ABSTRACT

- The economic and social impact of poor air quality in towns and cities is increasingly being recognised, together with the need for effective ways of creating awareness of real-time air quality levels and their impact on human health.
- The proposed system uses machine learning- to accurately predict the Air Quality, using environmental monitoring data together with meteorological measurements.
- The comparisons with machine learning and deep learning based predictive algorithms showing the feasibility and robust performance of the proposed method for different kinds of areas within an urban region.

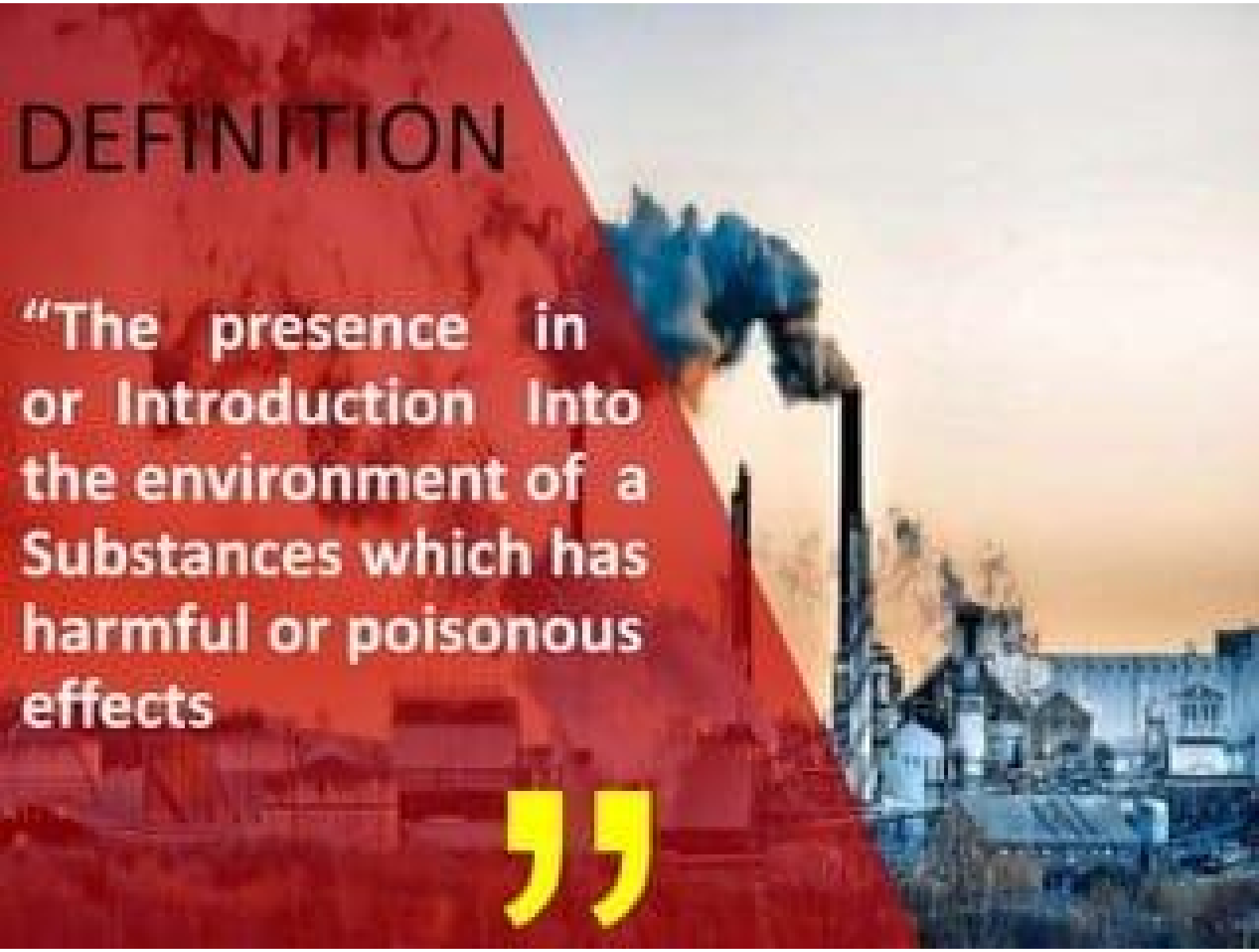
Introduction

- According to The Air (Prevention and Control of Pollution) Act, 1981, "air pollution is the presence of any solid, liquid, or gaseous substance in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment".

Sources of air pollution

Natural sources: Natural sources of air pollution include volcanic activity, dust, sea-salt, forest fires, lightening, soil outgassing etc.

Anthropogenic sources: These sources include stationary point sources (e.g. emission from industries), mobile sources (e.g. vehicular emission, marine vessels, airplanes etc.), waste disposal landfills, open burning etc.


DEFINITION
"The presence in or Introduction Into the environment of a Substances which has harmful or poisonous effects
,,

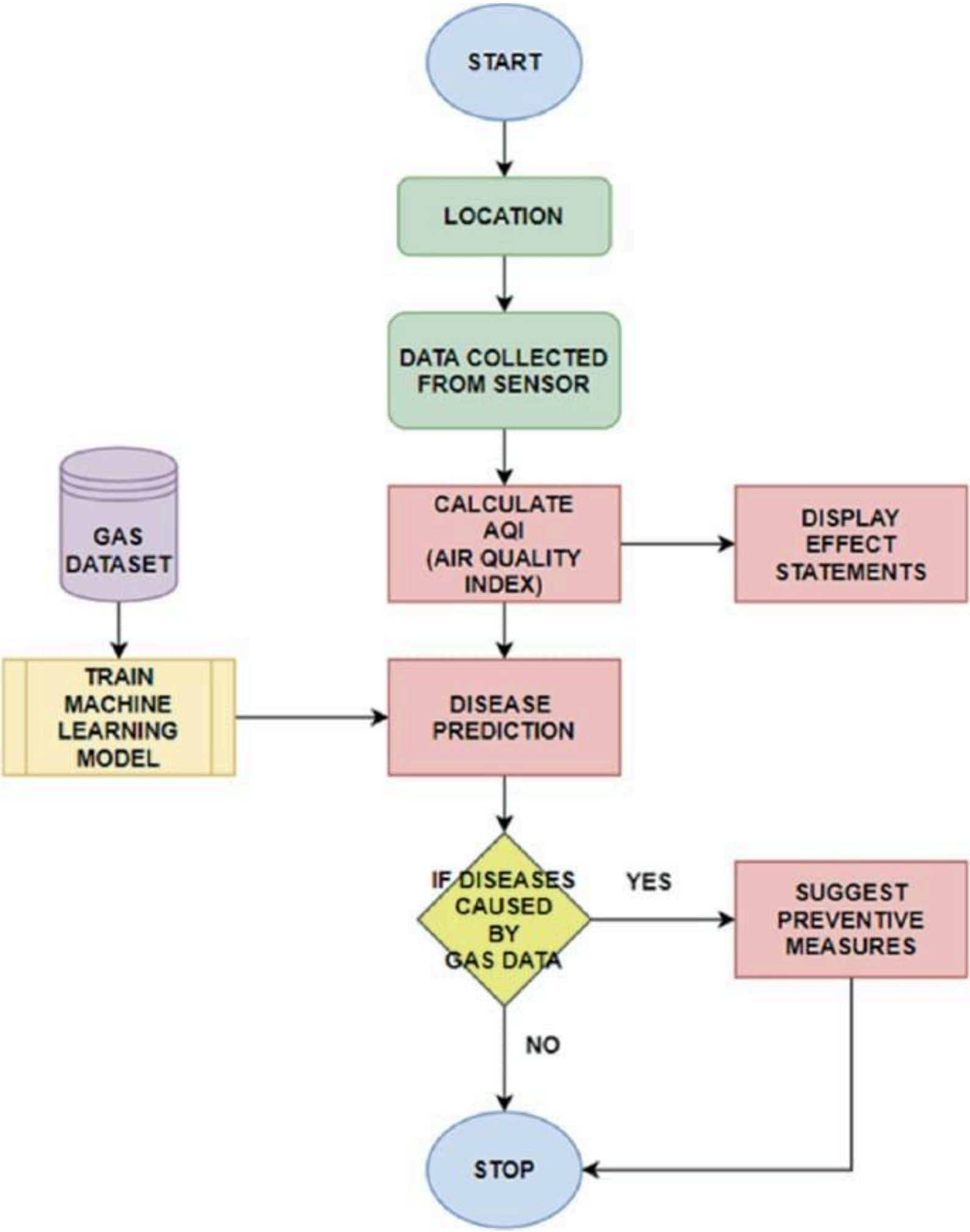
AQI

AIR QUALITY INDEX

FACE ICON	Air Quality Index LEVEL OF HEALTH CONCERN	COLOUR
 Good	0-50	
 Moderate	51-100	
 Unhealthy for sensitive groups	101-150	
 Unhealthy	151-200	
 Very Unhealthy	201-300	
 Hazardous	301-500	

Air Quality Index (AQI) Summary

- The AQI is:
  - Used to protect public health
  - Used to determine appropriate activities for people, industry, and commerce
  - Calculated from monitored values of 5 major pollutants
  - An effective tool to determine how well Clean Air Act standards are being met by our communities


START
LOCATION
DATA COLLECTED FROM SENSOR
GAS DATASET
CALCULATE AQI (AIR QUALITY INDEX)
DISPLAY EFFECT STATEMENTS
TRAIN MACHINE LEARNING MODEL
DISEASE PREDICTION
IF DISEASES CAUSED BY GAS DATA
YES
SUGGEST PREVENTIVE MEASURES
NO
STOP

WHAT IS AIR QUALITY?

- Complicated by a lack of knowledge as to what is "clean" and what we mean by quality.
- Main reason for air pollution control programs is to protect public health - define air quality based on its effects on people and the environment.
- Effects of air pollution are chronic and not immediately obvious.

AIR QUALITY ACTION DAY

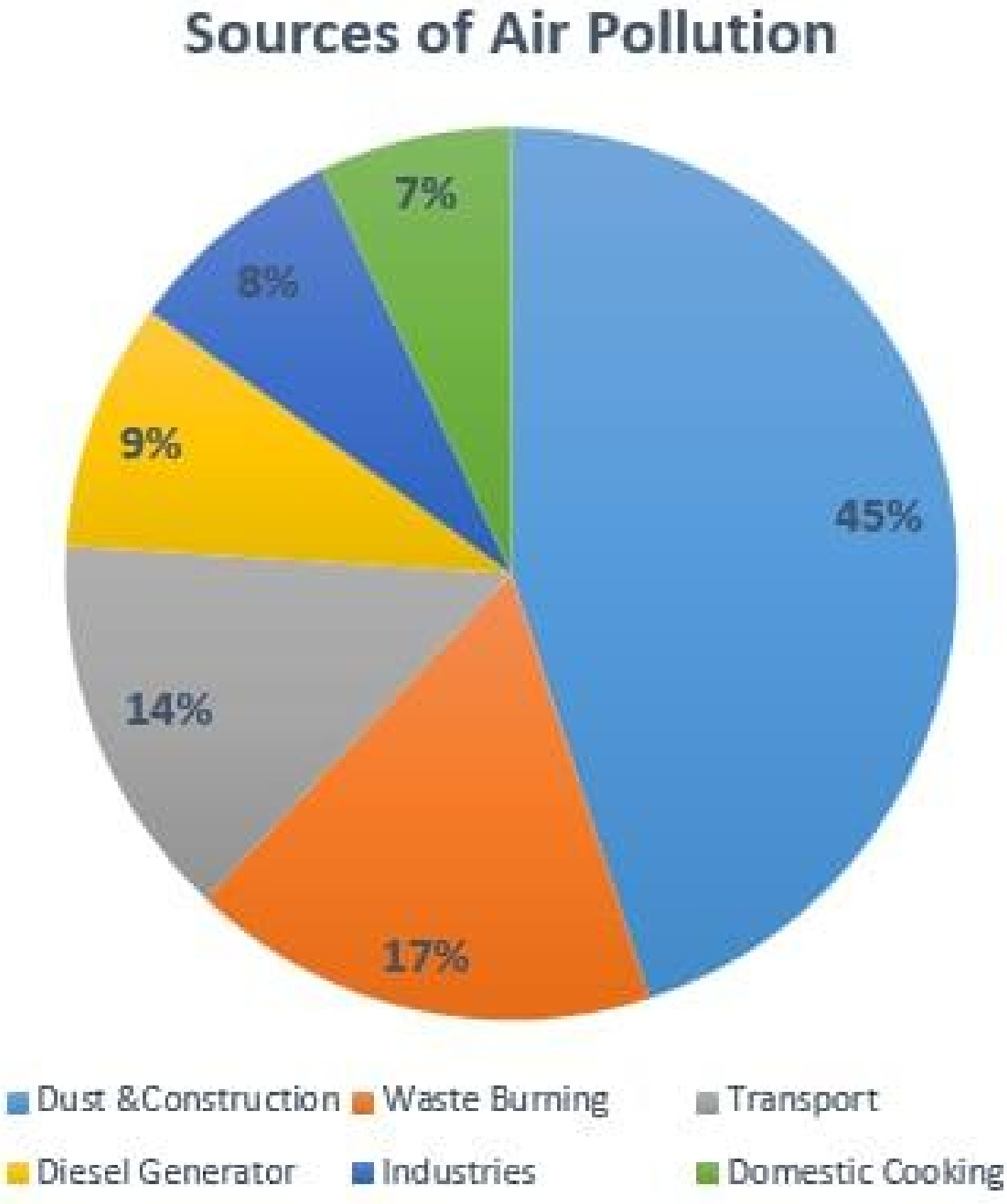
RED:

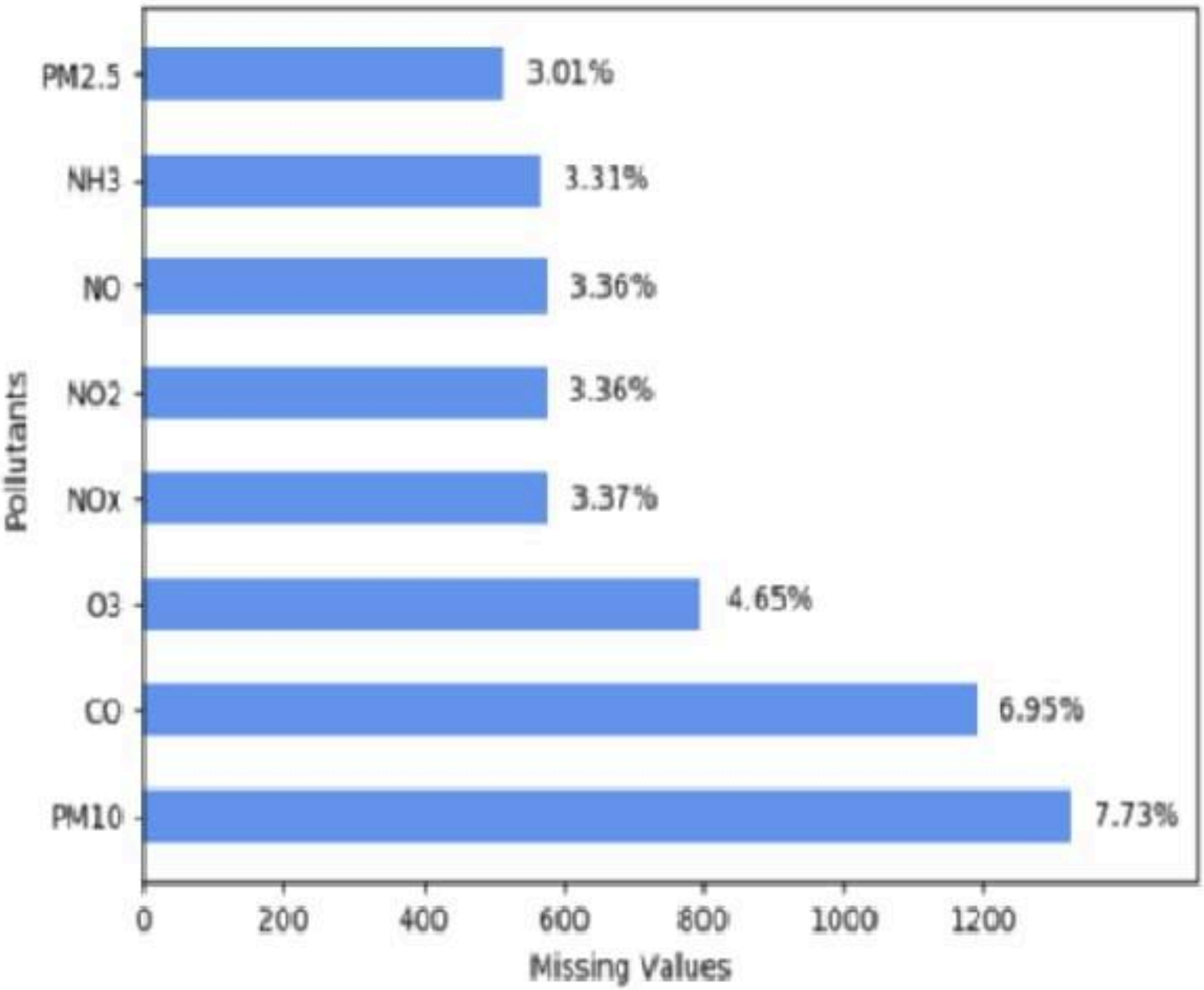
Pennsylvania residents should limit their outdoor activities, especially older people, children, those who are active outdoors, and those with lung or respiratory conditions such as asthma, emphysema, or bronchitis.

```
loc = pd.pivot_table(tn, values=['so
2','no2','spm'],index='location') # Ag
gfunc: default-np.mean()
loc
```

	no2	so2	spm
location			
Chennai	18.551330	11.905157	199.767056
Coimbatore	29.374767	5.832845	188.888683
Cuddalore	19.772657	9.110599	267.000000
Madurai	24.420616	11.153280	179.156298
Mettur	24.039095	8.399177	267.000000
Salem	25.764407	8.190645	179.440385
Thoothukudi	16.948928	17.532772	210.858009
Trichy	18.211327	13.753170	267.000000
Tuticorin	14.505208	10.176389	51.322917

	Status	AQI-US
Rajapalaiyam	**MODERATE**	**68**
Rameswaram	MODERATE	98
Salem	MODERATE	59
Seven Pagodas	MODERATE	57


Sources of Air Pollution
45%
17%
14%
9%
8%
7%
Dust &Construction
Waste Burning
Transport
Diesel Generator
Industries
Domestic Cooking


PM2.5
NH3
NO
NO2
NOx
O3
CO
PM10
3.01%
3.31%
3.36%
3.36%
3.37%
4.65%
6.95%
7.73%
Pollutants
0
200
400
600
800
1000
1200
Missing Values


4-22-20
arcadio


NEW JERSEY
AIR QUALITY FLAG PROGRAM
AIR QUALITY
GOOD
AIR QUALITY
MODERATE
AIR QUALITY
UNHEALTHY
FOR SENSITIVE GROUPS
AIR QUALITY
UNHEALTHY
AIR QUALITY
VERY
UNHEALTHY

Advantages

- Low initial cost.
- Easy to design.
- Low pressure drop.
- Low maintenance cost.
- Dry and continuous disposal of solid particulates.

Disadvantages

- Require large space.
- Less collection efficiency.
- Only larger size particles can be collected.

CONCLUSION

Air pollution effects adversely the living standard of human and their health. industry effects crop production of nearest land , so it should be faraway. We should use less polluted like CNG , electric vehicle. Environment ministry should work effectively about pollution.