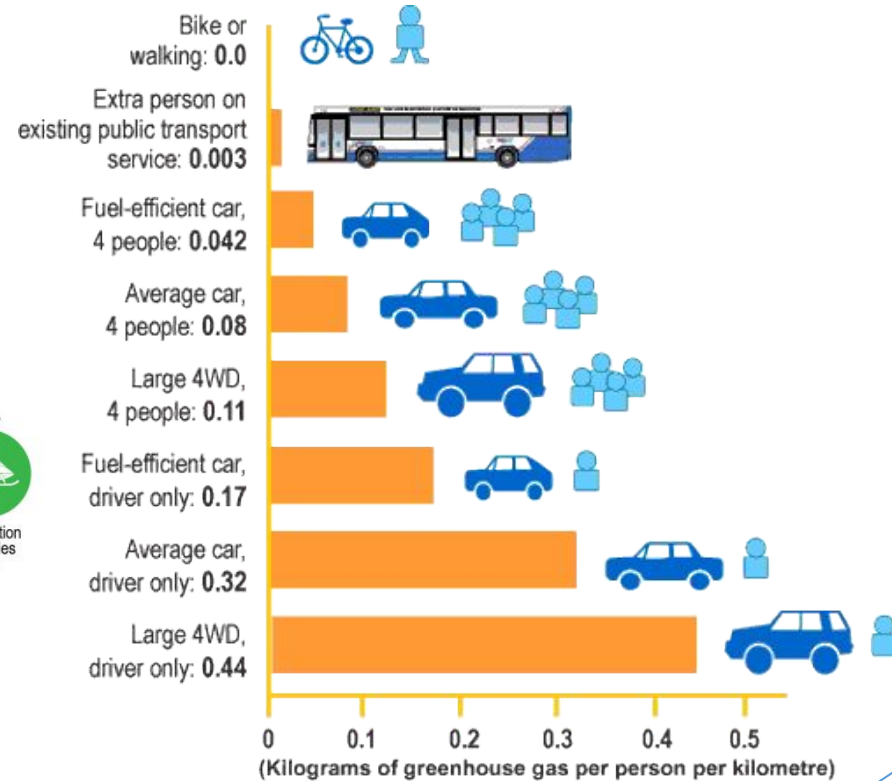
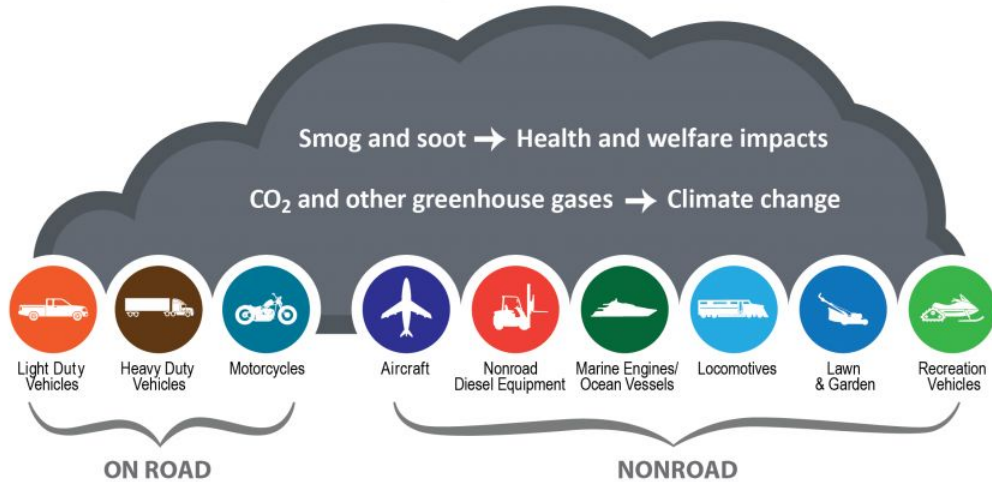
- ▶ Development can be defined as improving the welfare of a society through appropriate social, political and economic conditions. The expected outcomes are quantitative and qualitative improvements in human capital (e.g. income and education levels) as well as physical capital such as infrastructures (utilities, transport, telecommunications).



Sectors

- ▶ The following figure show the impact of the different transportation :

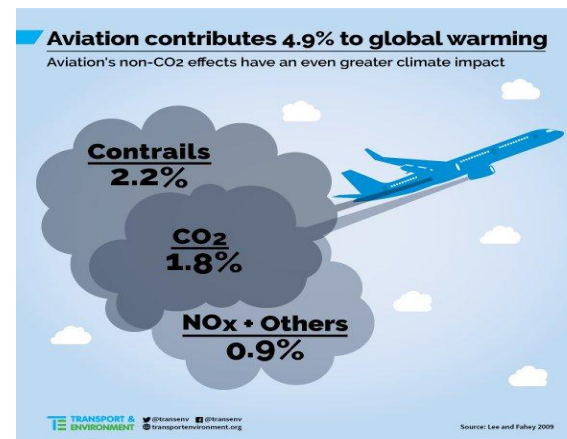
Sources of Transportation Air Pollution



Greenhouse gas emissions from different forms of transport

Aviation

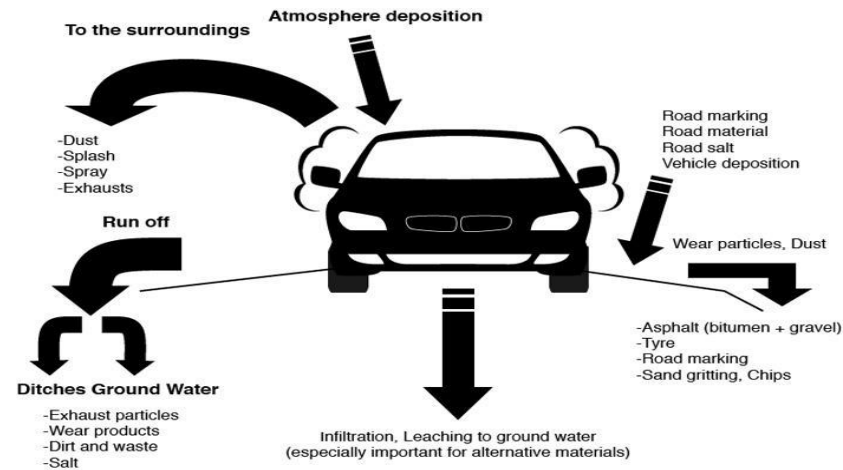
- ▶ Aviation emissions vary based on length of flight. For covering long distances, longer flights are a better investment of the high energy costs of take-off and landing than very short flights, yet by nature of their length inevitably use much more energy. CO₂ emissions from air travel range from 0.24 kg CO₂ per passenger mile (0.15 kg/km per passenger) for short flights down to 0.18 kg CO₂ per passenger mile (0.11 kg/km per passenger) for long flights. Researchers have been raising concern about the globally increasing hypermobility of society, involving frequent and often long distance air travel and the resulting environmental and climate impacts.



Road transport

► Cars:

Car pollutants cause immediate and long-term effects on the environment. Car exhausts emit a wide range of gases and solid matter, causing global warming, acid rain, and harming the environment and human health. Engine noise and fuel spills also cause pollution.



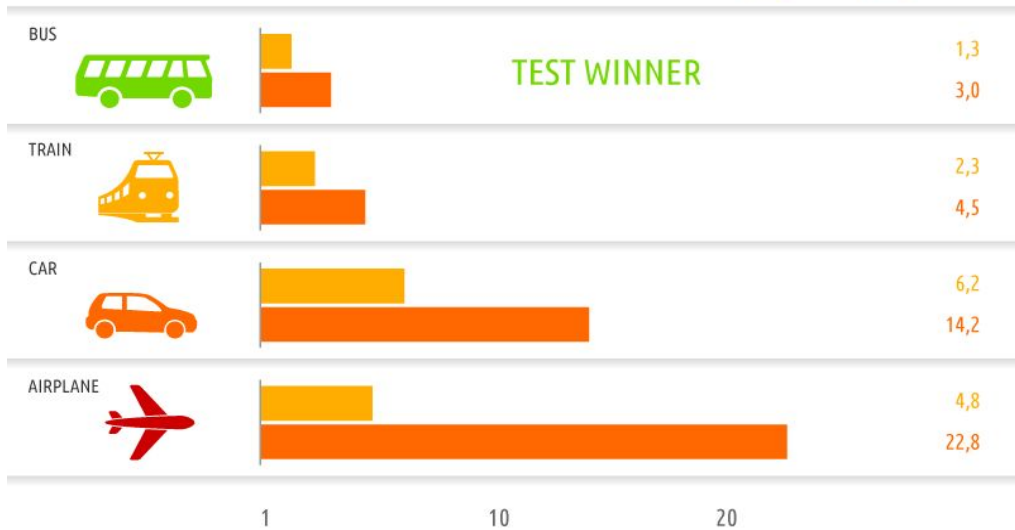
► Buses:

On average, inner city commuting buses emit 0.3 kg of CO2 per passenger mile (0.18 kg/km per passenger), and long distance (>20 mi, >32 km) bus trips emit 0.08 kg of CO2 per passenger mile (0.05 kg/km per passenger). Road and transportation conditions vary, so some carbon calculations add 10% to the total distance of the trip to account for potential traffic jams, detours, and pit-stops that may arise.

STATISTICS FROM ENVIRONMENT

SOURCE: FEDERAL ENVIRONMENT AGENCY

Usage in liters Pollutant in kg



□ Rails:

On average, commuter rail and subway trains emit 0.17 kg of CO₂ per passenger mile (0.11 kg/km per passenger), and long distance (>20 mi, >32 km) trains emit 0.19 kg of CO₂ per passenger mile (0.12 kg/km per passenger). Some carbon calculations add 10% to the total trip distance to account for detours, stop-overs, and other issues that may arise. Electric trains contribute relatively less to the pollution as pollution happens in the power plants which are a lot more efficient than diesel driven engines. Generally electric motors even when accounting for transmission losses are more efficient than internal combustion engines with efficiency further improving through regenerative braking .



The Environmental impact

- ▶ The environmental impact of transport is significant because transport is a major user of energy, and burns most of the world's petroleum. This creates air pollution, including nitrous oxides and particulates, and is a significant contributor to global warming through emission of carbon dioxide . Within the transport sector, road transport is the largest contributor to global warming.



Environmental Dimensions

