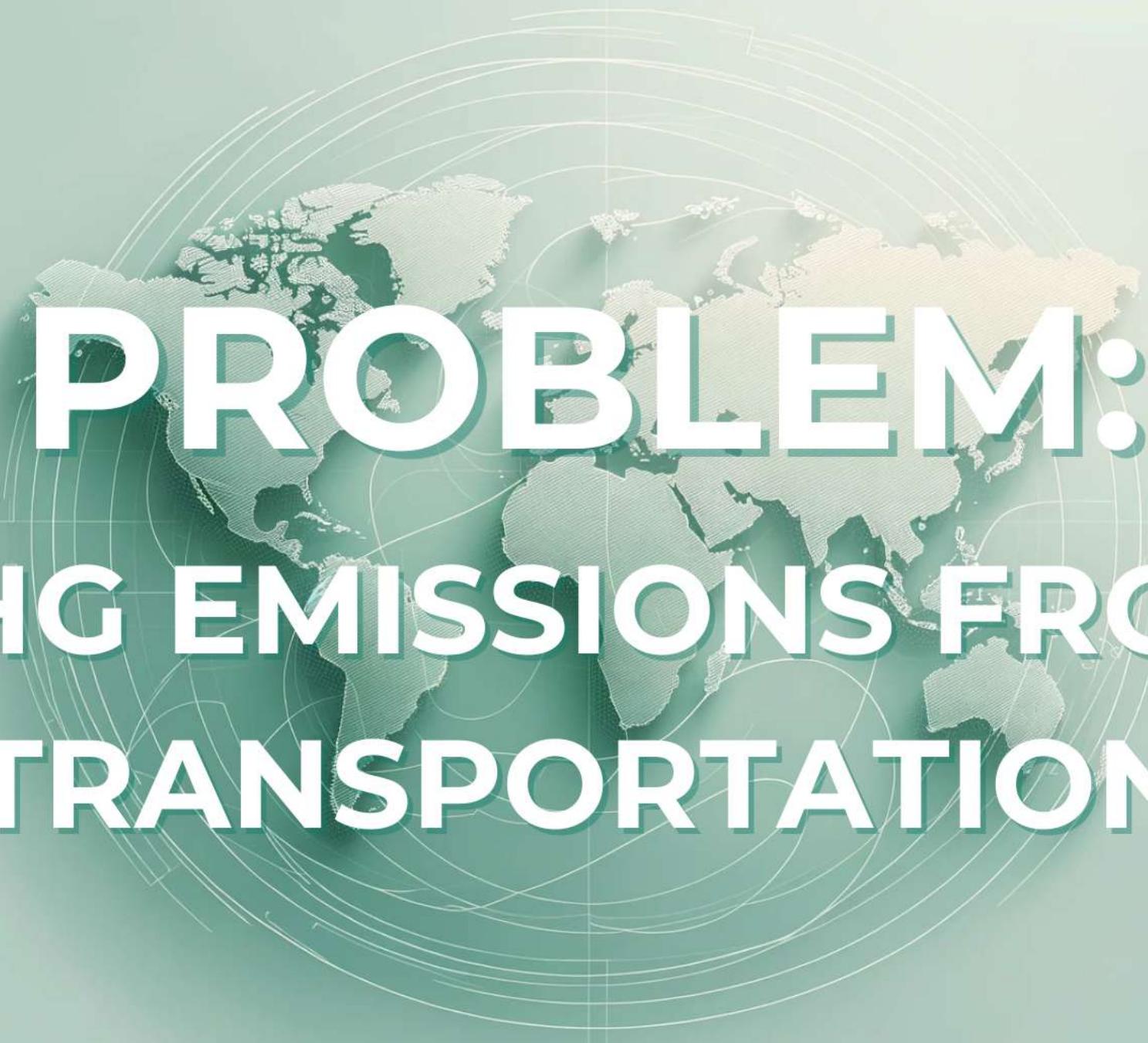


# **INFLUENCE OF TRANSPORTATION ON CLIMATE CHANGE**

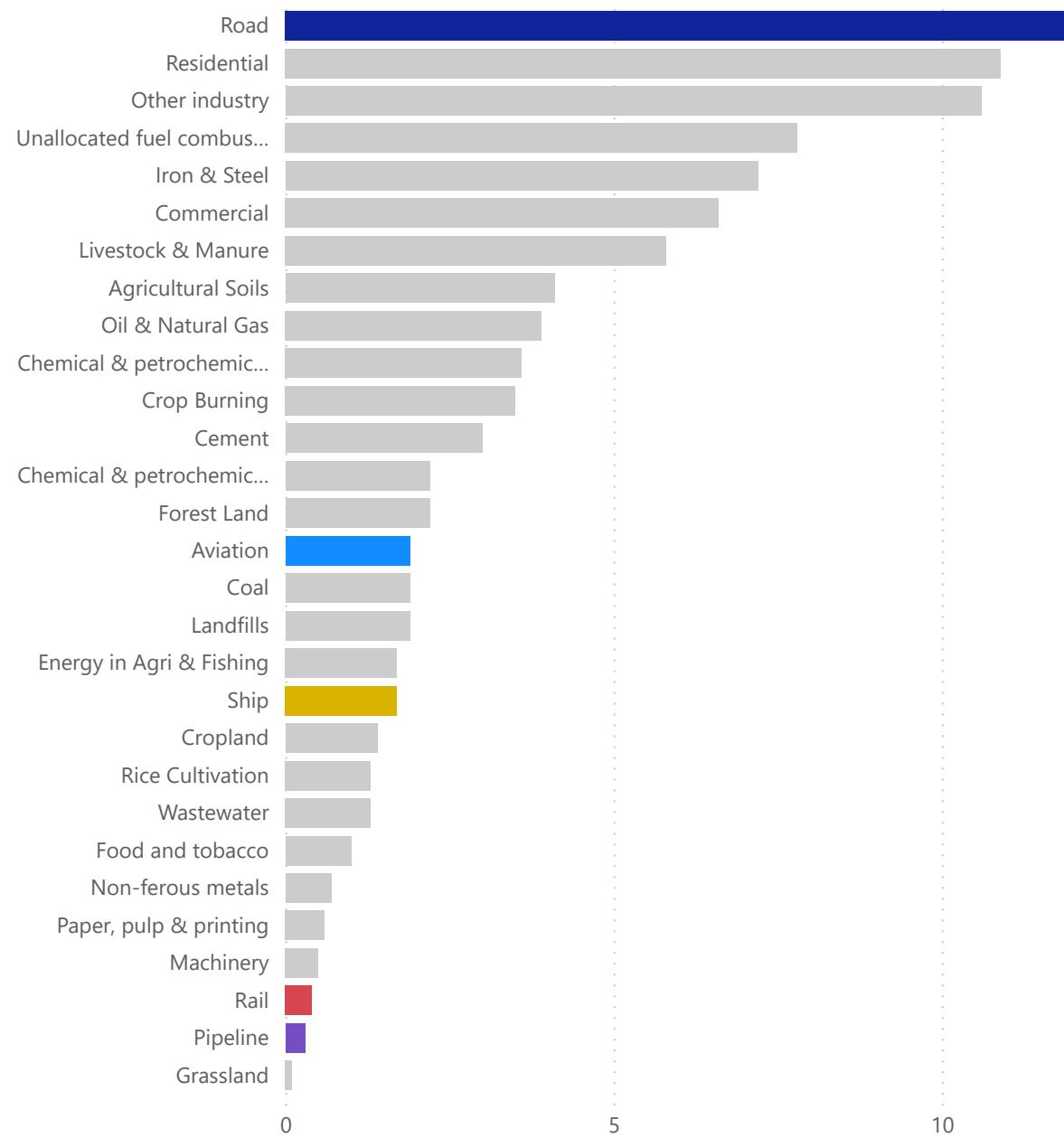
**A comparative study of India, China & United States**  
**Power BI Project by Rutuj Doshi**



# **PROBLEM:**

## **GHG EMISSIONS FROM TRANSPORTATION**

## Share of global greenhouse gas emissions (%) by Sub-sector



## Individual % Share by Sub Sector

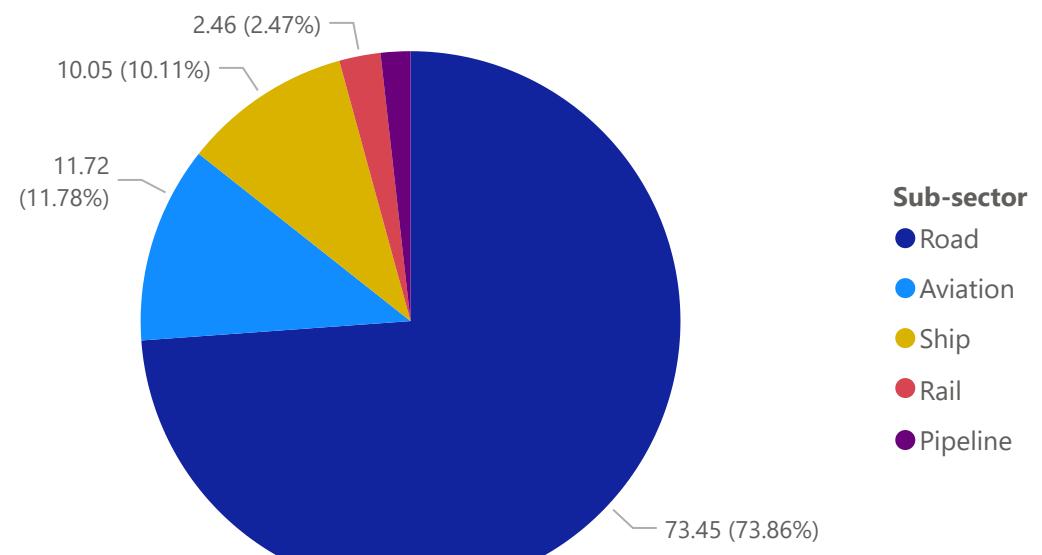
Road

**11.90**

## Total % Share by Transport as a Sub-sector

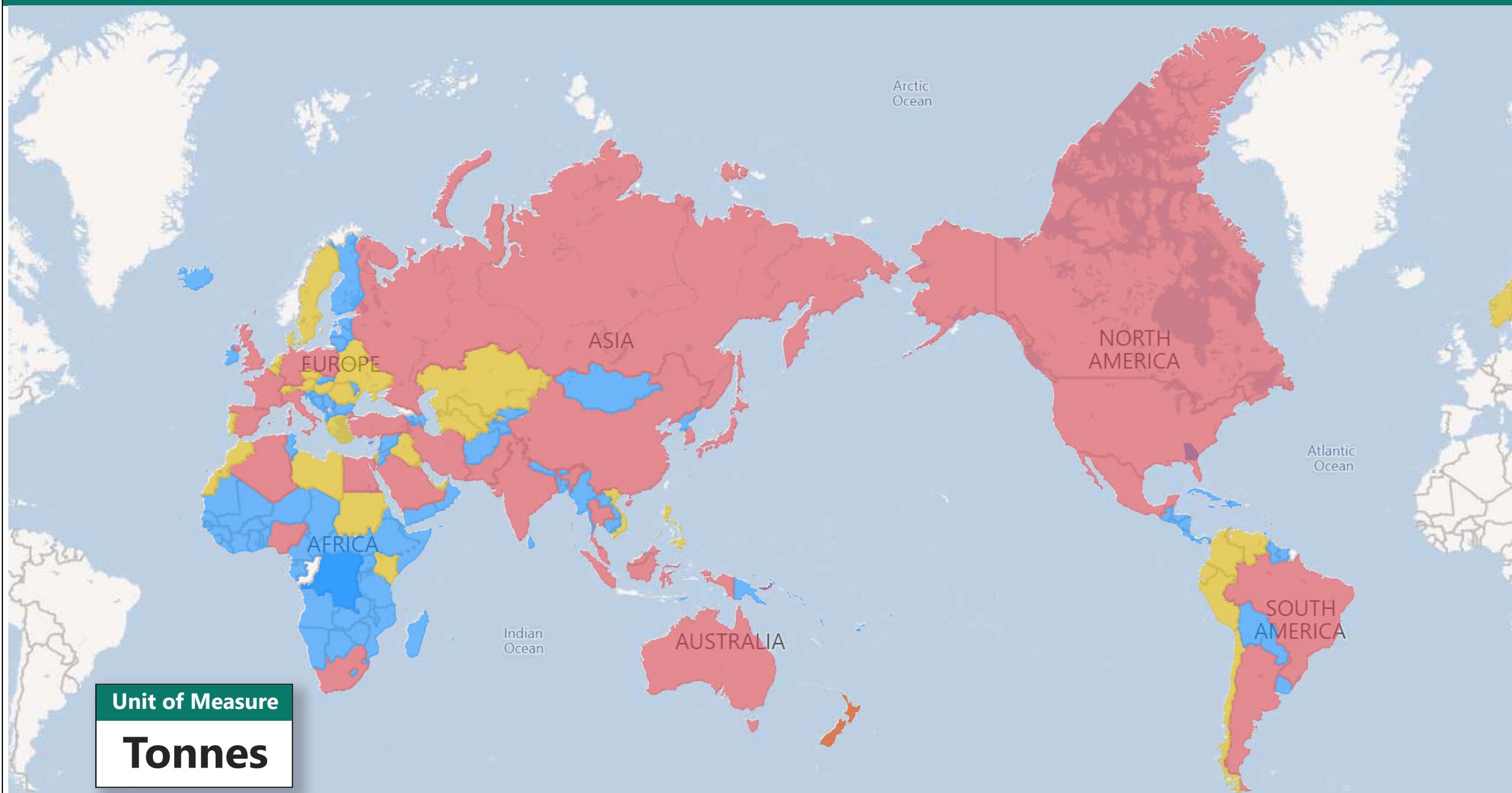
**16.2%**

## % Share of Transport Category by each Sub-sector



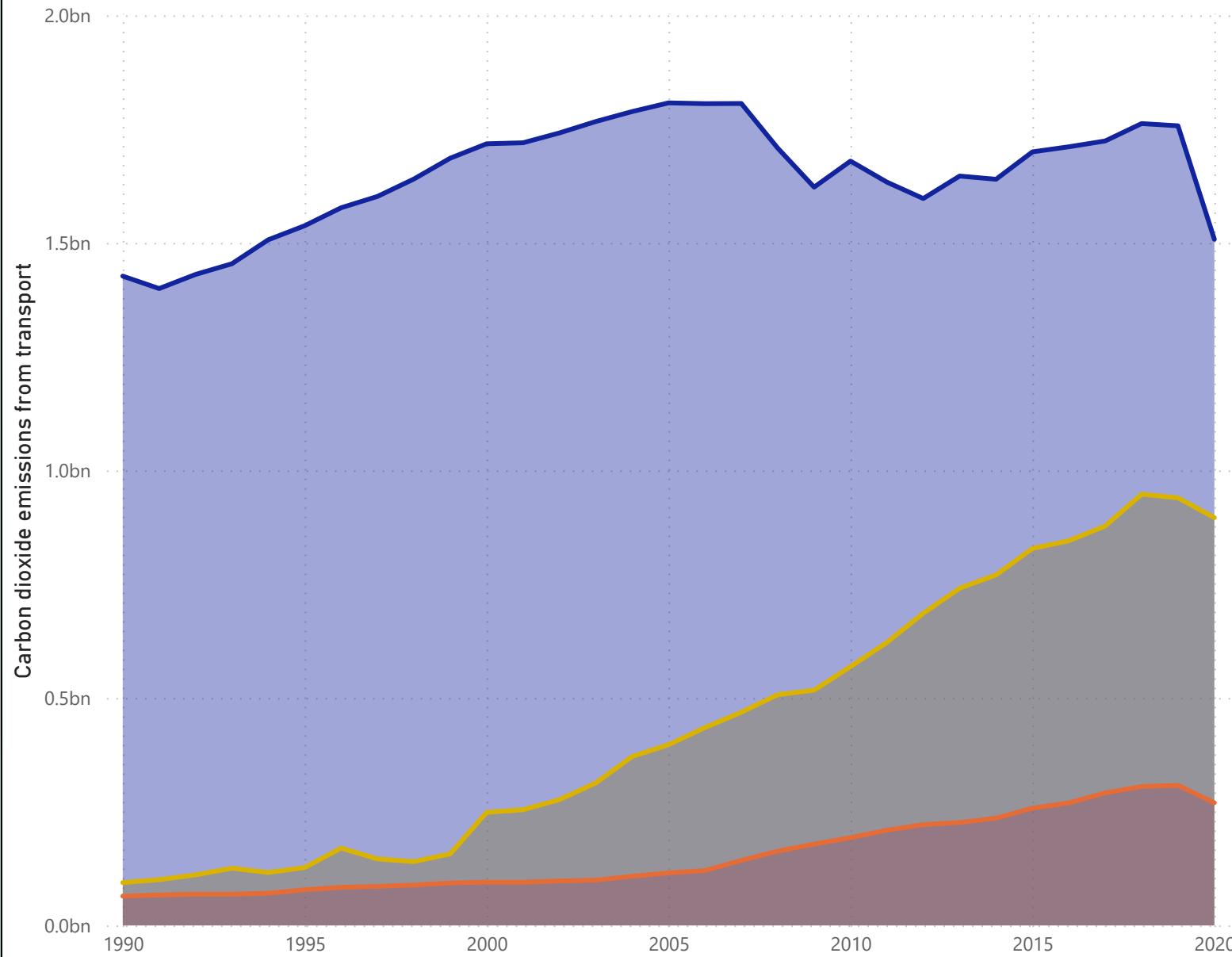
- Sub-sector**
- Road
- Aviation
- Ship
- Rail
- Pipeline

## World Map indicating Global CO2 Emissions from Transport as of 2020



## CO2 Emissions from transport over the span of 30 years from India , China & United States

Entity ● China ● India ● United States



## India , China & United States

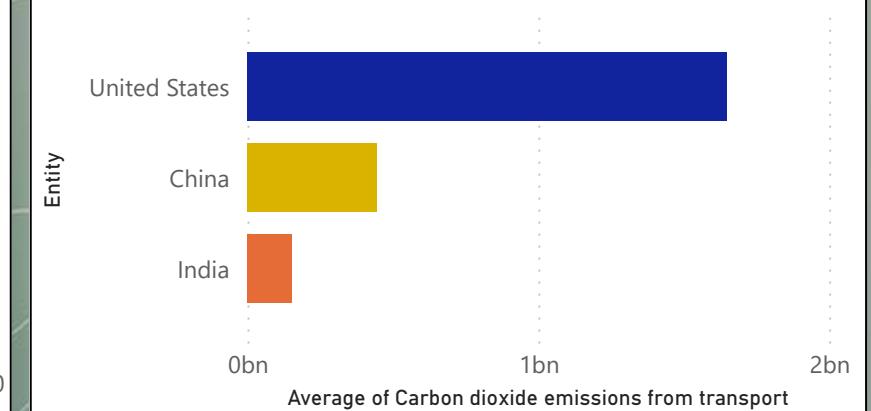
Entity ● United States ● China ● India



### Total Transport Emissions

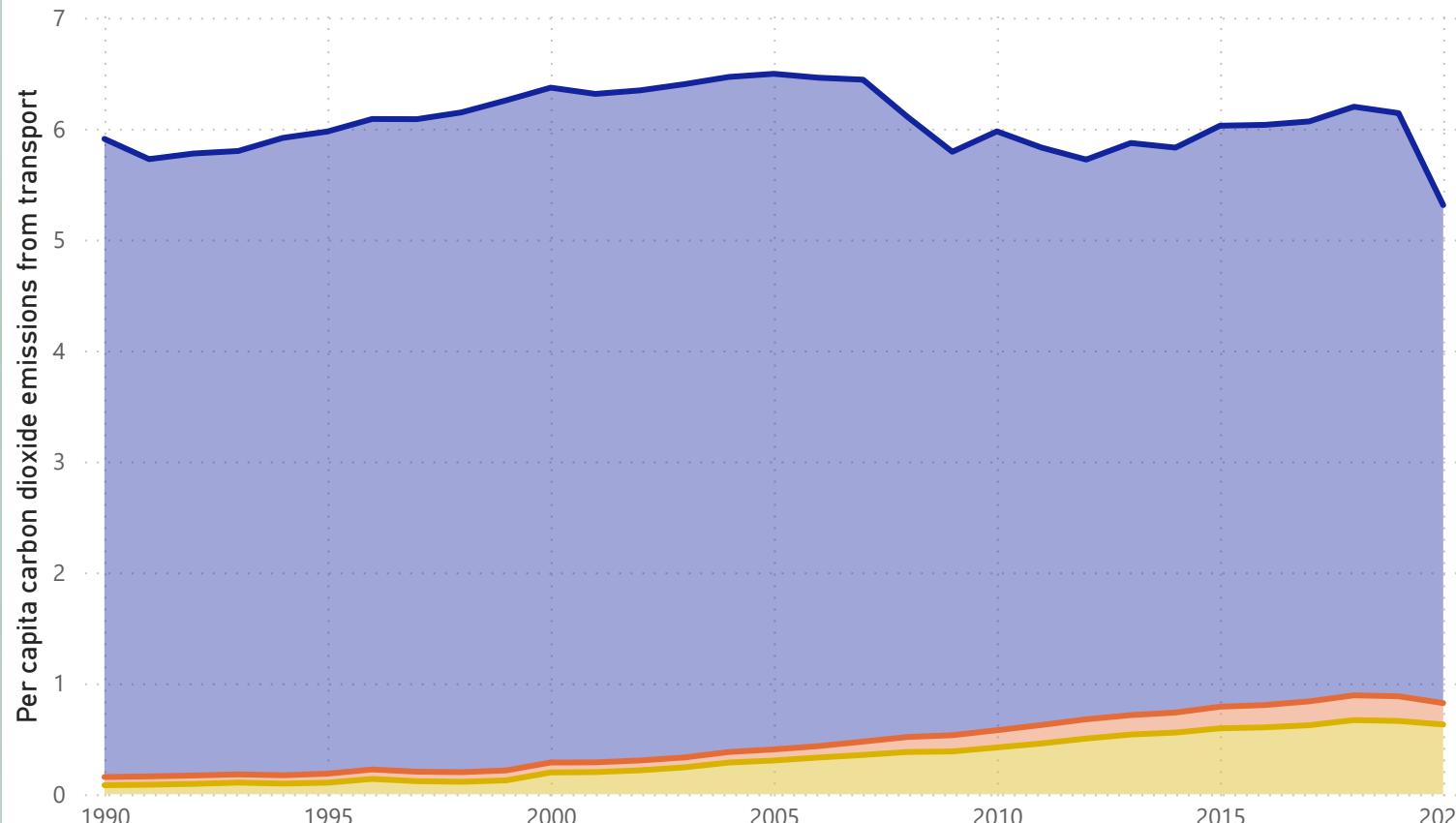
This interactive shows the emissions of carbon dioxide from transport each year. This includes road, train, bus and domestic air travel but *does not include international aviation and shipping*.

### Average Transport Emissions over the span of 30 years.



## Per Capita CO2 Emissions from Transport over 30 years from India, China & United States

Entity ● China ● India ● United States



## Per Capita CO2 Emissions

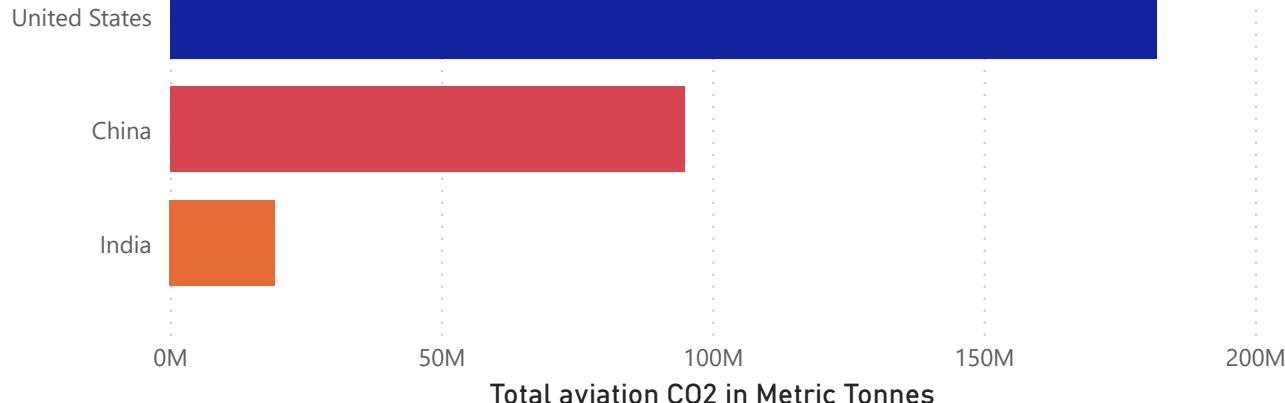
- Per capita CO2 emissions from transport simply means the average amount of carbon dioxide (CO2) each person produces from using vehicles and other forms of transportation. It's calculated by dividing the total CO2 emissions from transport in a place by its population.
- This includes road, train, bus and domestic air travel but *does not* include international aviation and shipping.

## India , China & United States



# Total aviation CO2 (Mt) of India , China & United States in 2018

Country ● United States ● China ● India



## India, China & United States

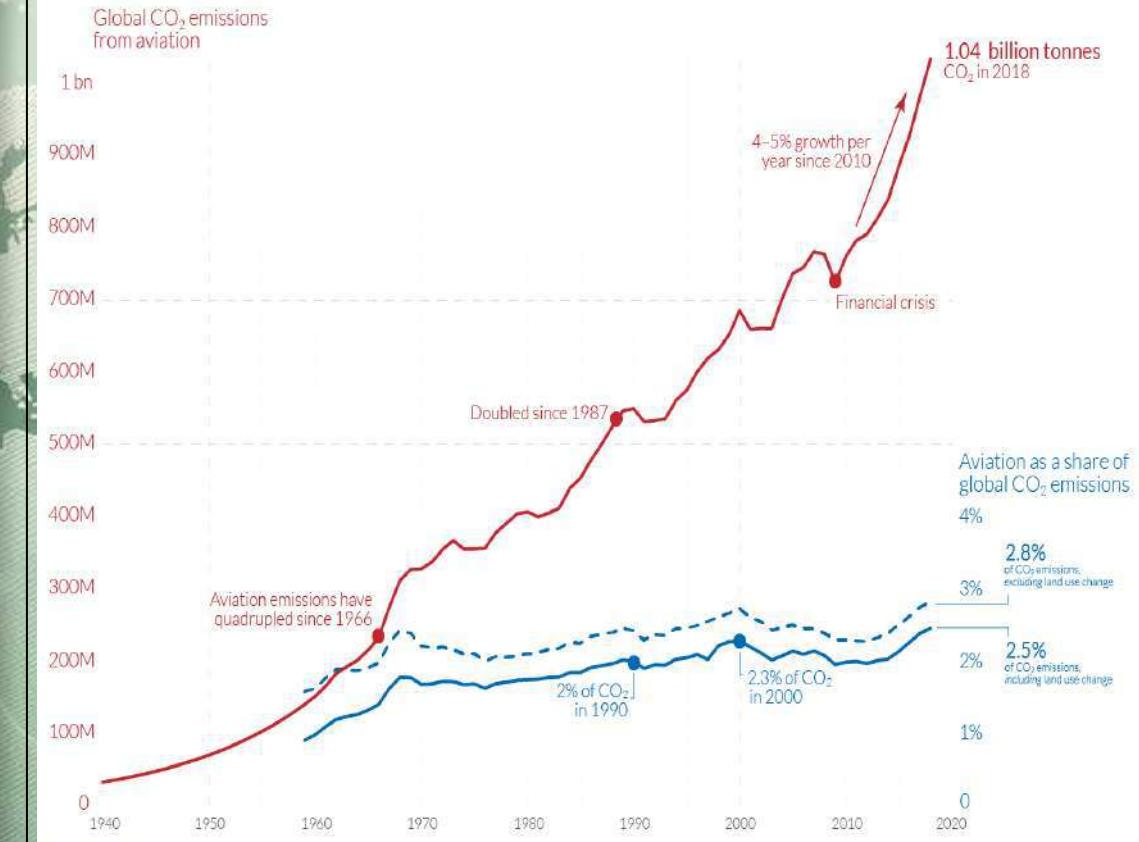


Microsoft Bing

## Global carbon dioxide emissions from aviation

Aviation emissions includes passenger air travel, freight and military operations. It does not include non-CO<sub>2</sub> climate forcings, or a multiplier for warming effects at altitude.

Our World  
in Data



## Percentage (%) Share of Global Emissions by Aviation

China

2018

12.71

## Global Emissions by Aviation in Metric Tonnes

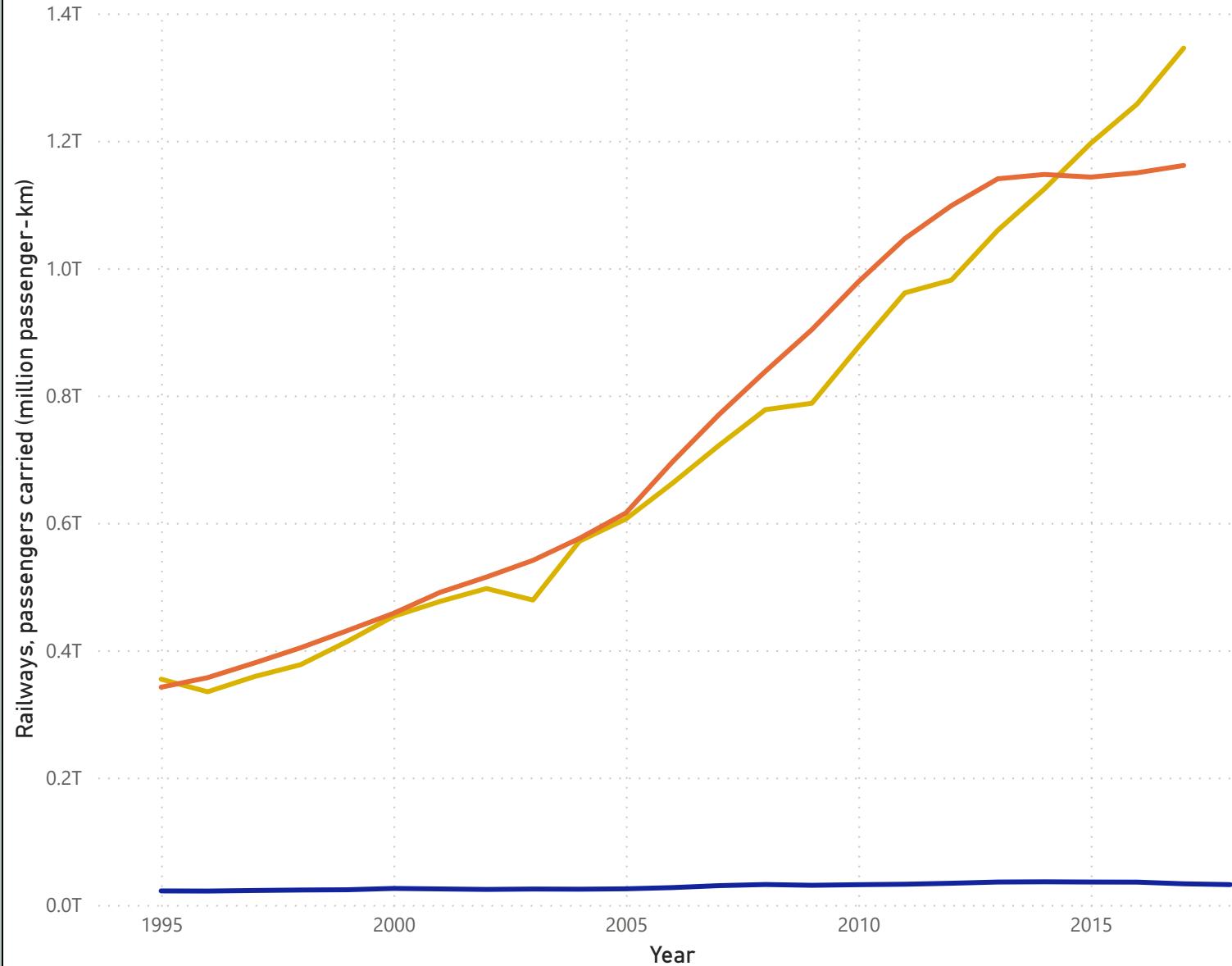
China

2018

9,491,021.72

## Railways, passengers carried (million passenger-km) over the period of 20 Years

Entity ● China ● India ● United States



## India , China and Europe

Entity ● India ● China ● United States



### Passenger Kilometer Definition

The number of passengers transported by rail, multiplied by the kilometers traveled. This is measured in passenger-kilometers

### Passenger - Kilometer Value (2017)

China

1345690000000.00

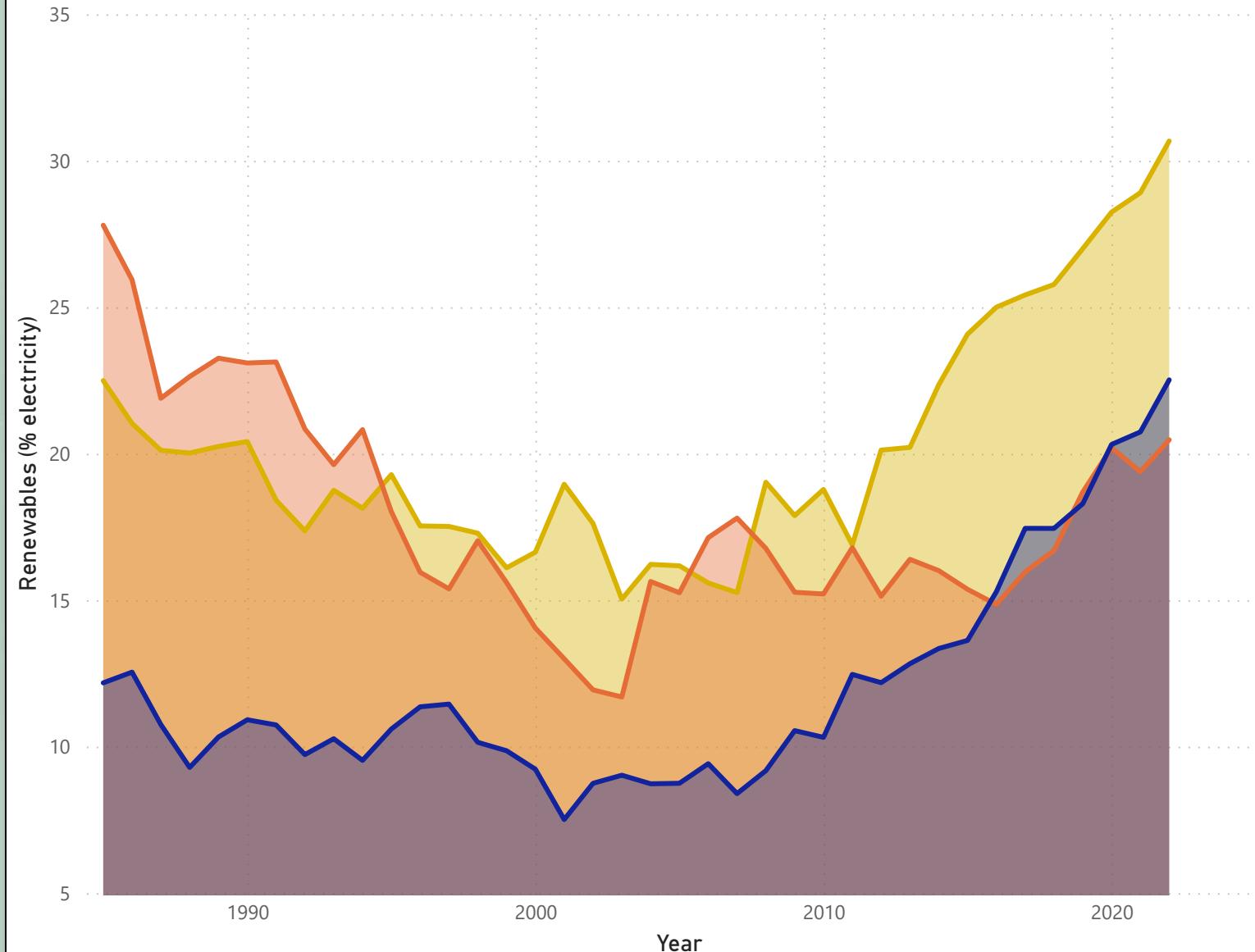
2017



# SOLUTION: RENEWABLE ENERGY

## % Share of Electricity Production from renewables in India, China & United States over 30 years

Entity ● China ● India ● United States



## India, China & United States

Entity ● China ● India ● United States



## Share of Electricity production from renewables

Renewables include electricity production from hydropower, solar, wind, biomass & waste, geothermal, wave, and tidal sources.

## Average % of Electricity Production from renewables over 30 Years

China

20.17

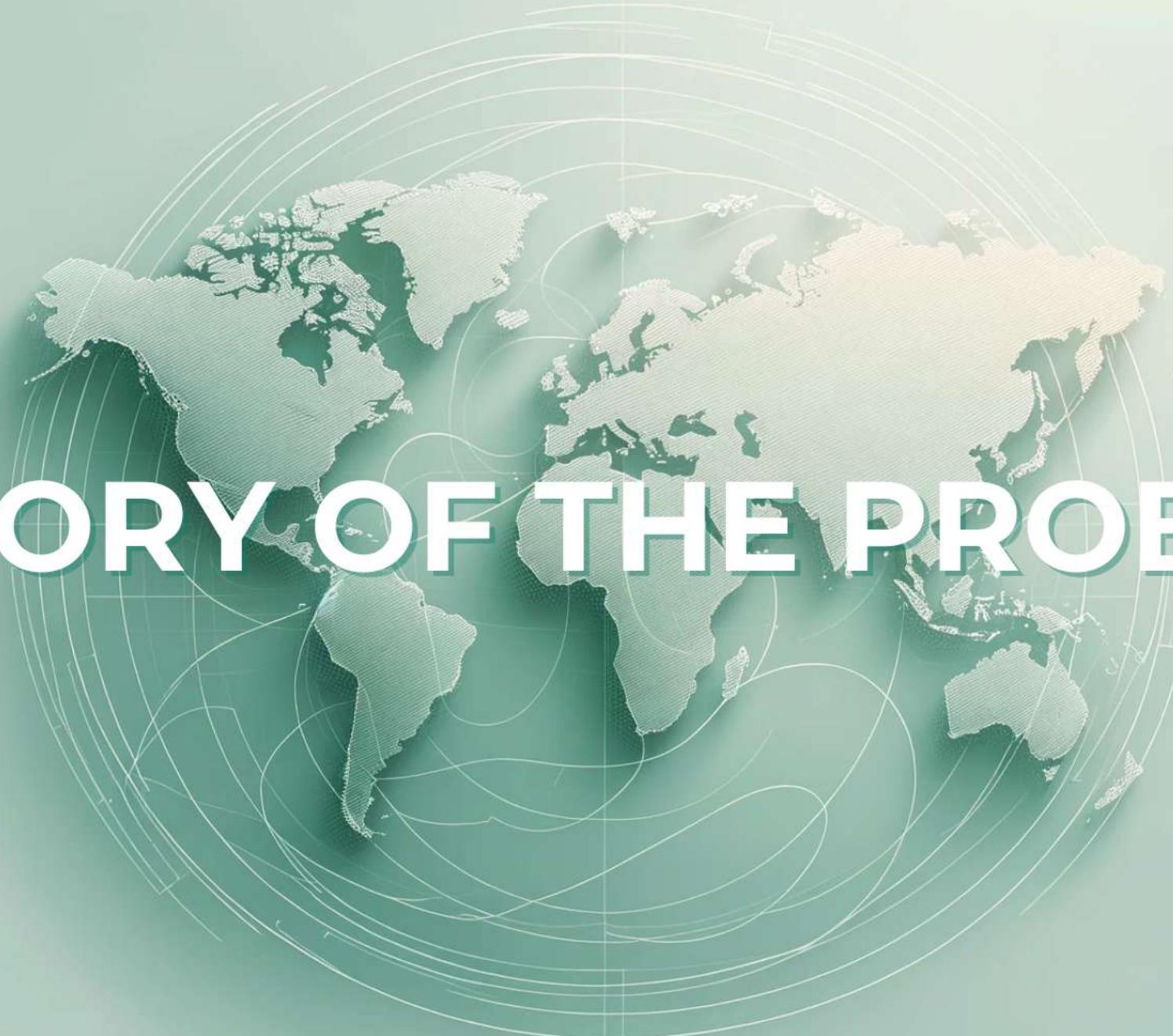
## Electricity Production from renewables as of 2022

China

30.67

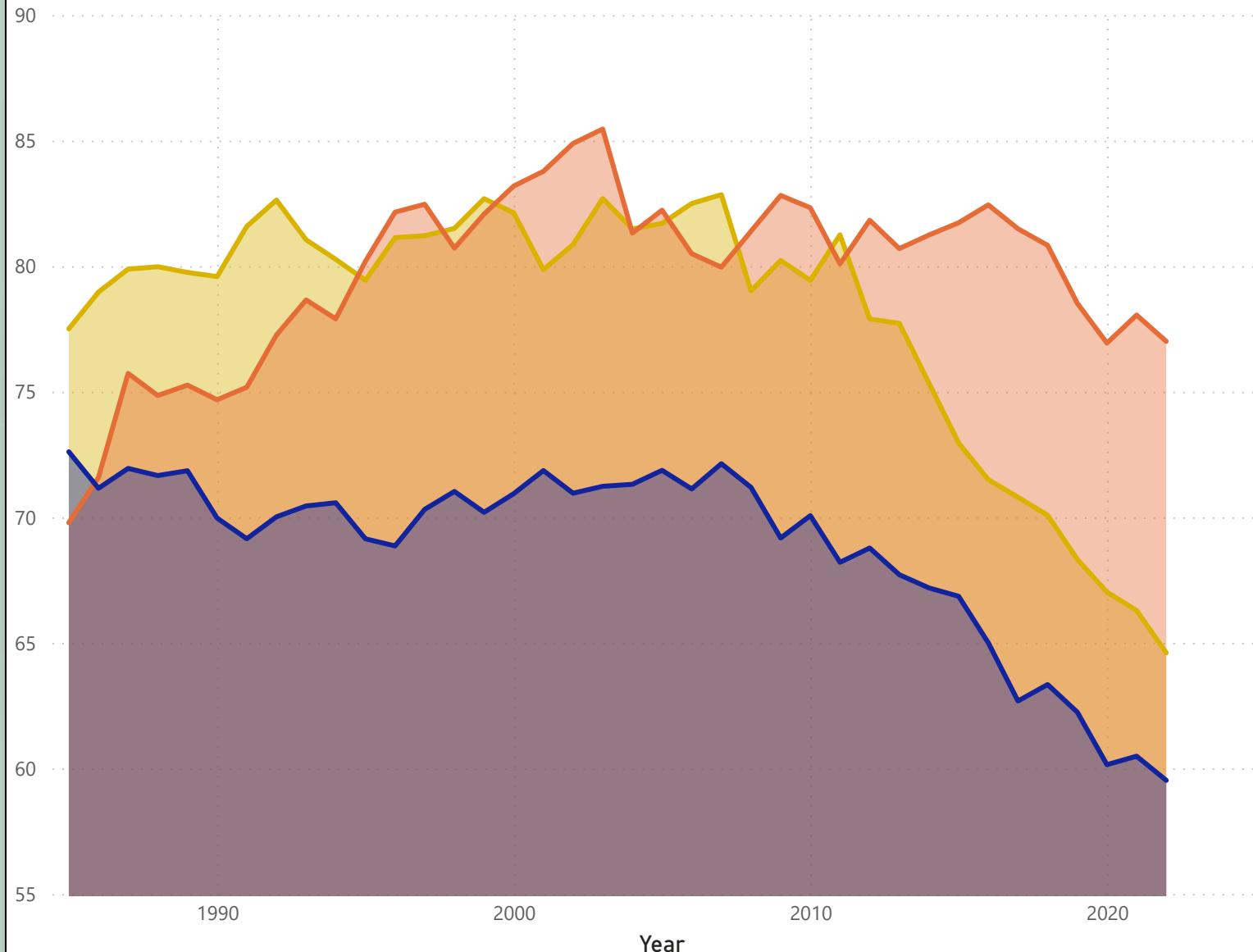
2022

# HISTORY OF THE PROBLEM



## % Share of Electricity Production from fossil fuels in India, China & United States over 30 years

Entity ● China ● India ● United States



## India, China & United States

Entity ● China ● India ● United States



### Share of Electricity production from Fossil Fuels

Fossil fuels include coal, petroleum, and natural gas.

### Average % of Electricity Production from fossil fuels over 30 Years

China

77.99

### % Electricity produced from Fossil Fuels as of 2022

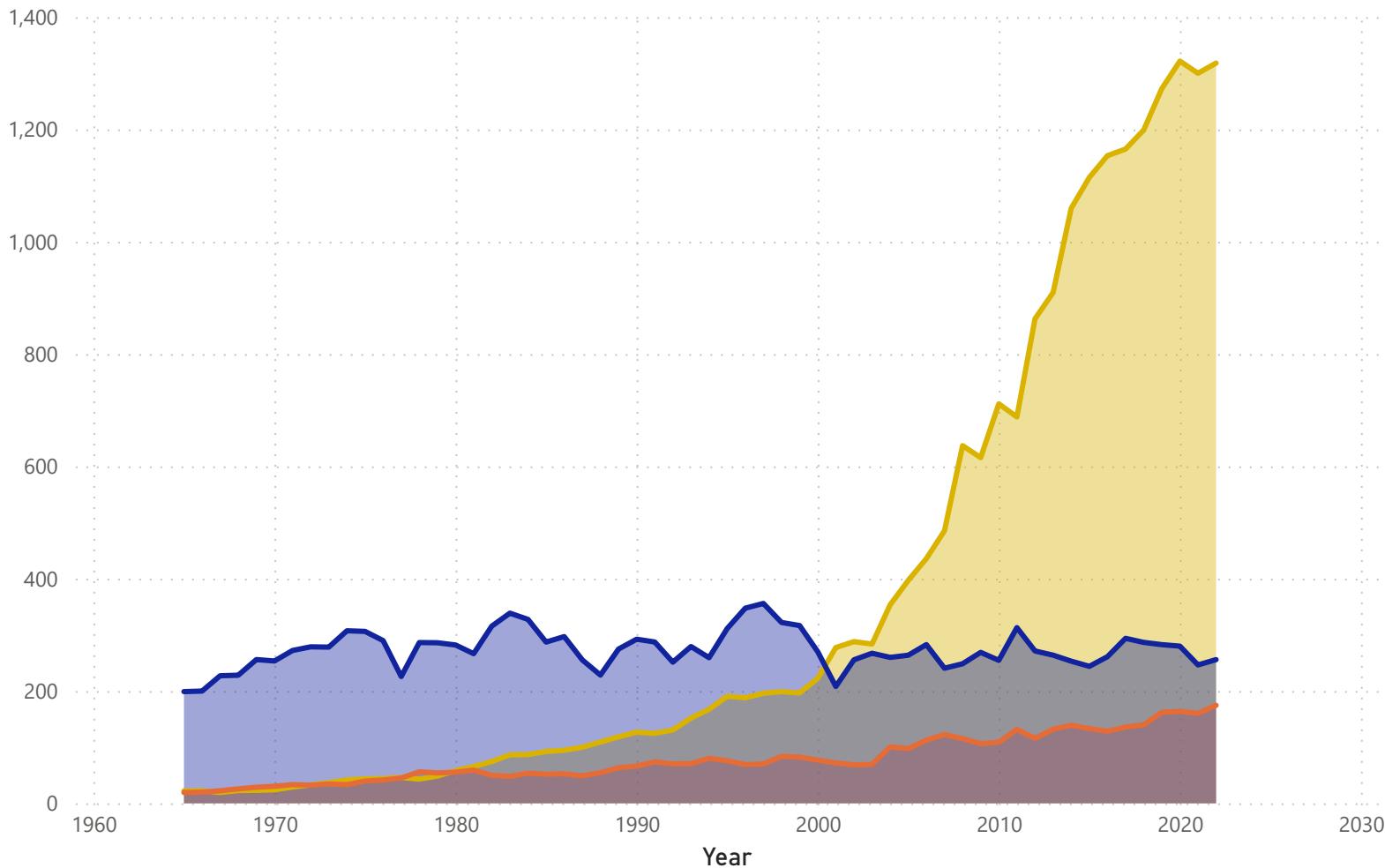
China

64.60

2022

## Electricity Generated from Hydro-power Over 55 years in India, China and United States

Entity ● China ● India ● United States

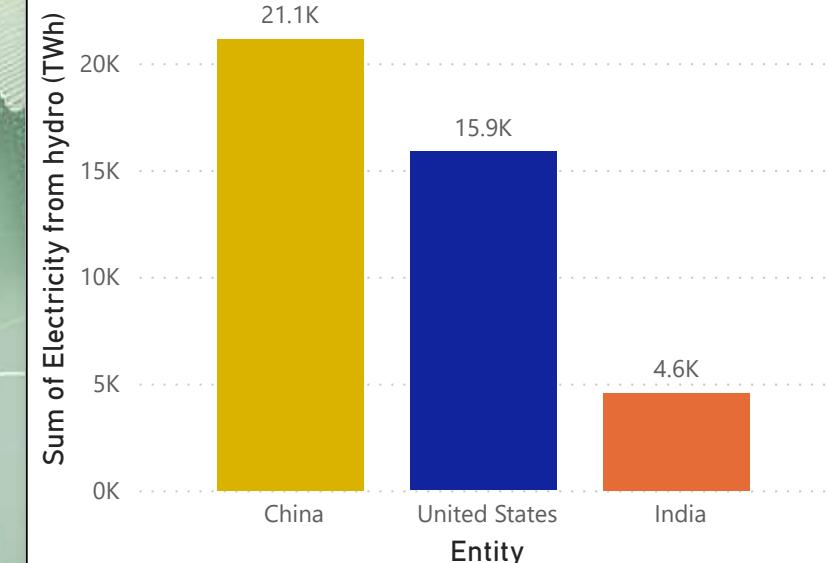


## India , China & United States

Entity ● China ● United States ● India



## Leaders in Hydro - Electricity Generation



Share of primary energy from Hydro Power in China

**14.91%**

Share of Primary Energy from Hydro Power in United States

**5.96%**

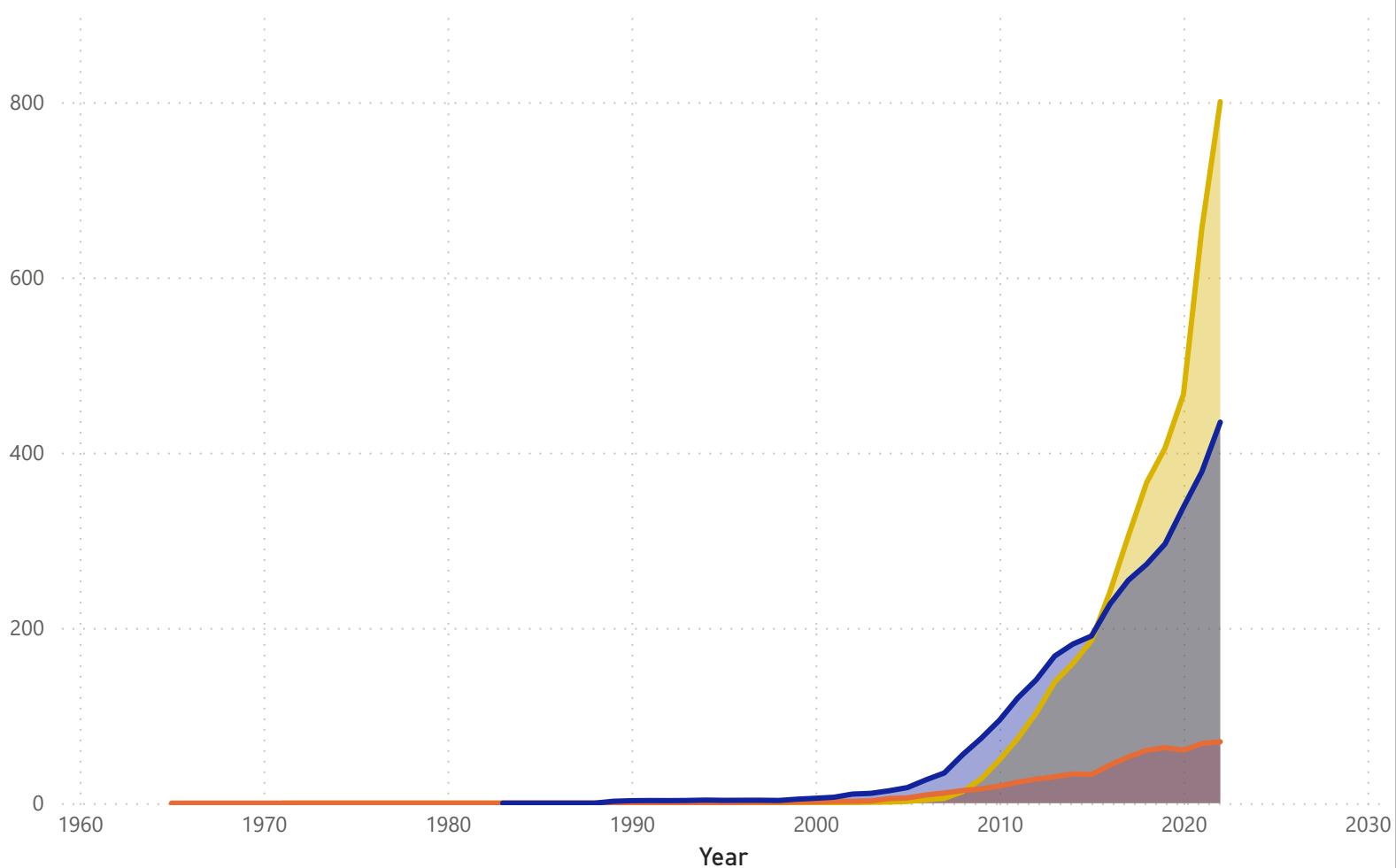
Share of Primary Energy from Hydro Power in India

**9.5%**

Unit Of Measure  
**Tera-Watt Hour(TWh)**

## Electricity Generated from Wind-power Over 30 years in India, China and United States

Entity ● China ● India ● United States

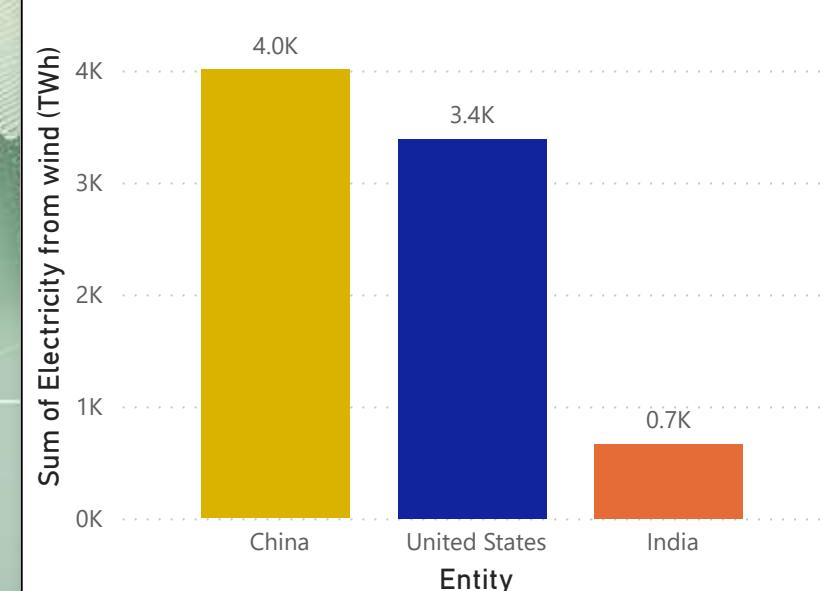


## India , China & United States

Entity ● China ● United States ● India



## Leaders in Wind - Electricity Generation



Share of primary energy from Wind Energy in China

**4.30%**

Share of Primary Energy from Wind Energy in United States

**4.49%**

Share of Primary Energy from Wind Energy in India

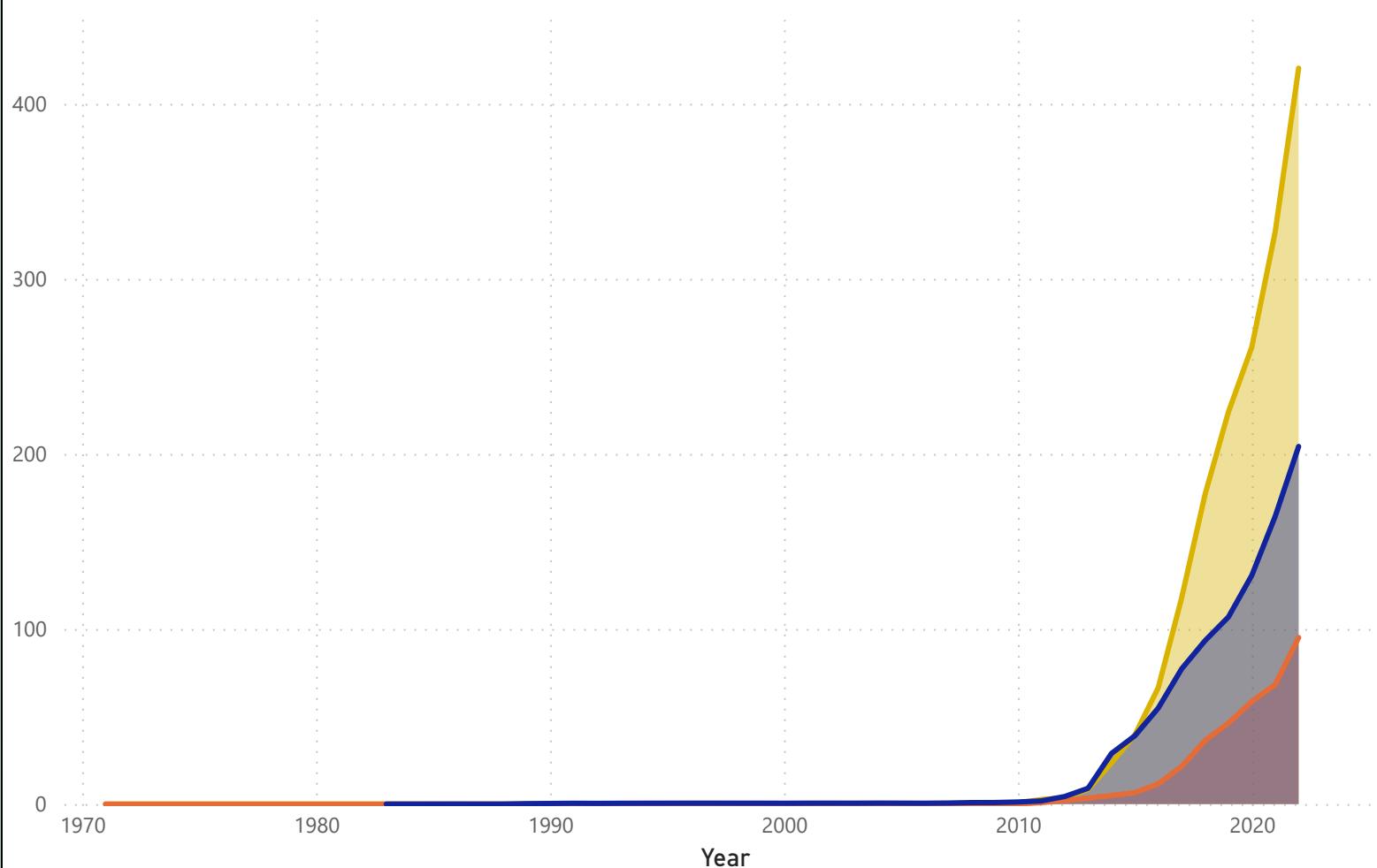
**1.8%**

Unit Of Measure

**Tera-Watt hours (TWh)**

## Electricity Generated from Solar-power Over 55 years in India, China and United States

Entity ● China ● India ● United States

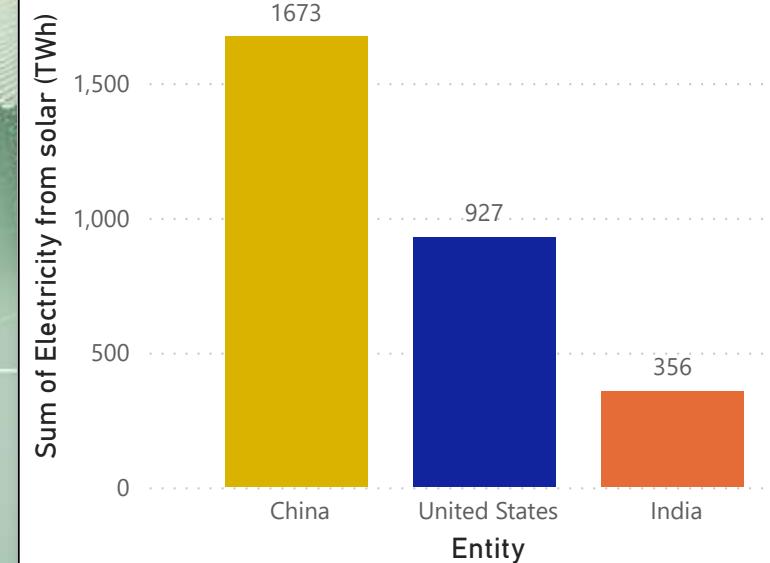


## India , China & United States

Entity ● China ● India ● United States



## Leaders in Solar - Electricity Generation



Share of primary energy from Solar Power in China

**4.7%**

Share of Primary Energy from Solar Power in United States

**4.75%**

Share of Primary Energy from Solar Power in India

**5.18%**

Unit Of Measure

**Tera-Watt Hour(TWh)**

# **CONCLUSION-**

**Utilization and derivation of renewable energy sources has not reached its full potential**

**We can start by focusing on these 3 main agendas-**

- 1. Implementation of supportive policies by the government.**
- 2. Further investment in Research and Development.**
- 3. Promotion of International Collaboration.**



**FUTURE**

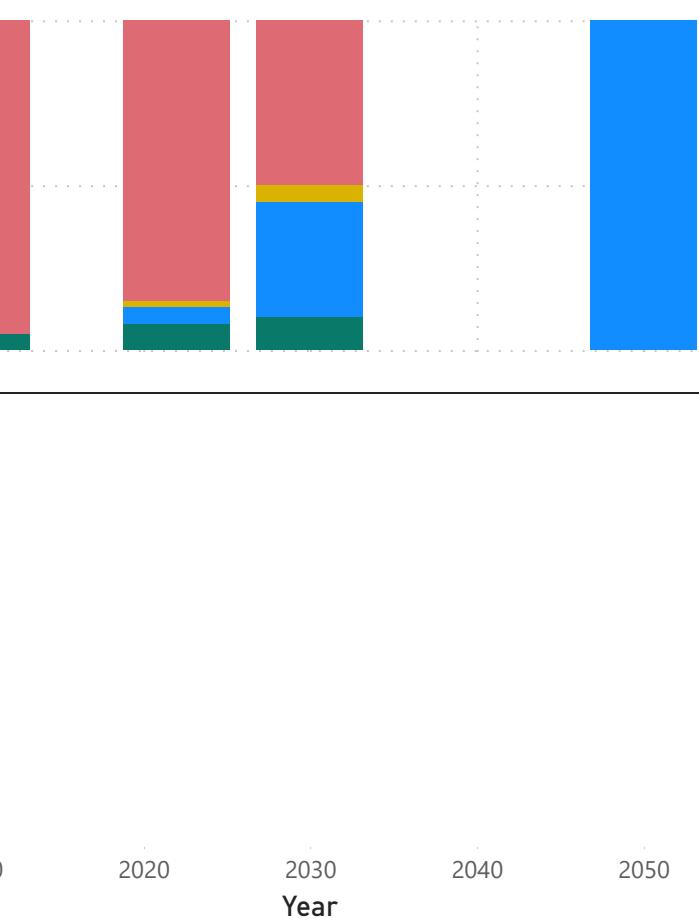
## Future of various fuel types in road way transport

Fuel Type ● Biofuels ● Electricity ● Natural Gas ● Oil

Buses



Cars and Vans



Sum of Share

100%  
50%  
0%

Sum of Share

100%  
50%  
0%

2010 2020 2030 2040 2050

2010 2020 2030 2040 2050

Year

### Vehicle Type

- Buses
- Cars and Vans
- Heavy Trucks

### Year

- 2010
- 2022
- 2030
- 2050

# REFERENCES

## Our World In Data -

1. <https://ourworldindata.org/transport#per-capita-transport-emissions-from-transport>
2. <https://ourworldindata.org/renewable-energy#how-much-of-our-primary-energy-comes-from-renewables>
3. <https://ourworldindata.org/ghg-emissions-by-sector>
4. <https://ourworldindata.org/grapher/co2-emissions-aviation?tab=table>
5. <https://ourworldindata.org/electricity-mix>

## International Energy Agency -

1. <https://www.iea.org/reports/road-transport#dashboard>

## World Bank -

1. <https://data.worldbank.org/>



**THANK YOU**