



PERCEPTION SURVEY REPORT NAGPUR CITY



ABSTRACT

A brief report based on the Perception survey on Air pollution conducted by CFSD in association with Clean Air Asia



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INTRODUCTION:

Air Pollution:

Air pollution occurs when harmful or excessive quantities of substances including gases, particles, and biological molecules are introduced into the Earth's atmosphere. It is caused both by human activity and natural processes and can affect both living organisms and damage the environment. Indoor air pollution and poor urban air quality are two of the world's most toxic pollution scenarios.

An air pollutant is a material that can have severe effects on the ecosystems and humans and can be solid particles, liquid droplets or gaseous in nature. Pollutants are classified as primary and secondary. Primary pollutants are released into the atmosphere due to the naturally occurring processes like vehicular emissions, volcanic eruptions; while secondary pollutants are not released directly rather are created by interaction of two or more primary pollutants like Ground-level Ozone and some pollutants can be both primary and secondary like being emitted from a process directly and created from the interaction of two primary processes.

Few of the pollutants that are directly released into the atmosphere are Carbon dioxide, Carbon monoxide, Sulphur dioxide, Nitrogen oxide, Volatile Organic Compounds (VOC), Particulate Matter, Persistent free metals, Chlorofluorocarbons, Ammonia, Radioactive pollutants, Toxic metals and Odours from garbage, sewage, and industrial processes. While secondary pollutants created by the interaction of primary pollutants are Smog, Ground-level Ozone.

There are mainly two kinds of sources responsible for releasing polluting the air namely man-made and natural sources. Few of the man-made sources include smoke stacks from industries, power stations, incinerators, and furnaces, vehicular emission, waste deposition in landfills which release methane, a highly flammable compound which in turn produces harmful mixtures in reaction with air. Few of the natural sources are dust Smoke and Carbon monoxides from wildfires and volcanic activity.

Air pollution is considered one of the major risk factors for several pollution-related diseases which include heart diseases, respiratory infections and stroke. Health effects due to poor air quality are worsening, as they affect the individual's respiratory system and cardiovascular system. An Individuals reaction to air pollutants depends on the type of air pollutant, the extent to which they are exposed and one's genetics and health.

Air pollution by black carbon and ground-level ozone has reduced the crop production by almost half in 2011 compared to the levels of 1980 as reported in 2014. Air pollution costs the world economy far more than \$5 trillion per year because of productivity losses caused by deaths due to diseases caused by air pollution and degraded quality of life.



Clean Air Asia:

Clean Air Asia is an international non-governmental organization that leads the regional mission for better air quality and healthier, more liveable cities in Asia. They aim to reduce air pollution and greenhouse gas emissions in 1000+ cities in Asia through policies and programs that cover air quality, transport and industrial emissions and energy use.

They work with ministries (energy, environment, health and transport), cities in Asia, the private sector and development agencies to provide leadership and technical knowledge in the following areas: Air Quality and Climate Change, Low Emissions Urban Development, Clean Fuels and Vehicles and Green Freight and Logistics. Clean Air Asia's approach is hinged on science-based, actionable guidance combined with an ethos of partnerships and collaboration as key drivers for meaningful and lasting impact.



Centre for Sustainable Development:

Centre for Sustainable Development, CFSD, a non-profit organization, started in the year 2004, with a vision to facilitate participatory and sustainable development processes that would make human settlements equitable living environments providing basic amenities to the community irrespective of their social and economic status. They support an integrated approach for the improvement of living conditions in the slum by combining several local and national programmes in the fields of urban development, education, social infrastructure and health.

They strongly believe the involvement of slum communities especially women in the planning and implementation for the success of any government programs for the urban poor and are committed to facilitating a participatory approach surrounding slum dwellers, govt organizations, NGO's and the private sector.

POLLUTION IN NAGPUR:



Nagpur is considered as the most polluted city in Maharashtra and 17th in the country. 102 cities in India has been classified as Non-attainment cities which are having high levels of air pollution by the National Clean Air Program (NCAP). Nagpur is one among the 10 cities in Maharashtra which is categorized as non-attainment cities. According to Central Pollution Control Board (CPCB), 80 cities across India have developed their air pollution action plan while the remaining 22 are yet to submit their drafts which include Nagpur.

Maharashtra Pollution Control Board (MPCB) and National Environmental Engineering Research Institute (NEERI) along with Smart City Nagpur has installed several air quality sensors to monitor Air quality parameters. As most of the projects are in the pilot stages, there is only collection of the real time data. Once the projects are launched, public may be educated on how to avoid and control their contribution to the air pollution based on the assessment of different parameters.



PERCEPTION SURVEY:

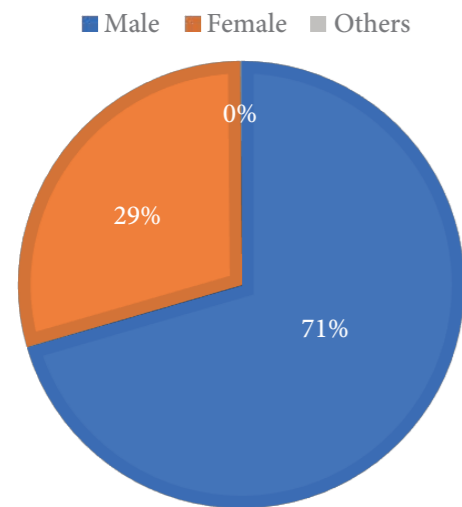
Perception Surveys are often conducted to understand the reactions of the people to their surroundings and environment. They are used to find out the problems, asses need, analyze trend and establish a baseline. Surveys convey Information that exist in what amount and context. Though surveys are conducted to analyze the past or predict the future it can often be used to just collect information. Perception Surveys are deemed important because they give us an idea of people's behaviours as it based on their perception of their surroundings. They are helpful to identify the gaps and provide recommendations wherever deemed necessary to bridge between the saying and practice.

Clean Air Asia's India division headed in New Delhi in collaboration with Centre for Sustainable Development conducted a perception survey in different localities with help of student volunteers from the colleges of Tirpude Institute of Management Education, Hislop College and Shri Shivaji Education Society Science College. The survey was carried out in both Hindi and English and garnered a total of 741 responses which includes few online responses as well. We have analyzed the data and have drawn few inferences.



ANALYSIS:

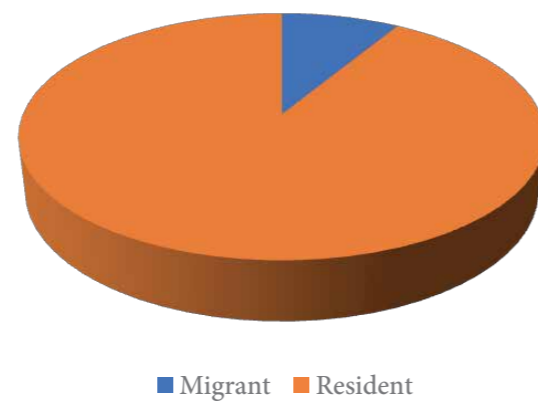
Gender



Inferences:

- 519 Male, 216 Female, 1 Other Gender and few anonymous people have taken part in the survey.

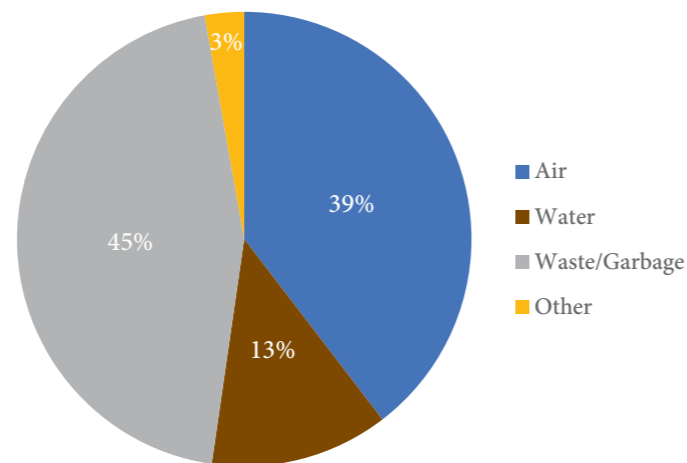
Resident/Migrant



Inferences:

- Out of the 741 people surveyed, 632 were of residents of Nagpur, 60 were migrants and a few chose to be anonymous.

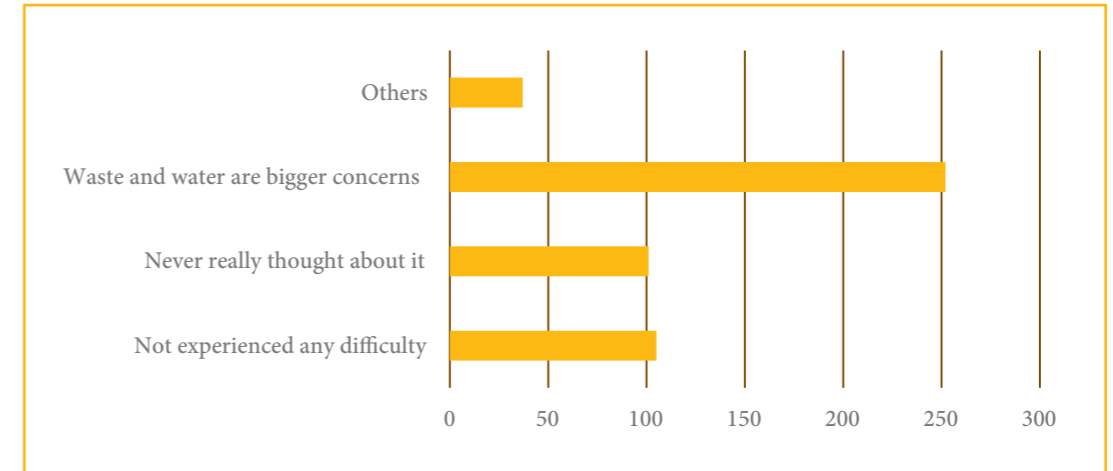
What is the most occurring type of pollution in your city?



Inferences:

- The survey showed that 45% of the people perceives Waste/Garbage as most occurring type of pollution in Nagpur and 39% people think it is Air pollution.
- Even though Waste/Garbage was expected to be the first option that people will select, significant amount of people also selected air pollution as the most occurring type of pollution in Nagpur.
- This can be attributed to the visible pollution that is happening due to the metro construction & other developmental activities.

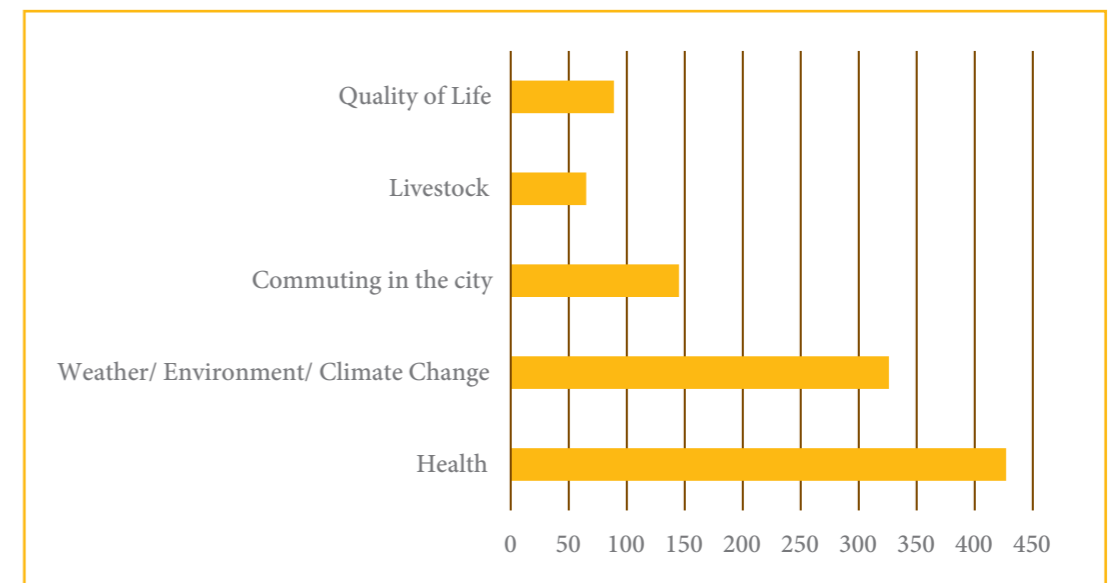
Why do you think that the air in your city is not polluted?



Inferences:

- The question was intended for the people who didn't selected Air as the major cause of pollution in Nagpur.
- 252 people feels that Waste and water are the bigger concerns that the city need to address prior air pollution.

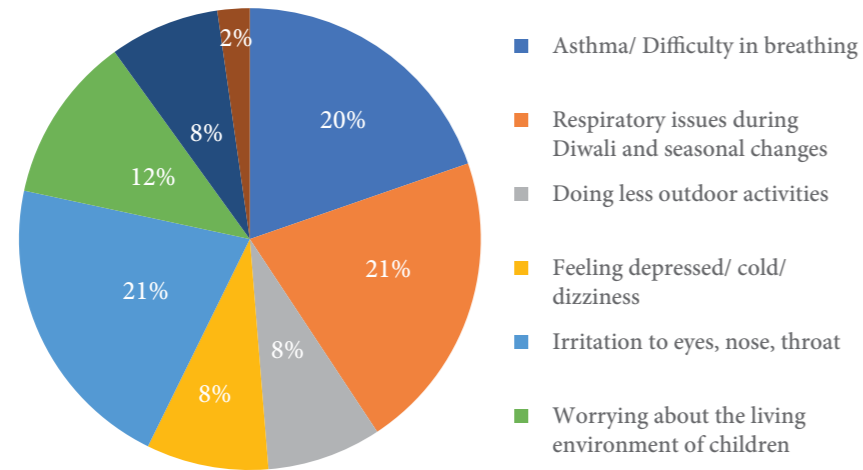
What aspects of your life is air pollution affecting?



Inferences:

- The survey showed that most of the Nagpur citizens feels their Health is directly getting affected due to air pollution.
- A significant portion in the sample also selected effect of Weather/Environment/Climate Change on air pollution.

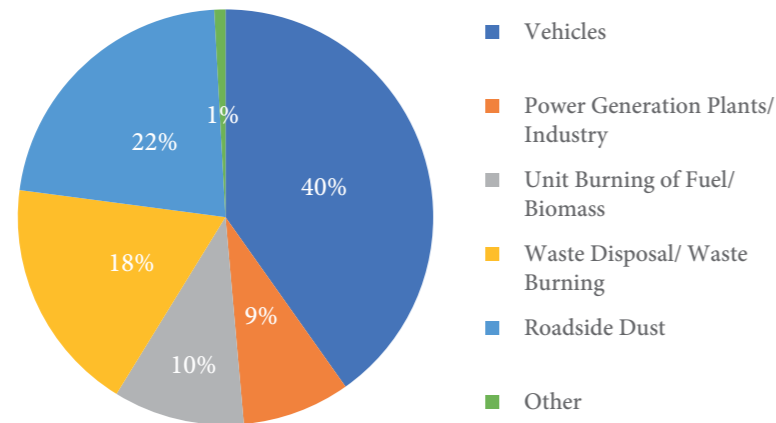
In which of the following ways do you think you are affected?



Inferences:

- The sample population identifies many illness/issues caused due to air pollution.
- Asthma/ Difficulty in breathing, Respiratory issues and Irritation to eyes/nose/throat are the major visible problems recognized by the people as per the survey data.

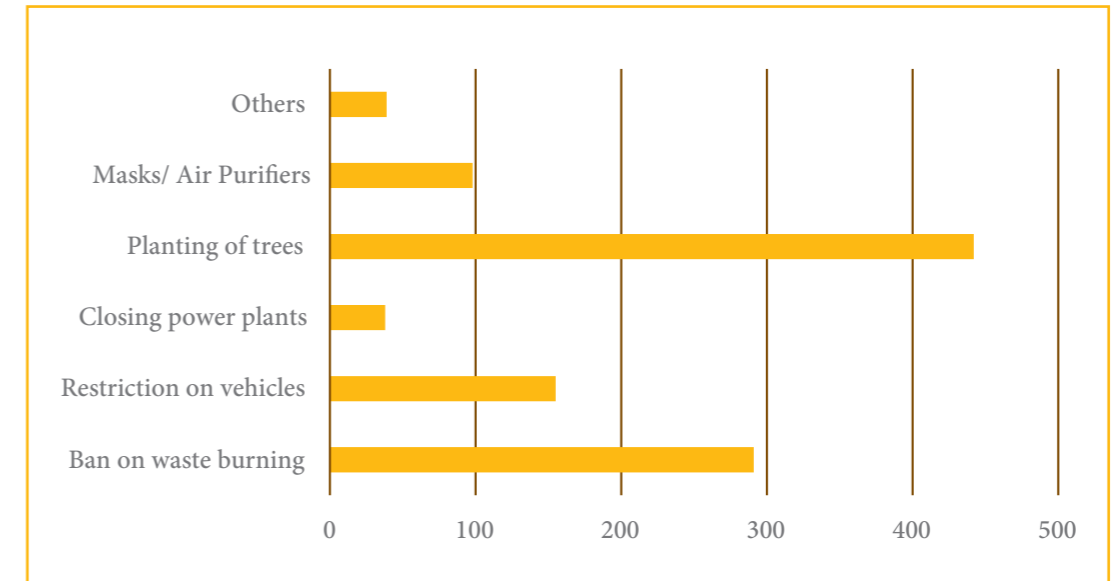
What do you think are the sources of air pollution in your city?



Inferences:

- Most people identify Vehicles as major source of air pollution.
- Apart from this Roadside dust and Waste burning are also considered as major causative factors by the public.

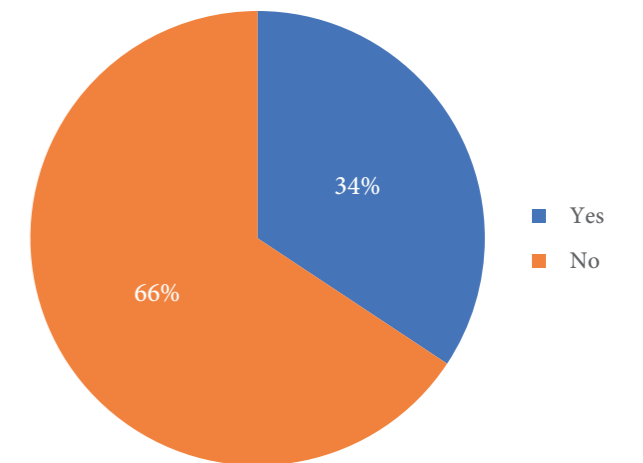
What initiatives have been taken to tackle air pollution in your city?



Inferences:

- The question aims to understand whether people are aware of the actions taken by Nagpur city authorities for tackling air pollution.
- It is understood that most of the people identified Planting trees as one of the major initiatives taken by the authorities.
- Also, more than half of the surveyed people are aware about the Ban on waste burning imposed by the Corporation.
- Few initiatives known to the public to tackle air pollution are green buses and electric taxis, metro being built, Waste management, electric vehicles, usage of solar energy

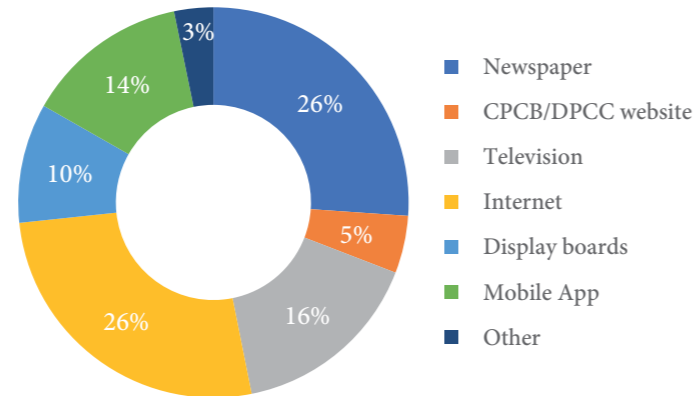
Do you have access to air quality data in your city?



Inferences:

- 450 people out of 724 said that they don't have any access to air quality data of the city. The others have several sources for accessing the data.

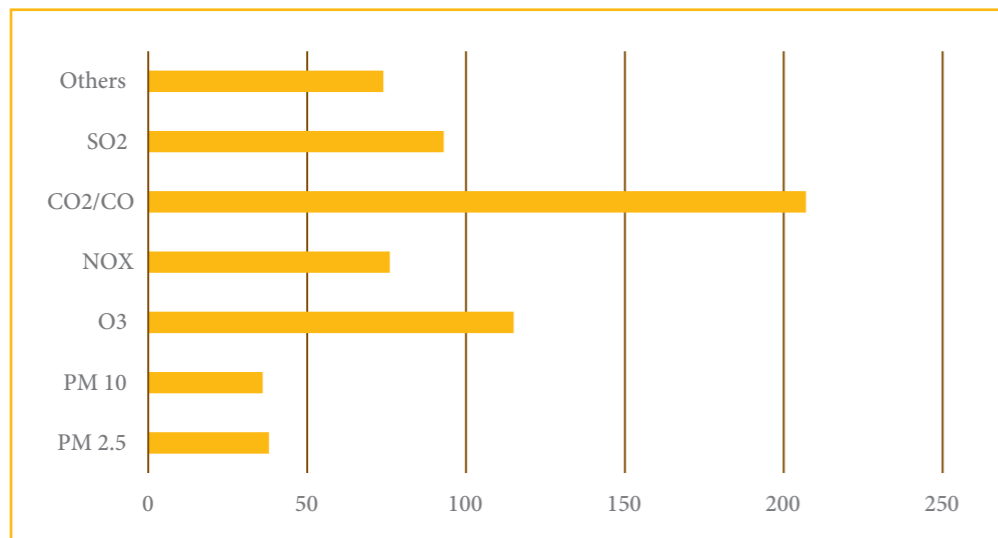
How do you access air quality for your city?



Inferences:

- The important sources people use to access air quality data is found to be Newspaper and Internet.
- The high penetration of Mobile internet among the generic public is also increasing use of mobile apps to access air quality data.
- Radio also happens to be the source to access air quality data.

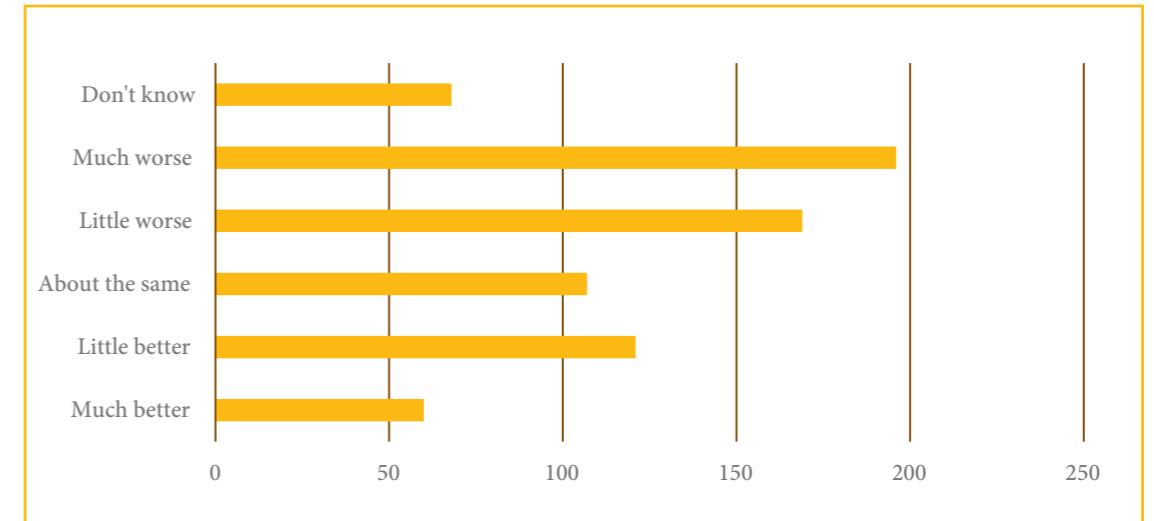
Have you heard of any of these pollutants?



Inferences:

- People perceive mainly Carbon-di-oxide and Carbon monoxide as the major air pollutants and only a small portion of the city is aware of particulate pollutants like PM 10 and PM 2.5

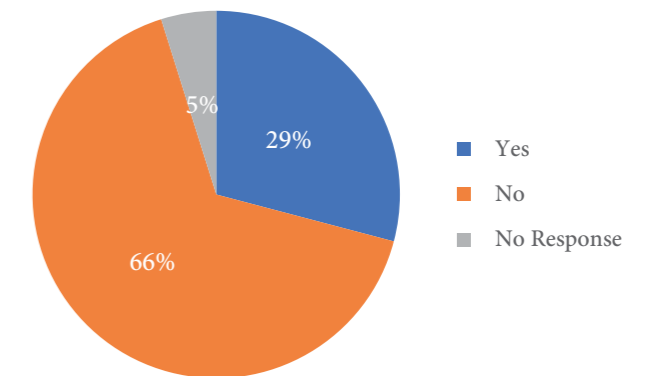
How do you compare overall air quality in your city to last year?



Inferences:

- More than 45% of the population surveyed feels that the overall air quality in the city has degraded and only less than 10% feel it has significantly improved.

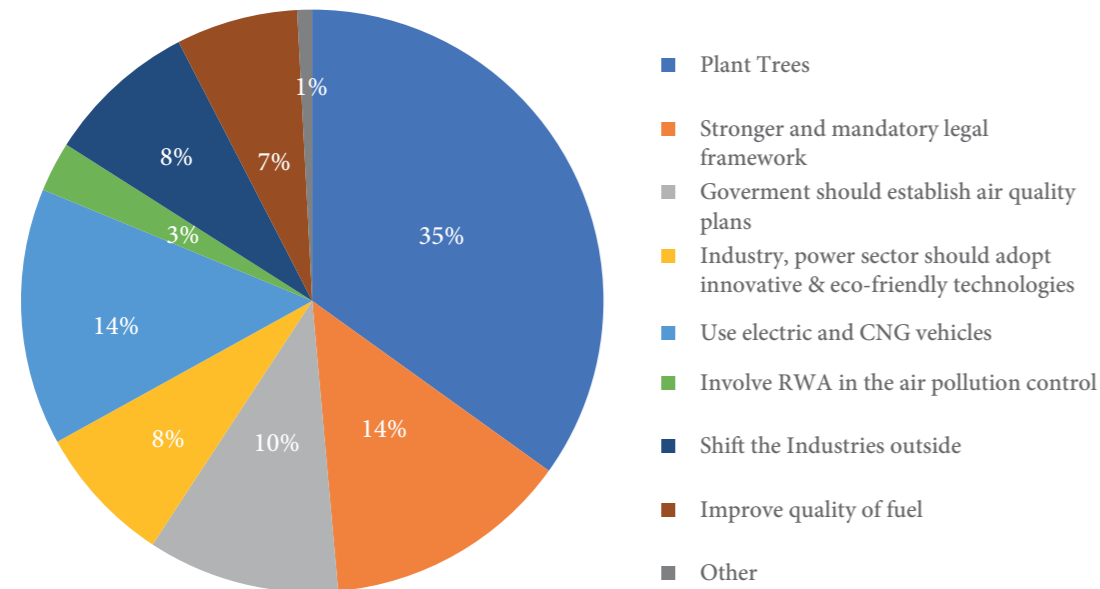
Do you know of any government sponsored initiative to tackle air pollution in your city?



Inferences:

- More than 66% of the sample are unaware of the government-sponsored initiatives in the city.
- This shows very low awareness among the general public about the initiatives done by government and this should be addressed in a priority basis.
- Few Initiatives taken by the government known to the public are usage of solar energy, Swachh Bharat, Odd/Even rule and installing BS4 engines.

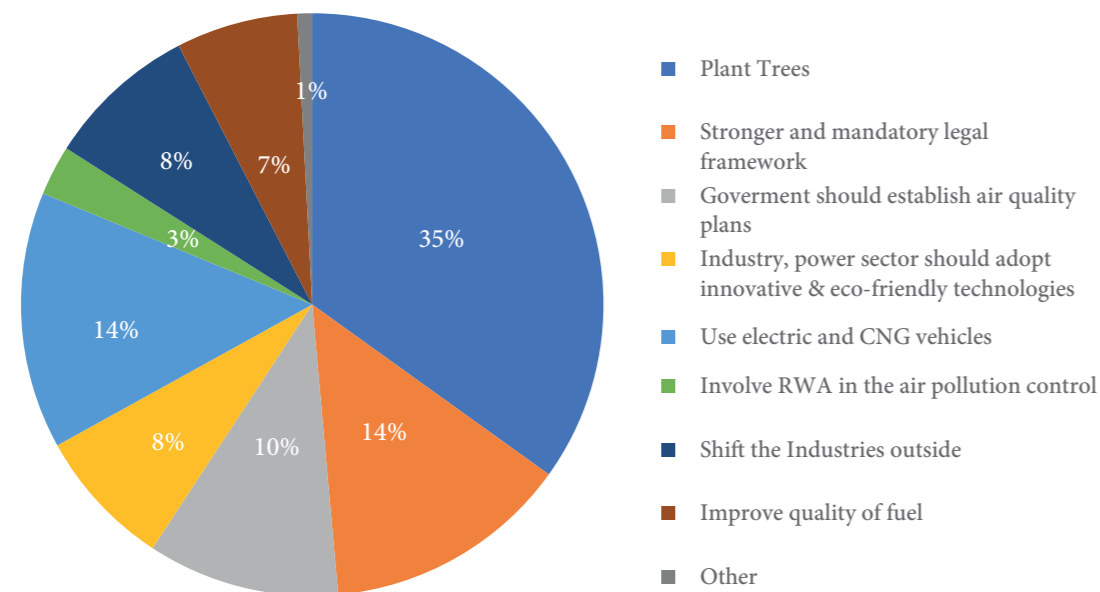
What initiatives must be taken to reduce air pollution in your city?



Inferences:

- Out of the initiatives that is to be taken for reducing air pollution, 35% identify planting trees can reduce air pollution levels.
- A major portion also feels that Stronger and mandatory legal framework, as well as use of Electric vehicles, can reduce the air pollution levels.

What measures are you ready to take to reduce air pollution in your city?



Inferences:

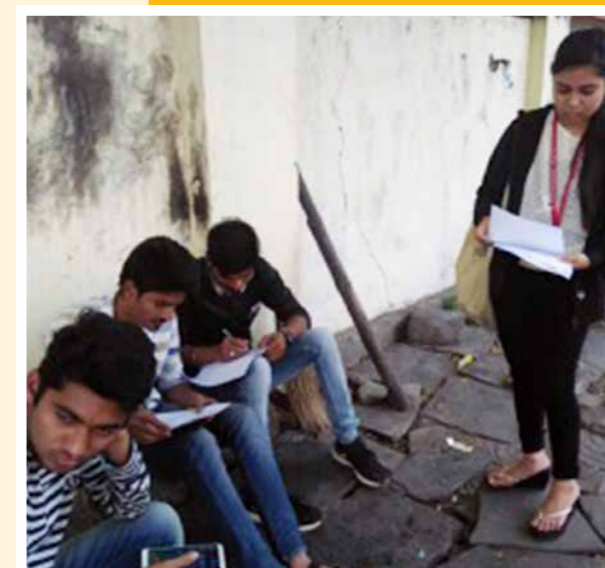
- 31% of the sample population is ready to Plant more trees for improving air quality.
- 21% agreed that they are willing to use Public transport/Carpooling for reducing air pollution.
- Also 20% suggested that they are ready to do better waste management activities.

PREVENTIVE SOLUTIONS:



Air pollution, despite being one of the major causes of suffering environment is not considered to be an important factor. Few steps which can be considered to prevent this are as follows:

1. Make people aware about the strands and effects of Air pollution as most people consider the pollution visible to the human eye to be harmful and must be made aware of the consequences of invisible forms of pollution as well.
2. People should be made aware to prevent them from burning garbage in areas as it happens to be a major factor for air pollution.
3. Industry level fumes and smoke should be audited and controlled.
4. For manufacturing bricks, a less harmful fuel like a biofuel can be used to burn the bricks reducing the harmful smoke emissions.
5. Road side eateries should be made aware of the different fuels that can be used to prevent fumes.
6. Vehicles can be divided into different grads and based on different parameters like age of vehicle, parking pattern, emissions owners can be intimidated about the consequences and suggest for a replacement of the vehicle.
7. Plastic burning, Open waste burning and Regular waste burning at dumpsites account for the major sources of pollution area wise and people should be made aware of the consequences and teach them various alternatives.
8. Most importantly educate the citizens as a behavioural change is eminent and would strive as an important aspect to reduce the air pollution.



ACTIONS TO BE TAKEN:



Identify a source of pollution and conduct a streamline survey to find the root cause and try to educate the people to come up with alternatives.

- Conduct a Vehicular survey to identify the vehicles emitting more pollutants into the air and ask the owner to either replace the vehicle or start using alternatives like public transport, carpooling, Electric vehicles.
- Educate the Ragpickers and garbage collectors the adverse effects of burning plastic and disposal at the dumpsites or at localities and ask them to use the plastic for recycling and reusing purposes.

Devise an Air Action plan for the city under the National Clean Air Programme and identify the sources and take necessary actions and preventive measures.

- Air Action Plan is an agenda set to curb the adverse effects of air pollution and maintain the air quality under the National Clean Air Programme committed to clean and pollution free environment. It lists the key actions that the task force addresses to assess the air pollution will monitor. It is recognized that various agencies responsible for causing several determinants of the pollution will be taking necessary steps to curb them based on the assessment of need.



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