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CARBON DIOXIDE DETECTION FOR POLLUTION REDUCTION EMISSION (CODPRE)

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Abstract: In our environment human being burn fossil fuel such as oil, coal, and natural gas for useful energy. Thisenergy is released and consumed for power by cars and other machines to generate electricity. The burning fuel releases waste gases including carbon. If human population increases then more fuel is used and more carbon dioxide will emit. If carbon dioxide increases then greenhouse effect will show up, due to which heat will be trapped. Then the atmosphere will become too warm and natural atmospheric temperature will increases day by day. For this I have done case study in India and in India I researched in Chhattisgarh Raipur and in Raipur I have taken particular place like Ghadichowk, JaistambhChowk, and KacheriChowk. I have taken 3 references and collected the data of different day and different time in a traffic and how much threewheelers and fourwheelers vehicles emit carbon dioxide during traffic signal. After that I have foundthat how many 3wheeler and 4wheeler vehicle are present in the City through RTO office. Then I calculated how much a passenger car or 3wheeler vehicle will emit carbon in yearly basis and also calculated how much the plant is able to absorb Carbon. In this way I got the average value of carbon absorbed by the tree and also the average value of carbon emitted by the different vehicle. After that we have to plant the tree in the different place where it is required since we get some extent balance of Carbon dioxide in atmosphere.

Keyword: Pollution control, carbon dioxide emission, RTO data,

I. INTRODUCTION

It's a matter of great shocking for our country because India's 34 cities are in the top 100 positions according to the survey. This record is 2016 version of the WHO database contains results of ambient (outdoor) air pollution monitoring from almost 3000 towns and cities in 103 countries. pollutions is a real threat to health and wellbeing of mankind. Studies by WHO reveal that Globally 7 millions people died because of air pollution. Air pollution in India is quite a serious issue with the major source being fuel wood and Biomass. Burning fuel adulteration Major emissions of carbon dioxide and different gases from vehicles and traffic congestion and industries traffic congestion on inadequate road infrastructure is a daily reality of India urban centres. Slow speeds and idling vehicles produce per trips 4 to 8 times more pollutants and consumes more carbon footprints fuels, then free following traffic. According to. The prime air pollutions have been broadly classified as outdoor and indoor pollutant. Outdoor pollutant including remains of fossil fuels carbon particles and metallic particles in the atmosphere from Industrial and automobile emissions toxic gases like carbon dioxide and many toxic gases. On the other hand indoor pollutants include toxic gases produced from kitchen smoke smoking wood burning etc.

Fig.1 Effect of pollution due to flue gas emission from automobile

Major air pollutants

1: -outdoor pollutants:-(Example: -industry emission, automobile exhaust etc.)

2:-Indoor-pollutants:-(Example: -smoke from kitchen, smoking, wood burning etc)

Methodology:-The main air pollution is occur due to the developing of the country. If we see our earth how it looks like now and how it will be going to look like in future there will be a hug difference. It doesn't matter how it will be going to looks like the main cause of it will be pollution. We are taking various steps for reducing the pollution like tree plantations but we are not doing it in our area where it is required or needed. So for that I have research on the amount of pollution created due to vehicles.Basically I have done case study and taking the reference of India and in India I take the reference of Chhattisgarh Raipur and in Chhattisgarh Raipur. I have taken particular place like GhadiChowk, jaistambhChowk, and kachahariChowk. I have taken 3 references and get the data of different day of different time. When the vehicle are stopped in the traffic at a particular time and how much carbon dioxide emitted at that particular time. After this I got to know that how much carbon dioxide emitted from single vehicle and also found out the how much carbon dioxide will absorb by a single mature tree after that we will plant the no of tree requiredthose area. Where the carbon dioxide is maximum we try to balance the carbon

dioxide in the atmosphere in that particular area and for this we have to know that how much carbon dioxide is emitted by the tree during night and it is around 48pound in yearly for mature tree.

Similarly, after calculating that I went to the RTO office and found out how many cars, auto and different vehicles are present in the Raipur and how much vehicle in average running during of 1-year duration and find the carbon dioxide emitted by the car and another vehicle similarly for tree how much carbon dioxide will be absorbed after that hole calculation we will plant the tree according to our requirement and to balance the carbon dioxide so that the environment is healthy and we can get the eco-friendlyenvironment.

Advantages:-

- Its helps to maintain balance between carbon dioxide and oxygen.
- Healthy environment will be created.
- Tree also absorbsodours and pollutant gases like (carbon dioxide, nitrogenoxide, Ammonia Sulphur dioxide and Ozone) and filter particulates out of the air by trapping them On there Leaves and bark.
- Tree cool the City up to 10°F by shading our homes and Street, breaking up urban heat island and releasing water vapour into the air through their Leaves.
- It reduce greenhouse effect.
- It reduces humidity.
- Three trees place strategically around a singlefamily home can cut summer air conditioning needs up to 50% by reducing the energy demands for cooling our houses we reduce carbon dioxide and other pollution emissions from power plants and different vehicles.
- Reduce the pollution.
- Get the healthy and eco friendly environment.
- The overall ecological balance and preserve.
- Long service life.
- Food chain will be maintained.
- Shade from trees flows water evaporation from thirsty lawns. most newly planted tree needed only 15 gallon of water a week. As tree transpire they increase atmospheric moisture.
- Trees reduce off by breaking rainfall thus allowing the water to flow down the trunk and into the earth below the trees. This prevent storm water from carrying pollutants to the ocean. When mulched tree act like a sponge that filter this water naturally and use it to recharge groundwater supplies.
- On hillsides or stream slopes trees slow runoff and hold soil in place.
- Maintain the ozone layer.
- Protect from you natural disaster.
- Skin cancer is the most common form of cancer in the United States. Trees reduce UV-B exposure by about 50% thus providing protections to children's on school campus and playgrounds near children's spend hours outdoors.
- Maintain the soil quality.
- Ensure water security.
- Regulate weather pattern
- An apple tree can yield up to 15 to 20 bushels of fruits per year and can be planted on the finniest urban lots. Aside from fruits for human, trees provide food for birds and wildlife.
- Fruit harvested from community orchards can be sold thus providing incomes small business opportunities in green waste management and landscaping arise when cities value mulching and its water saving qualities vocational training for youth interested in green jobs is also a great way to develop economic opportunity from trees.
- Preserve biodiversity.
- From trees different type of equipment are to be manufactured.

Calculation: -

one acre of forest area can absorb approx. =15.873 ton of carbon in yearly basic.

The no of trees in one acre is around 400 trees.

400 trees = 15.873 ton of carbon

400trees=15.875×907184.74 grams

1 trees=$\underline{14401557.75}$grams

400

1 ton=907184.74grams

1trees=36003.894grams in yearly

One mature tree is absorbed around 36003.894 grams of carbon in yearly.

Average expected driving of Indian car is around 10,000 to 15,000 km/year according to my research.

Carbon dioxide emission from one gallon of diesel fuel = 10,180 gramco2/gallon.

1 gallon = 3.785 litre.

Carbon dioxide produce in one litre of diesel fuel = $\underline{10,180}$

3.785

= 2689.564 litre.

So, one ton of carbon is equivalent to 3.667 ton of carbon dioxide.

= $\underline{2689.564}$

3.667

= 733.450 gram of carbon.

Considering average mileage of car in India is considered as 22 km/lit.

The fuel per/ litre consumed by car in yearly considering if the car is driving around 15,000 km/year.

Then

$$= \frac{\text{distance}}{\text{mileage}}$$

$$= \frac{15{,}000}{22}$$

= 681.818 litre

681.818 litre consumed by car in yearly.
For total carbon produce for 681.818 litre.

One litre = 733.450 gram of carbon.
For 681.818 litre =733.450 × 681.818
For 681.818 litre = 500079.2472 gram of carbon.

The tree required for balance the carbon produce by single car is…

$$= \frac{\text{Carbon dioxide produce by single car}}{\text{Carbon dioxide produce by single tree}}$$

$$= \frac{500079.2472}{360030894}$$

= 13.889

On an average the tree required to balance the carbon dioxide produce by single car is around 14 mature tree is required.

Total no of 4wheeler in Raipur is around 96646 {this data is taken from RTO office Raipur.
Total no of trees required to balance the carbon produce from 4wheeler in Raipur is…

= 96646 × 14
=1353044

The tree required in Raipur to balance the atmosphere is 1353044 trees.
Auto or 3wheeler in Raipur
According to my survey.
The average 3wheeler will be run around 98.75 km/day according to my survey.
The average 3wheeler will be run around 36043.75 in yearly.
The average mileage of 3wheeler will on average taken as 27 km/litre.
Total number of litre consumed by 3wheeler will be =1334.953 litre.

One gallon = 3.785 litre.

Carbon dioxide produce in one litre of diesel fuel = $\frac{10{,}180}{3.785}$

= 2689.564 litre.

So, one ton of carbon is equivalent to 3.667 ton of carbon dioxide.

$$= \frac{2689.564}{3.667}$$

= 733.450 gram of carbon.

For calculating the carbon dioxide produce from 1334.953 litre.

One litre = 733.450 gram of carbon produce.
For 1334.953 litre = 1334.954 × 733.450
For 1334.953 litre = 979121.2779 gram of carbon.

The tree required for minimize the carbon dioxide produce by single 3wheeler vehicle is…

Carbon dioxide produce by single threewheeler.
Carbon dioxide produce by single tree.

$$= \frac{979121.2779}{36003.894}$$

= 27 trees

On an average the number of tree required to balance the carbon dioxide produce by single 3wheeler auto is around 27 mature trees required.

Total no of 3wheeler in Raipur is around 10679 {this data is taken from RTO office Raipur.
Total no of trees required to balance the carbon produce from 3wheeler in Raipur is…

= 10679 × 27
= 288333

If we consider the traffic of the Raipur according to my survey the three traffic stoppage there number of 3wheelerand 4 wheeler are stopped in signal in like {ghadi chowk, jaistambh chowk, and pandri chowk}
This threeplace are very busy place.
According to survey on an average number of vehicle stopped in traffic signal and the vehicle engine are in working condition are 10251 /day in this threestoppage. if we calculating in yearly basis it will around increased by 3741615.

The carbon emission by 3wheeler and 4wheeler during traffic signal per minute is around 2.44 gram.
3741615×2.44
9129540.6 gram of carbon produce by this three signal in yearly.

If one mature tree absorbed 36003.89gram of carbon then reduce for carbon emitted from 3wheeler and 4wheeler during traffic signal are…

$$= \frac{9129540.6}{36003.89}$$

=254 trees

For balance of carbondioxide in atmosphere the trees

required 254 trees.
Its varies according to no of vehicle stopped in traffic signal.

The total no tree required to balance carbon emission from 3wheeler and 4wheeler in Raipur are required around 1641631 trees.

II. CONCLUSION

This problem associated with carbon dioxide pollution have the capabilities to disrupt life on our planet to a great extent. Our duty is that we also do something for the humidity. Because the government alone cannot solve the entire problem. It is ultimately up to us. By this particularcalculations we can find out how much carbon dioxide will admitted in those City or area based on this. We will get the data with the help of which we can plant the tree in those area according to our calculations and requirement by which the amount of carbon will be balanced in the environment. This shows that how much carbon dioxide will emitted on being generated and we all know that how much trees to be required to be planted in each and every City by calculating this. It's very good steps by which we can also reduce the pollution. And also a healthy as well as eco friendly environment will be generated. By this we can make every City green healthy and eco friendly.Finally after finishing this project I have learnt a lot of things about pollution because I think that carbon dioxide is not only harmful for us but also this is a major pollutant for environment. when carbon dioxide will be more then we see the various effectlike increasing of temperature, humidity, famine, depletion of Ozone layer, decrease in farming due to water, aquatic life are going to the dangerous zones because of carbon dioxide and other gases. I also learnt that the government has taken a lots of step to help and reduce the emissions of carbon dioxide into the environment so we have to support the government. We must keep humanity with animals and as well as trees.

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