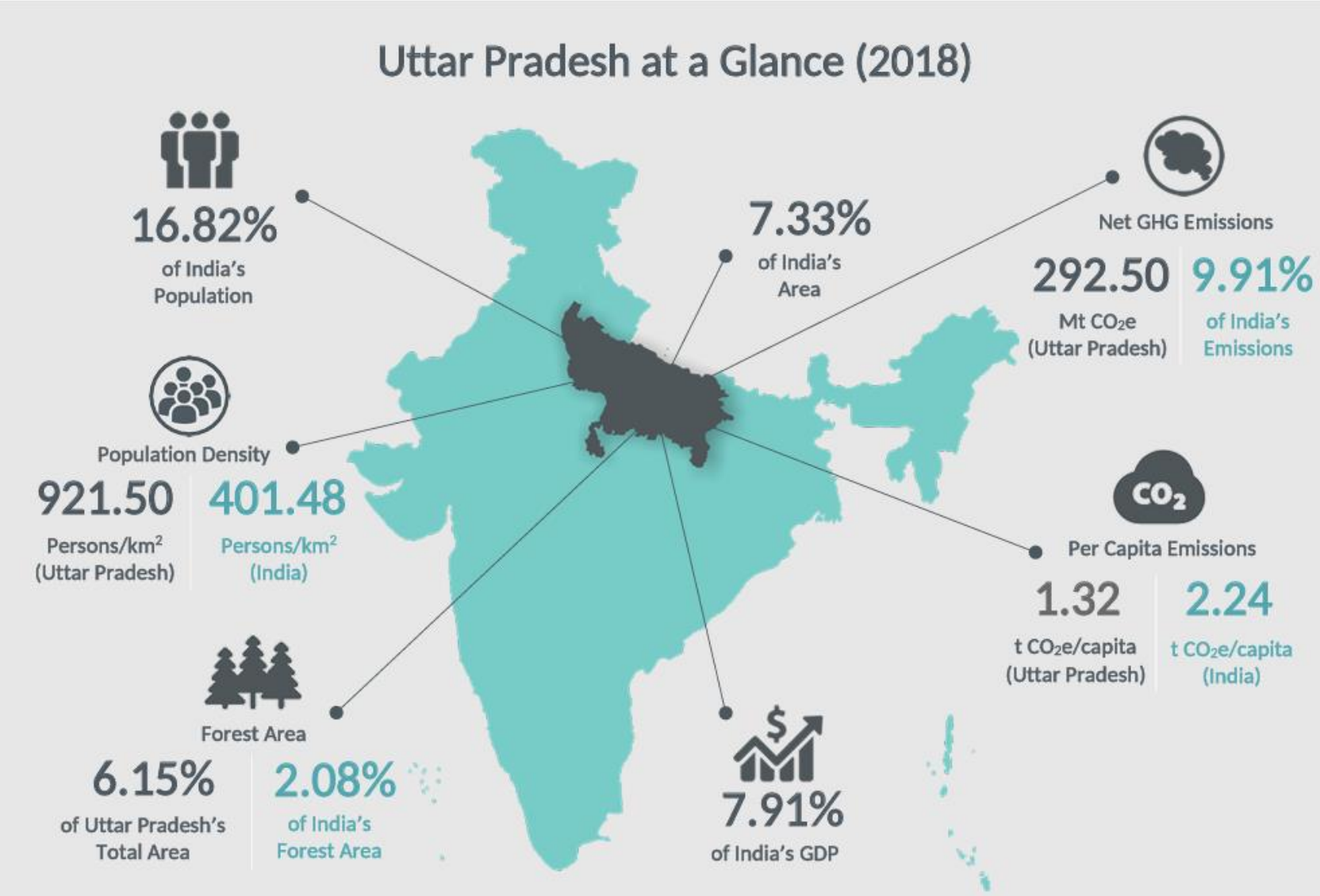
CARBON MARKET STRATEGY FOR UTTAR PRADESH

OBJECTIVE

- GHG EMISSION ANALYSIS
- MITIGATION PATHWAYS
- INSTITUTINAL FRAMEWORK FOR THE STATE

FINDINGS TILL NOW

DEMOGRAPHICS



SOURCE: THE EMISSIONS DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH (GHG DATA 1971-2022)

- EDGAR (The Emissions Database for Global Atmospheric Research) – v8.0

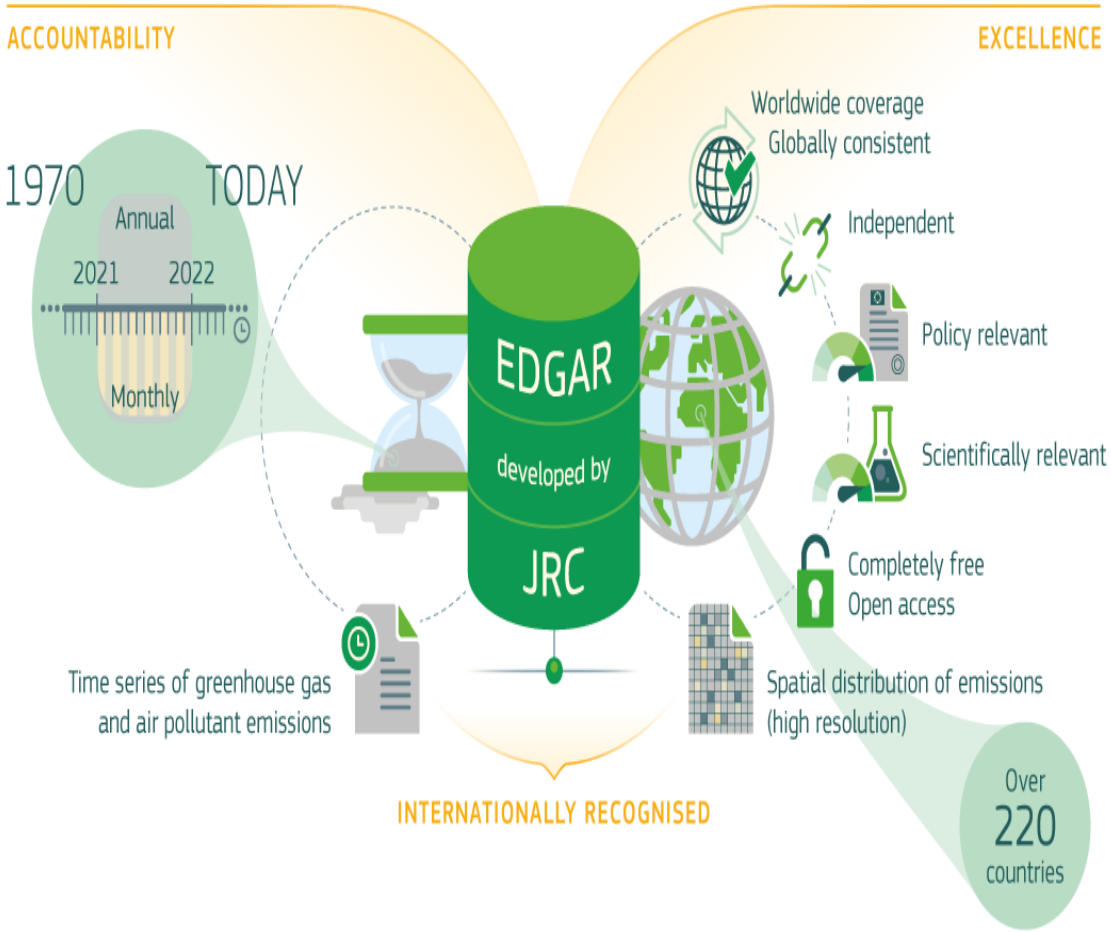
- Characteristics:

EDGAR is a multipurpose, independent, global database of anthropogenic emissions of greenhouse gases and air pollution on Earth.

EDGAR provides both emissions as national totals and grid maps at 0.1 x 0.1-degree (11.132 x 11.132) km or (123.99 km2) resolution at global level, with yearly, monthly and up to hourly data.

https://edgar.jrc.ec.europa.eu/dataset_ghg80

- Emission grid maps are expressed in ton substance / 0.1degree x 0.1degree / year



APPROACH FOR MEAN GEOSPATIAL DATA

GHG data of 25 subsectors from 1971-2022=25X52≈1300 raster files

For each subsector mean of raster files were taken from 1971 to 2022 and a new raster file was generated that represented mean of data through python
Eg-mean(agrisoil1971,1972…2022)=agrisoil mean

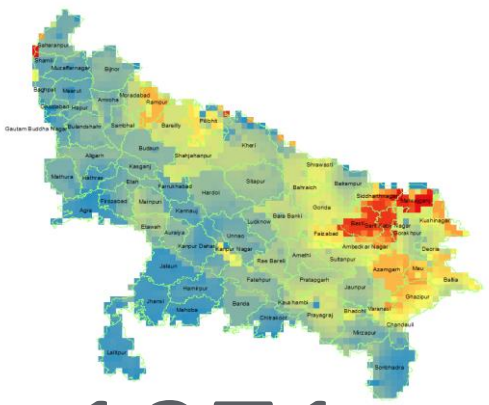
This new raster file depicted average of emission from 1971-2022 emission at each pixel. 25 such mean raster files were created for each subsector

To generate mean emission from each sector constituting various subsector simply we added the contribution from each subsector

Finally we got 4 raster files depicting mean data of each sector

The regions which showed **average emissions** greater than a threshold are identified as hotspots

Mean of



1971

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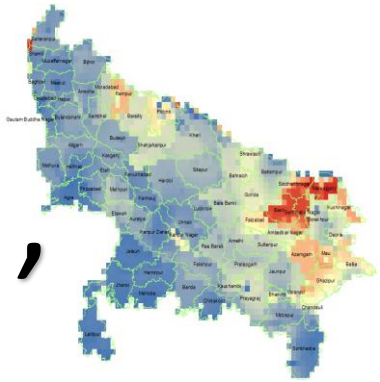
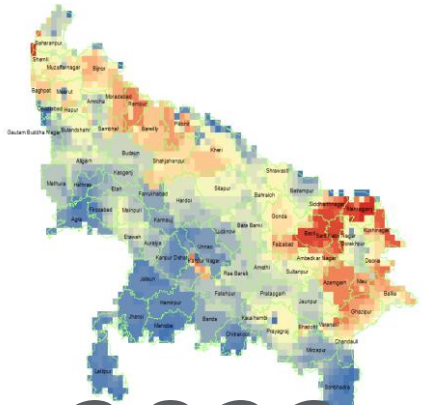


1972

….



2022

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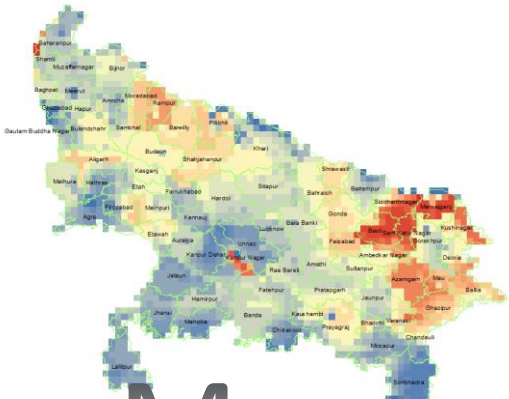
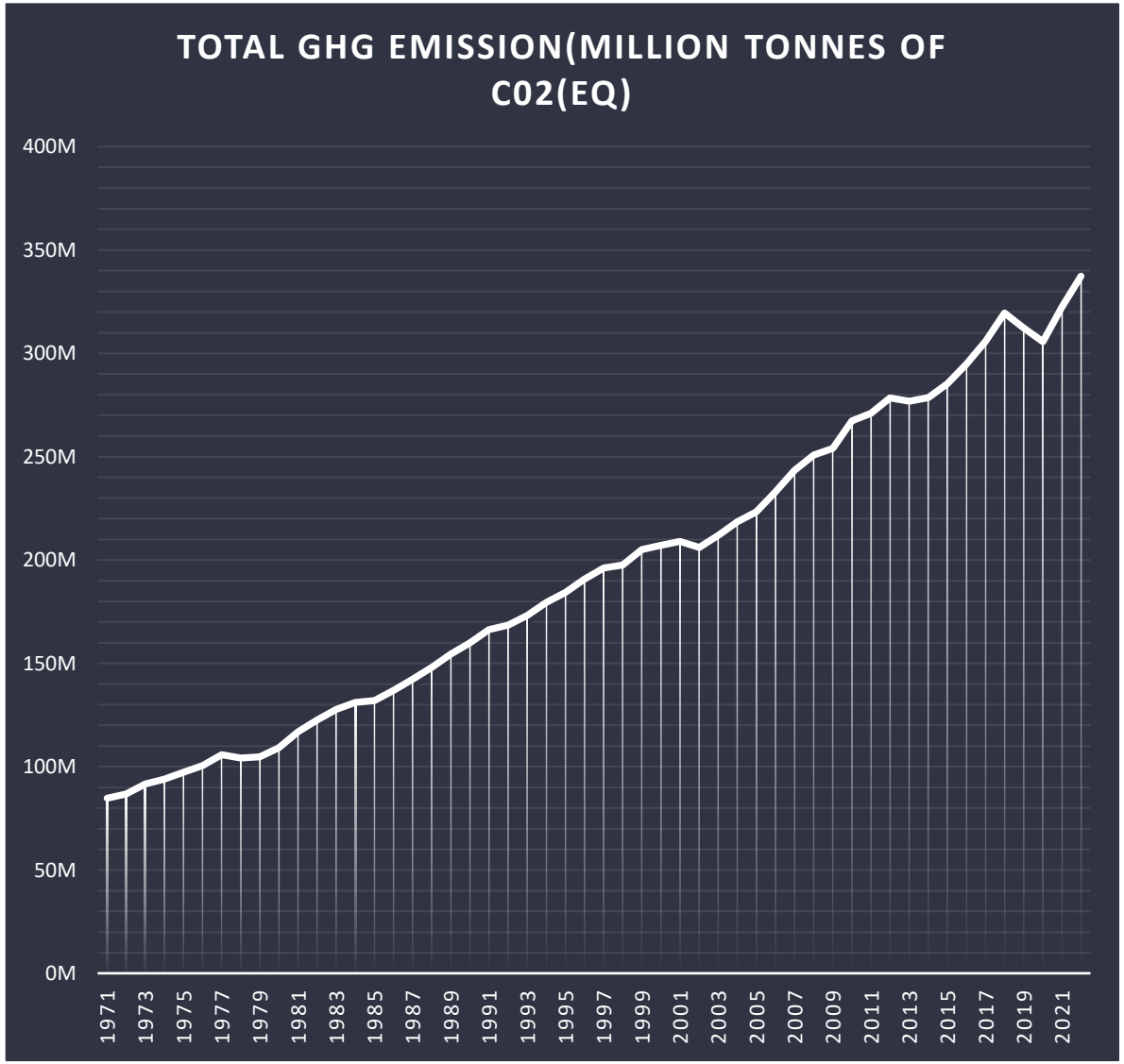
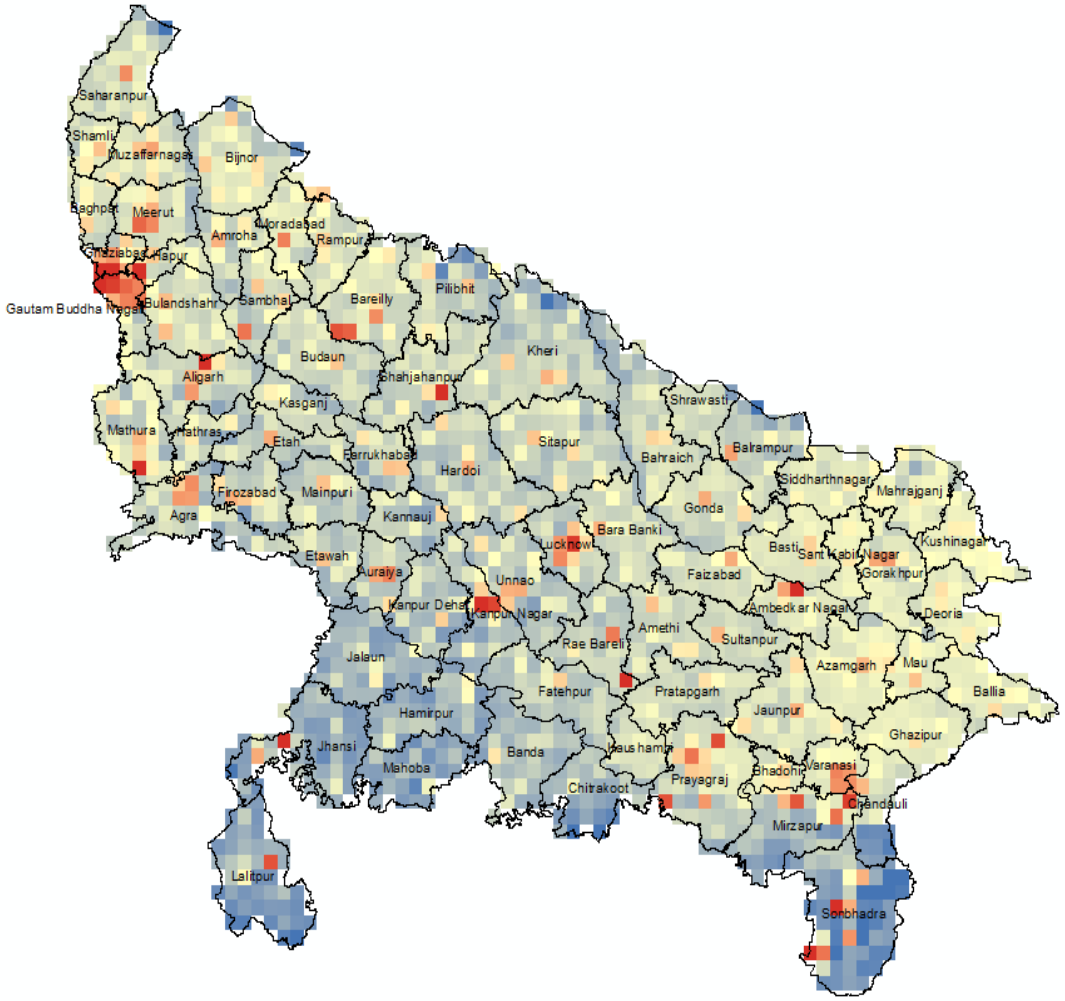


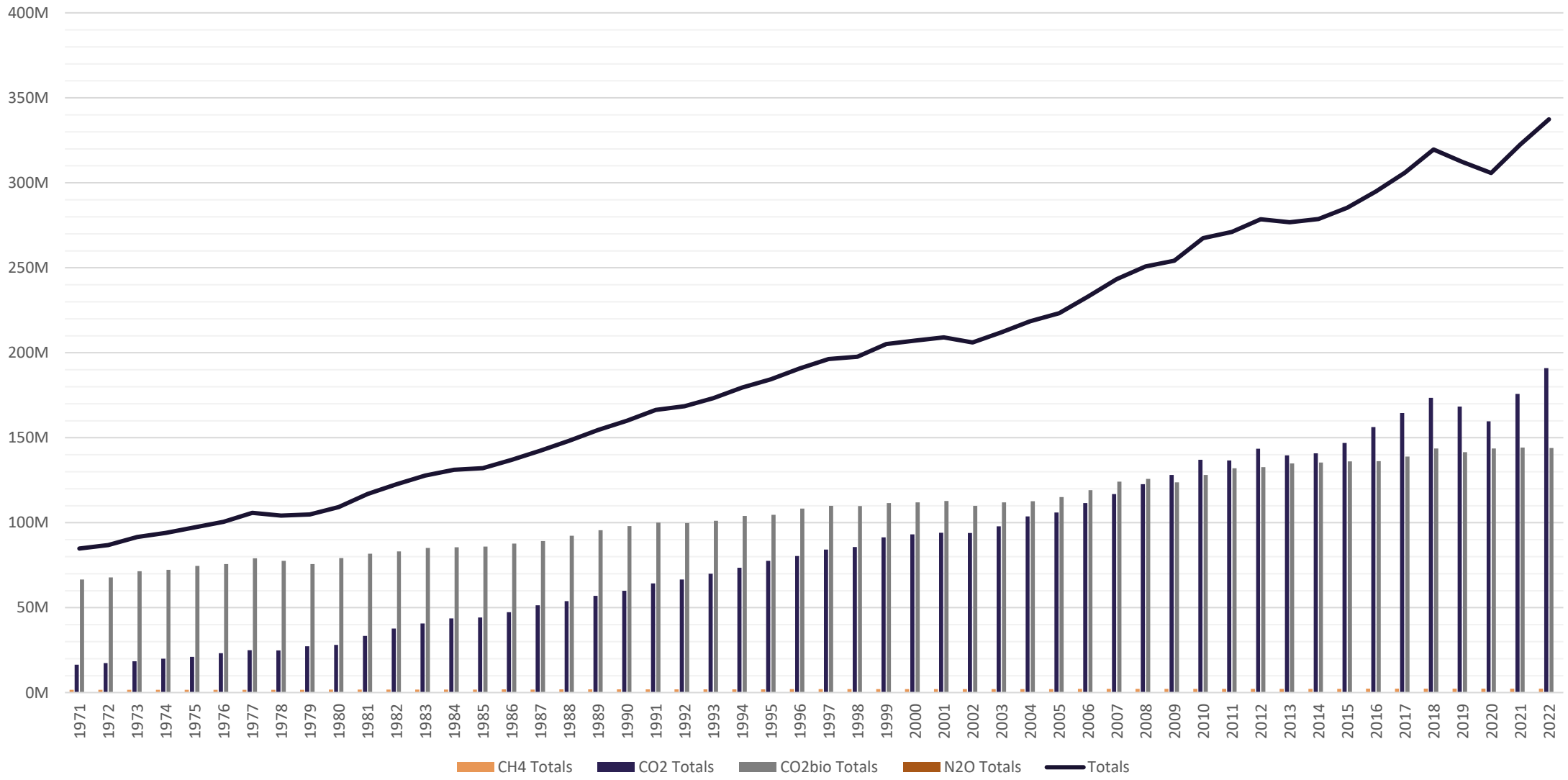
Mean

TOTAL EMISSIONS

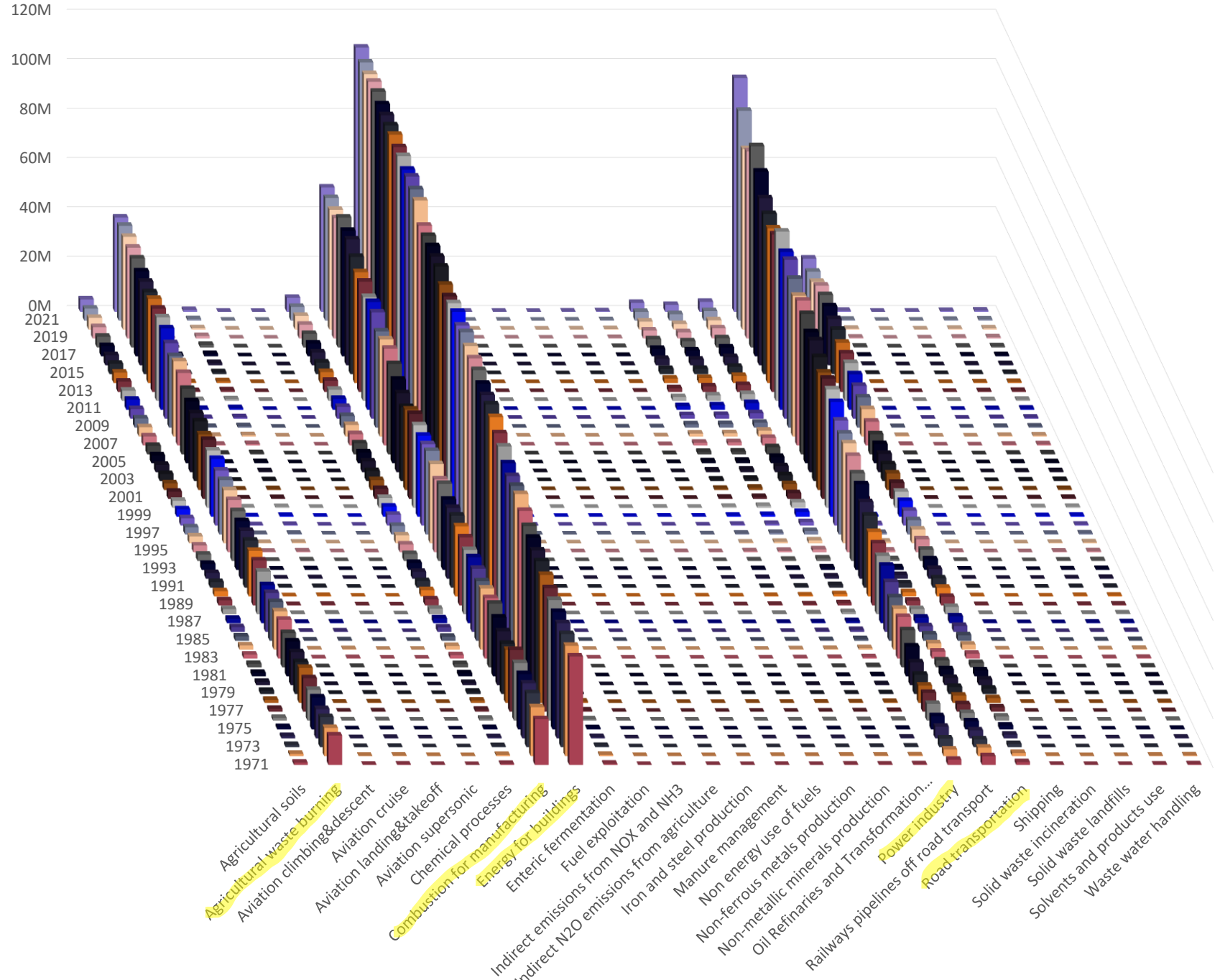




DISTRIBUTION OF DIFFERENT GASES

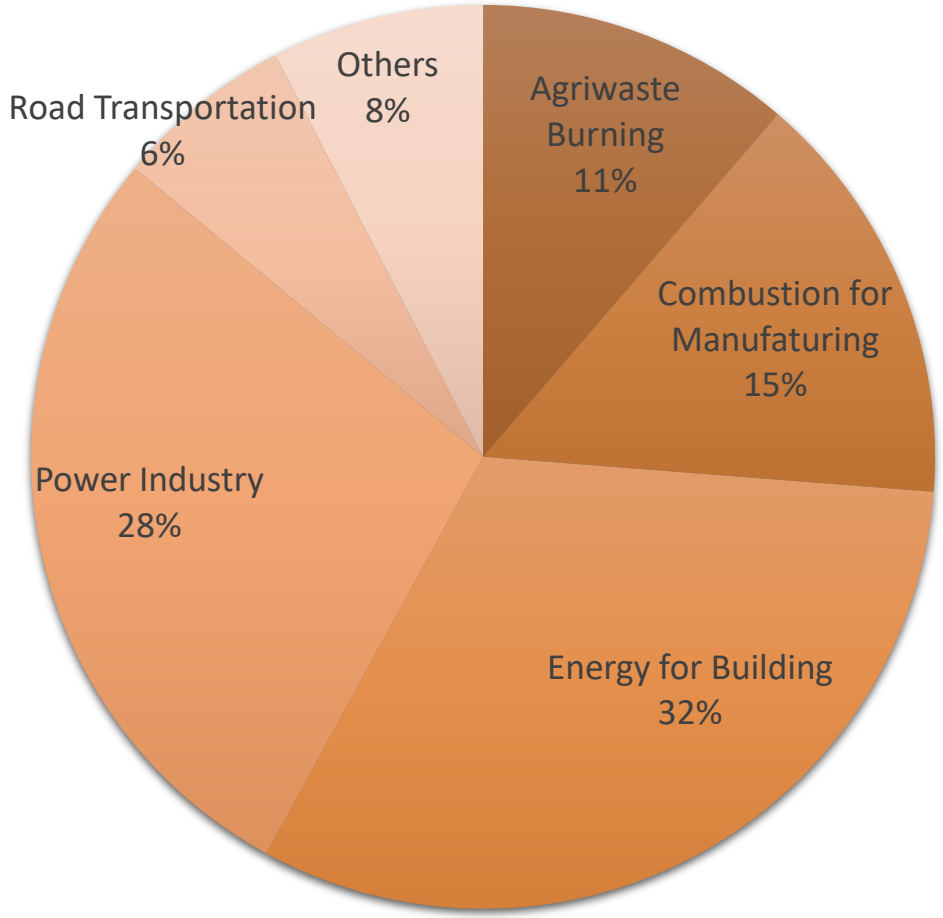


SUBSECTOR WISE DISTRIBUTION



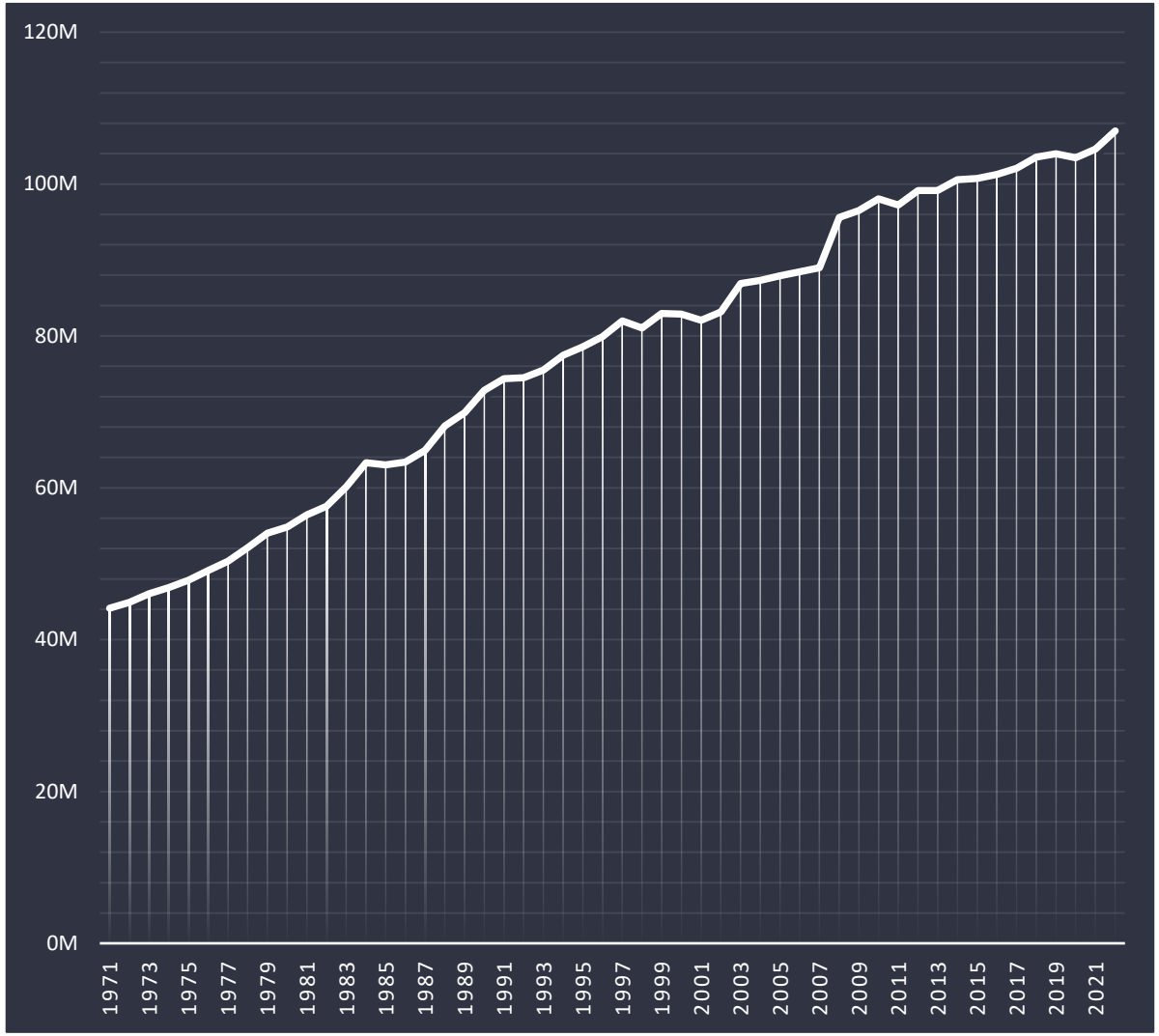
MOST POLLUTING SECTORS

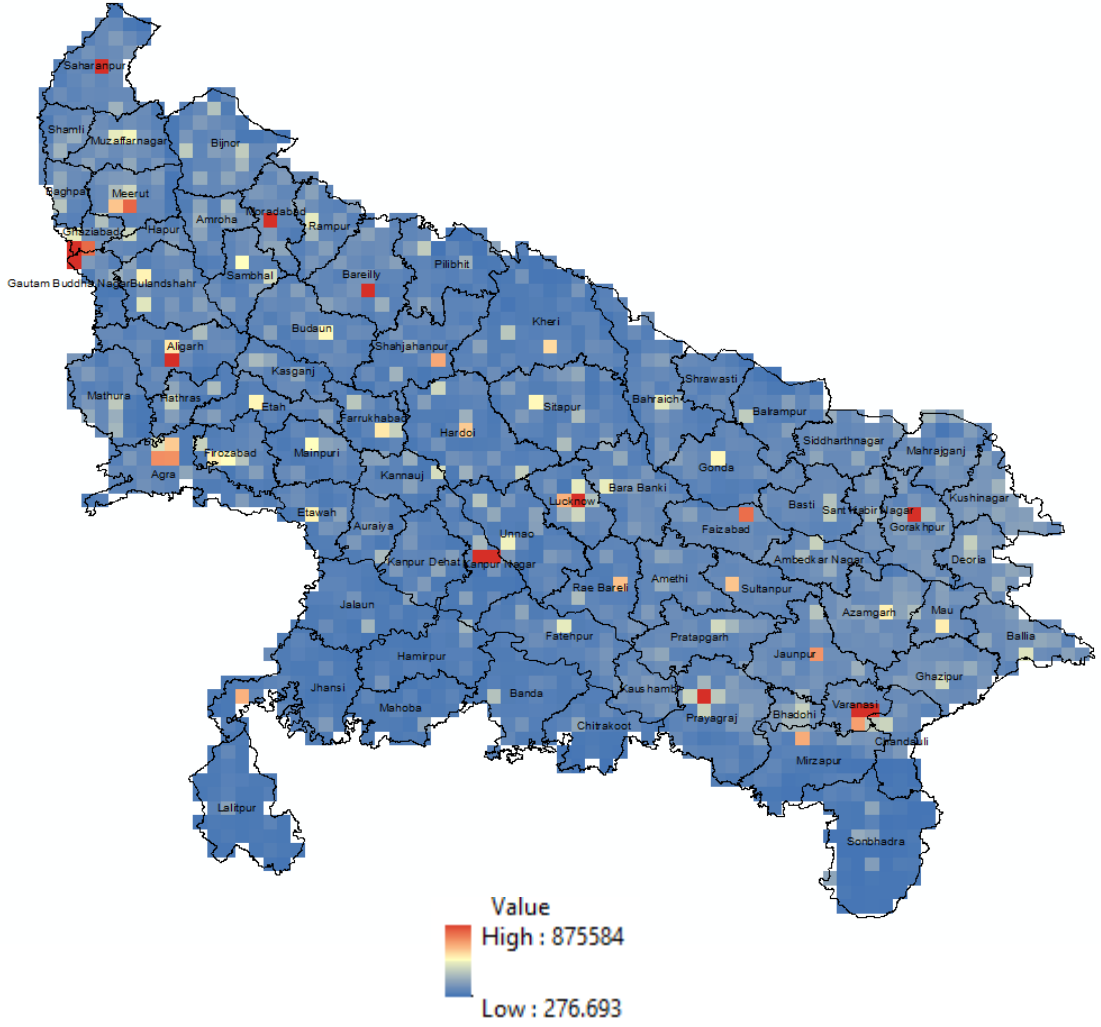
- Agriculture Waste Burning
- Combustion for Manufacturing
- Energy for Buildings
- Power Industry
- Road Transportation



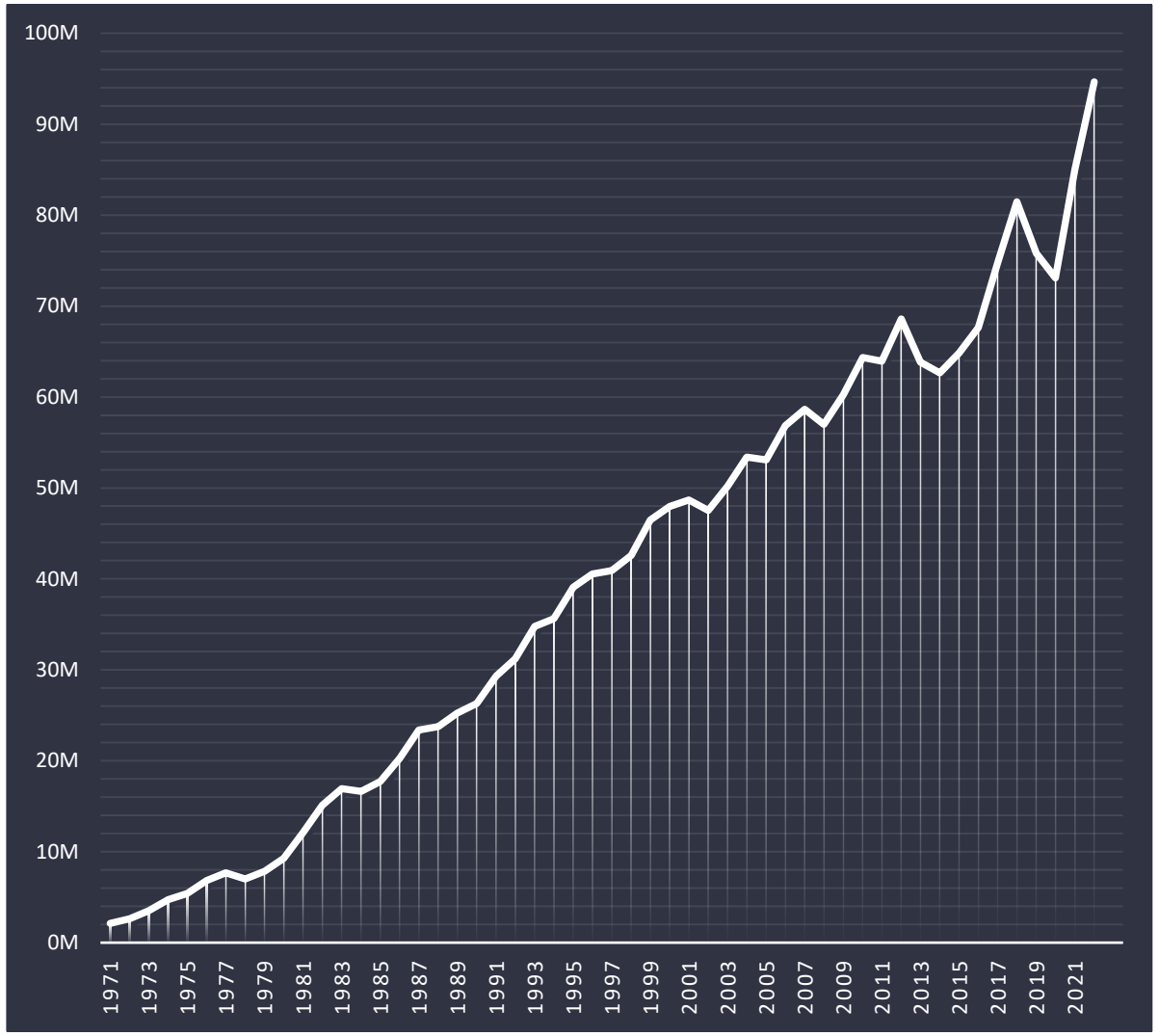
2022 emissions

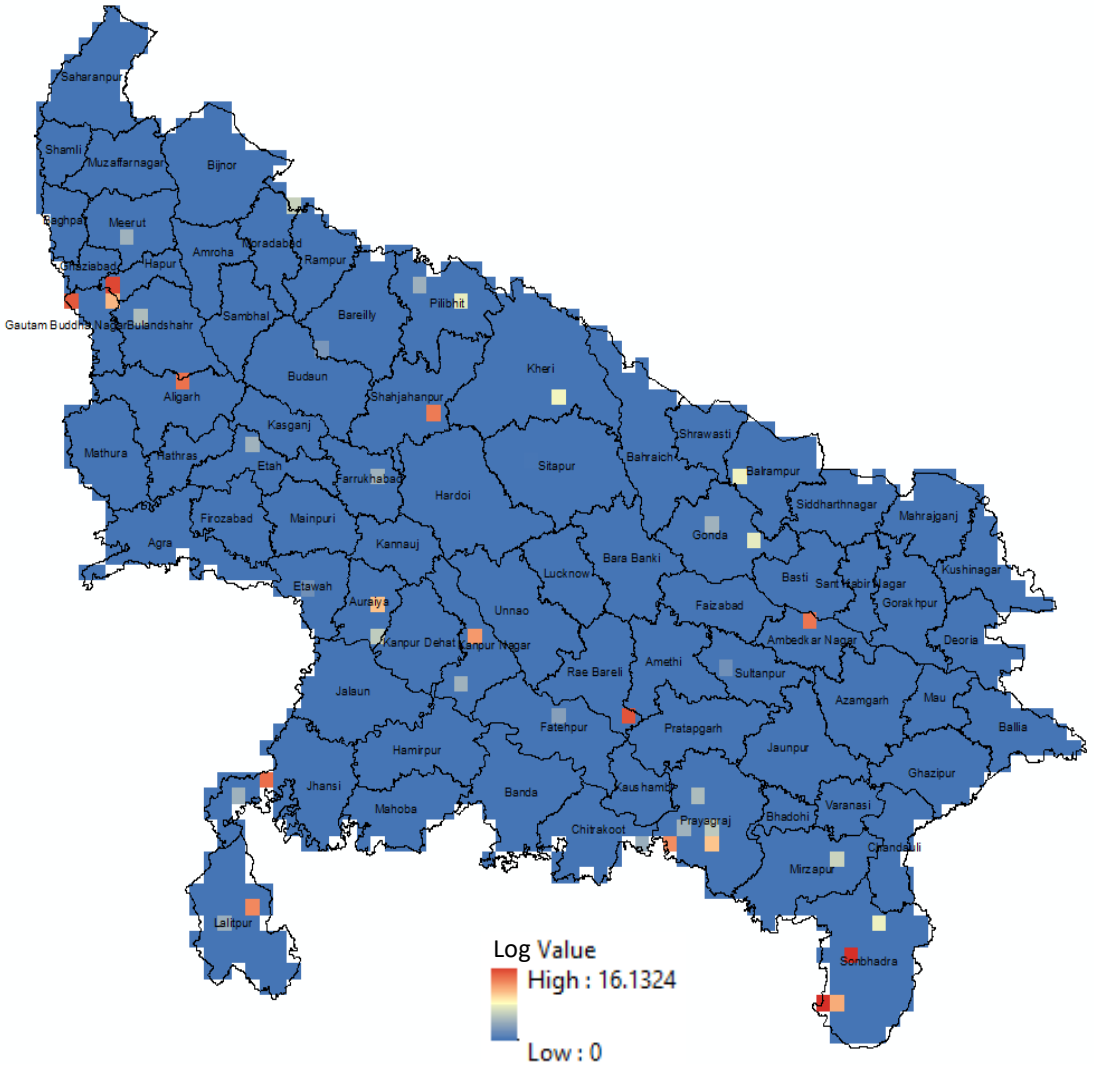
ENERGY FOR BUILDING



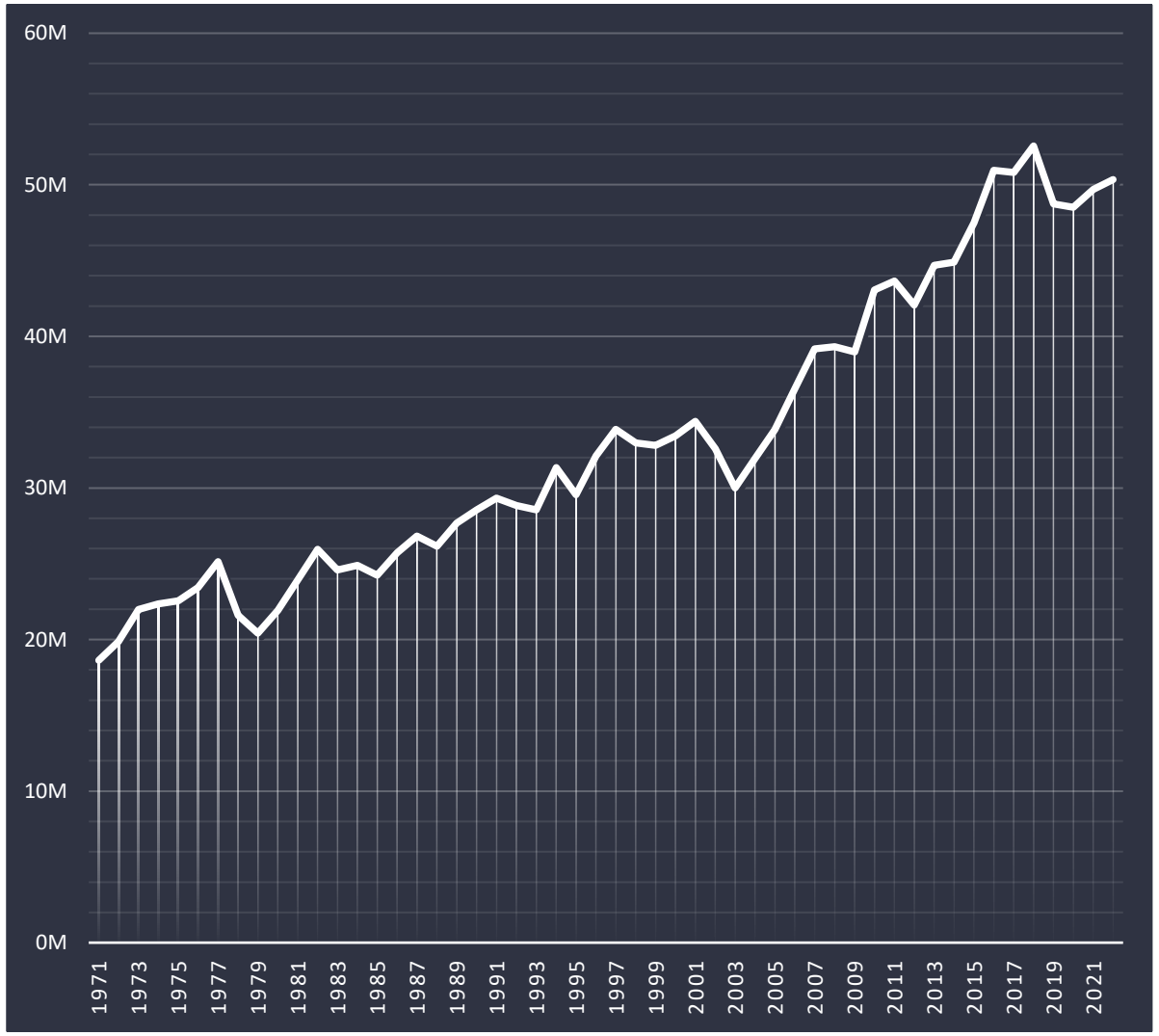


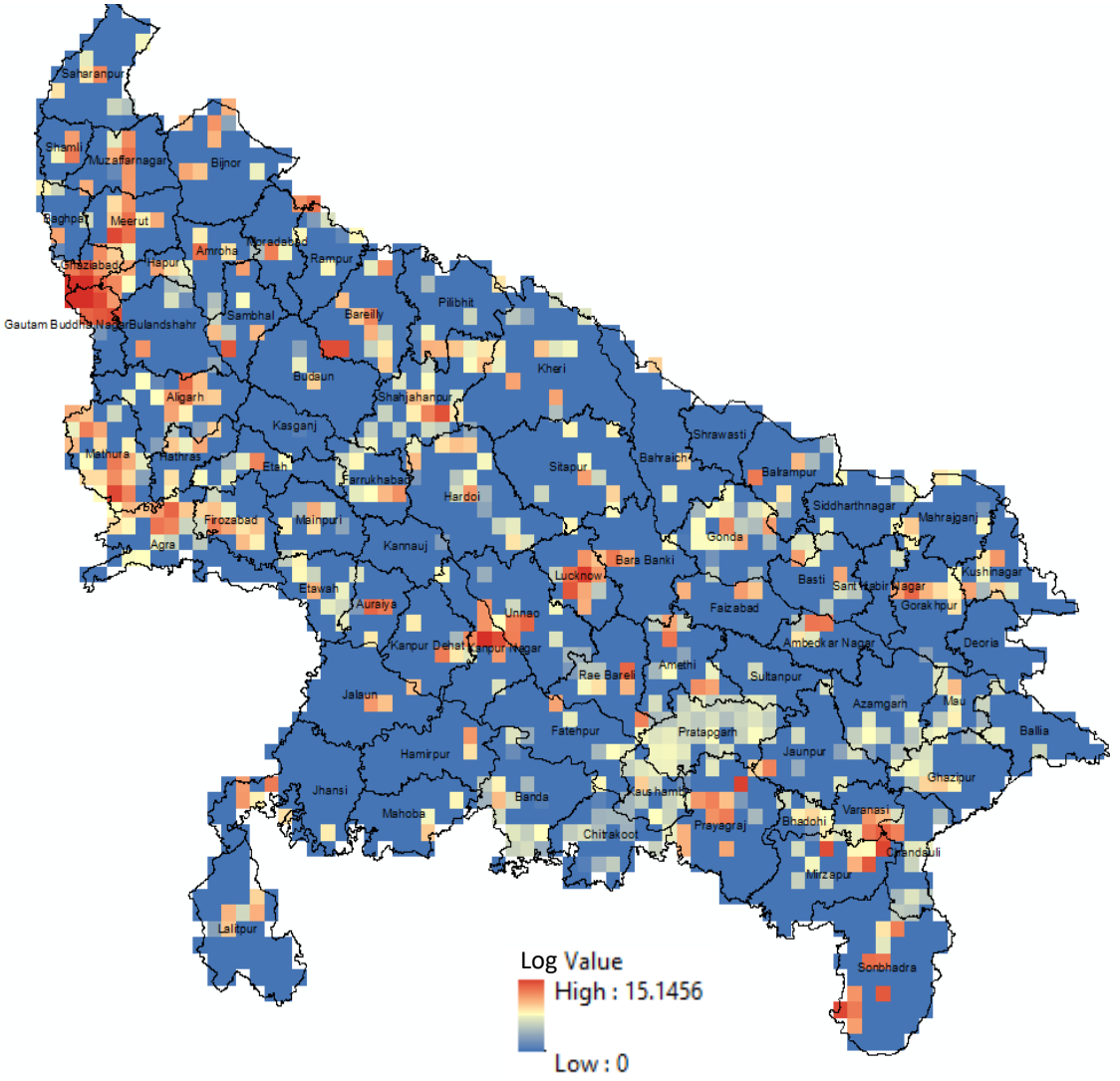
POWER INDUSTRY



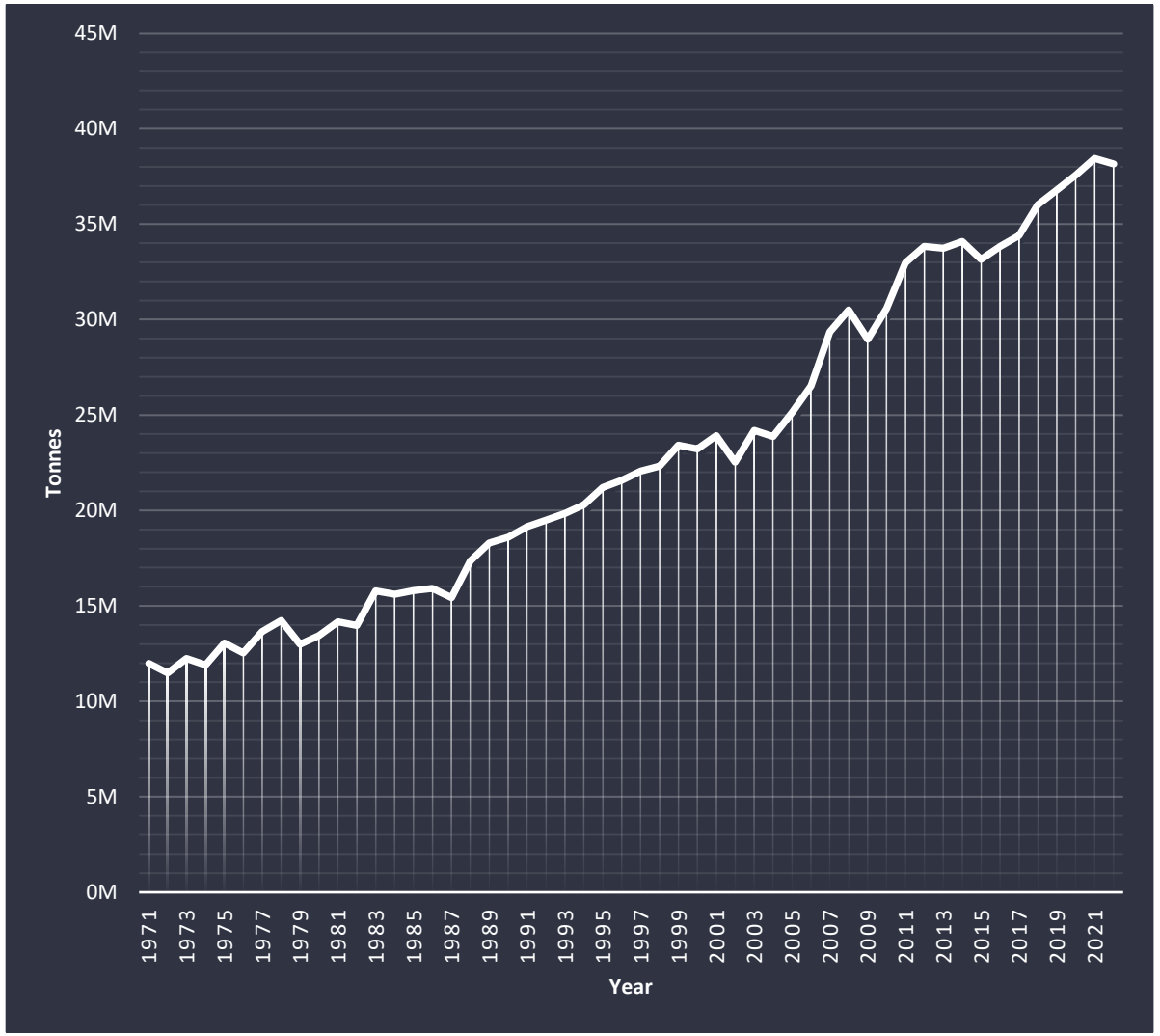


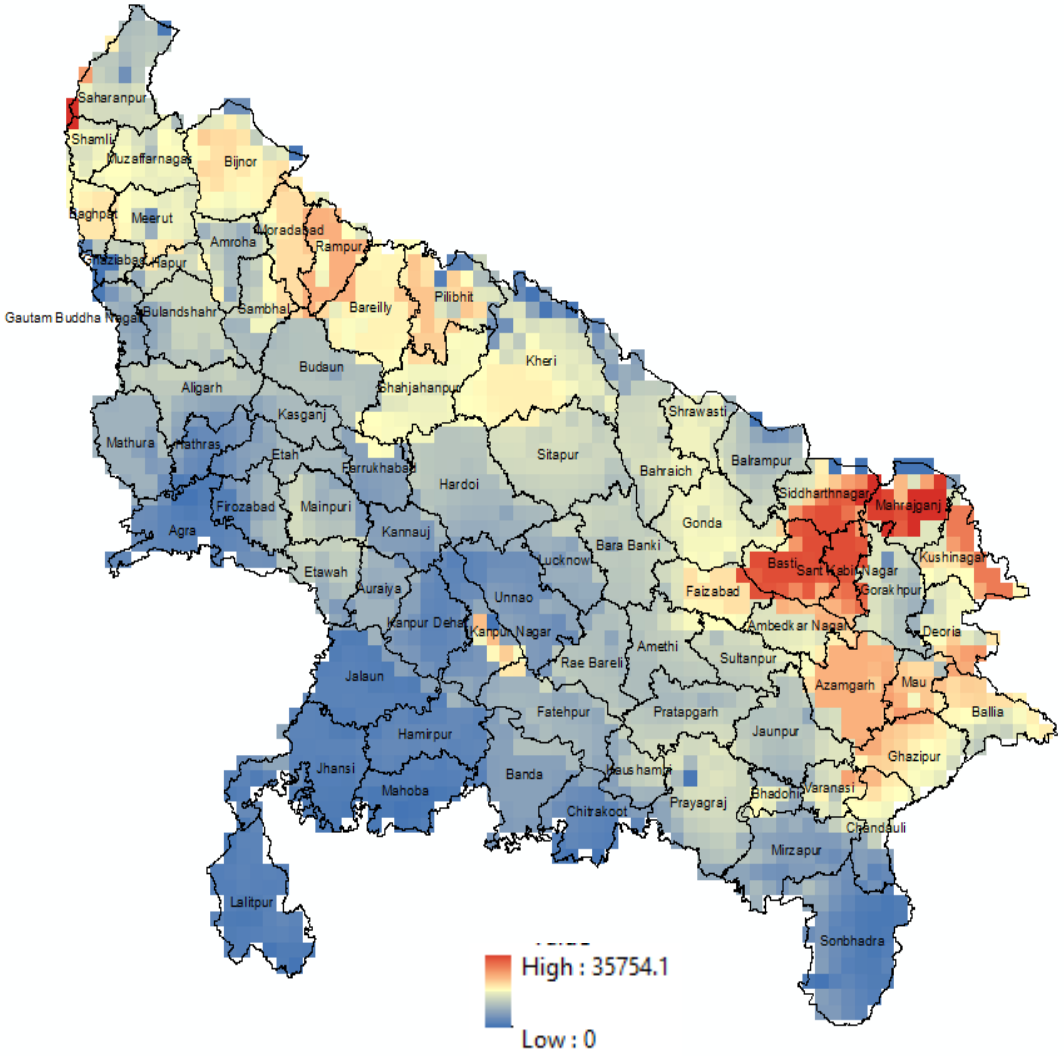
COMBUSTION FOR MANUFACTURING



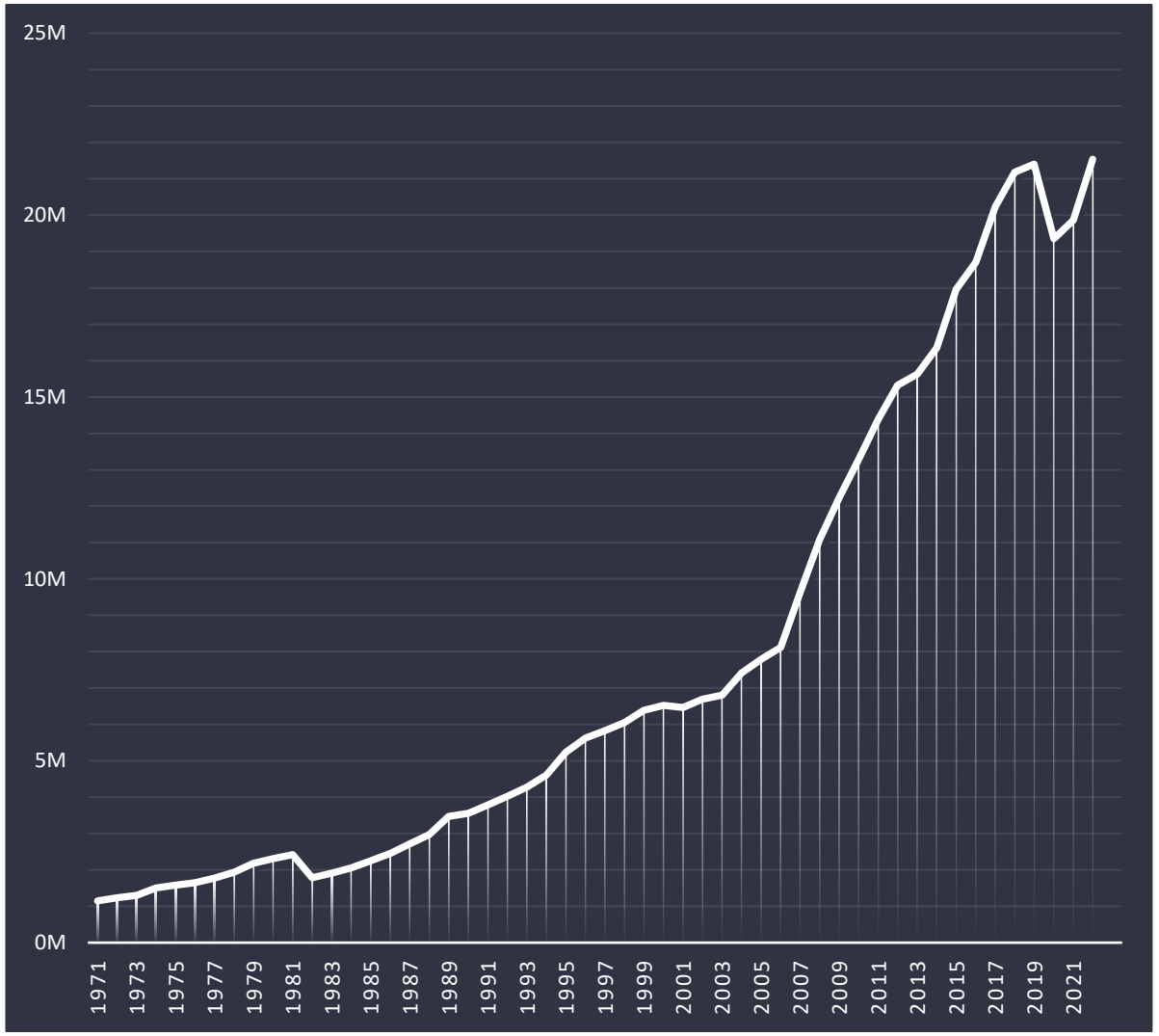


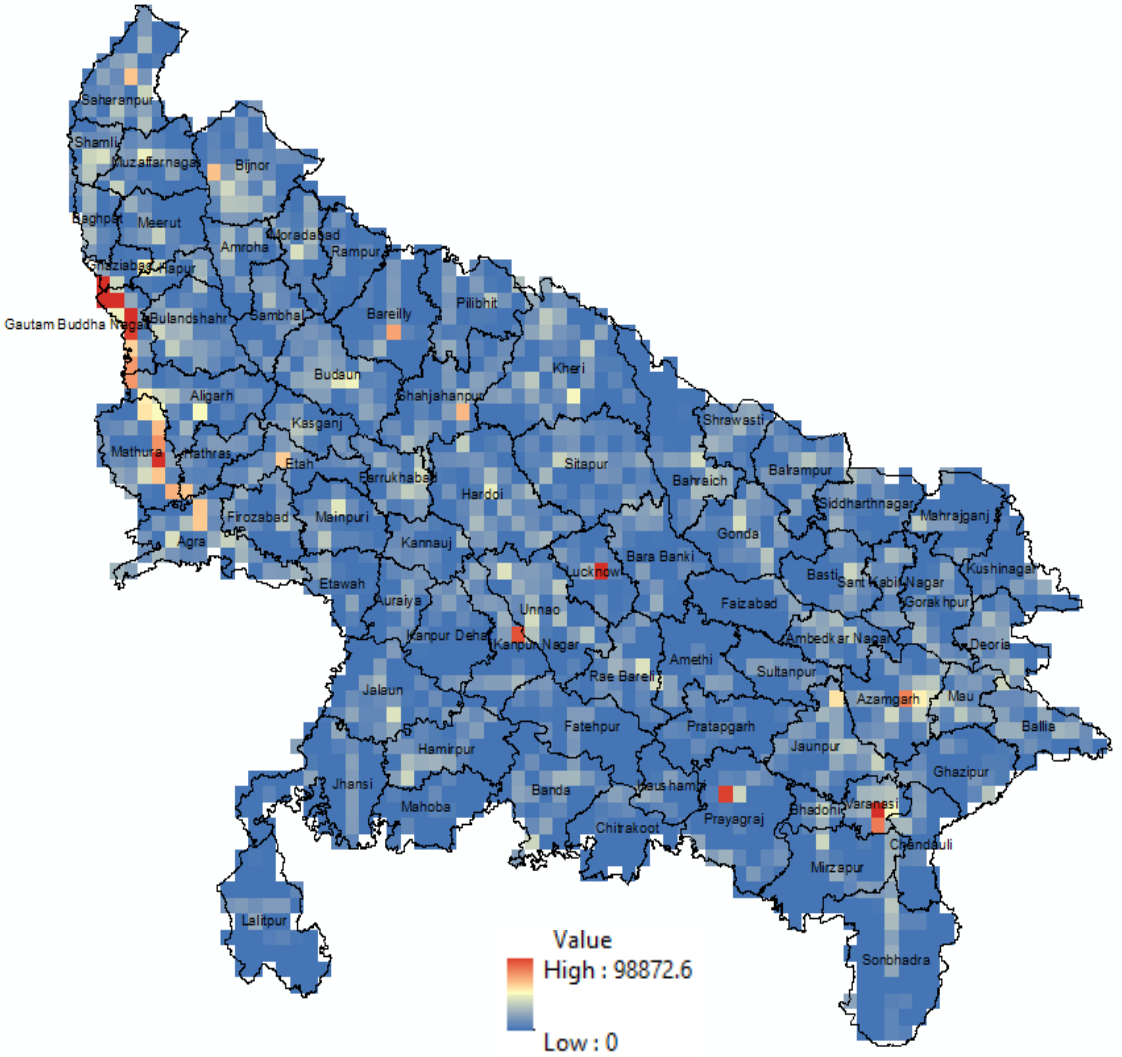
AGRICULTURE WASTE BURNING





ROAD TRANSPORTATION





INDIAN CARBON MARKET MECHANISM (ANNOUNCED NATIONAL FRAMEWORK)

National Steering Committee on Indian Carbon Market(NSCICM)

Will comprise of Secretaries of Major Ministries,DG BEE,and Experts

- Responsible for making Policy for ICM
- Provide GHG Targets
- Guidelines for Inter Country Flow of Carbon Credits
- Monitoring Reporting and Verification(MRV)

Bureau of Energy Efficiency(BEE)

- Administrator of ICM
- Do research and identify sectors
- Suggest trajectory and targets
- Develop market stability mechanism
- Accreditation of carbon verification agencies

Grid Controller of INDIA

- Registry for Carbon Credits
- Coordination with International Market
- List obligated and non obligated entities

Central Electricity Regulatory Commission

- Regulator
- Ensure that there is no fraud
- Register Power Exchanges

FURTHER STEPS

A more detailed analysis of GHG emission data can also be conducted. With data available for every coordinate, year, gas, and subsector, any level of micro-analysis can be performed which can then be utilized at a later stage.

Further Steps:-

- Suggesting mitigation pathways
- Analyze the existing carbon markets worldwide
- Proposing Institutional Framework of carbon market for the state