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SmogTower:ToHelpTackleRisingLevelsofAirPollution.

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Abstract:-

The World Health Organisation (WHO) says that India has 6 of the top 10 most pollutedcities in the world. National Capital Delhi sitting on the top of the list. According to aGreenpeacereportpublishedlastyear,1-2millionpeopledieeveryyearinIndiaduetoairpollution. In the light of such severe air condition, all the institutions,corporate houses,social pressure groups, and the concerned governments are striving hard to improve thecondition of air quality through out the country. Worth to mention that China has passedthrough such severe air condition and chines government has installed the smog tower inXi'an in the Shaanxi province. India is also planning to take the same initiative. A Delhi-based company"Kurian systems" has recently got the patent of the World's largest airpurifier. Smog towers of the kind purpose may reduce pollution for about a square kilometrearoundthem.Thelocalisednatureoftheireffectivenessalsomakesacaseforthem.Localgovernments have very few option to deal with air pollution. Delhi can not solve theproblemunlessPunjabandHaryanachangetheirpolicies.

Keywords:-

Airpurifier,Cufflinks,Emissions,Installed,NOx(Nitrogenoxides).

Introduction:-

In China, a similar smog tower has been able to compress the carbon waste generated toproducegemstones.TheprojectisacollaborationbetweenIndianInstituteofTechnology(IIT)Bombay,IIT-DelhiandtheUniversityofMinnesota,thelatterhavinghelpeddesigneda similar tower of over 100 meters in China's Xi'an city. The Central Pollution ControlBoard (CPCB) will also be involved with the project. China, which has been battling airpollution for year, has two smog towers in its capital Beijing and in northern city Xi'an.The Xi'an tower is dubbed the world's largest, and has reportedly brought down PM(Particulate Matter) 2.5 by 19% in area ofaround 6 sq km in its vicinity. The 100-meter(320feet)hightowerhasproduced10millioncubicmetresofcleanaireverydaysinceitslaunchandonseverelypolluteddays,isabletobringdownsmogclosetomoderatelevels,according to the South China Morning Post. The tower in Beijing, built by Dutch artistDaan Roose Gaaerde, has been able to compress waste generated during purification toproducegemstones,accordingtotheTED(Technology,Entertainment,Design)conference website. Upon compressionfor 30-40 minutes, the smog particles turn into darkgems,whichareusedforringsandcufflinks.Smogtowersarestructuresdesignedtoworkas large-scale air purifier. They are usually fitted with multiple layers of air filters, whichcleantheairofpollutantsasitpassesthroughthem.Afterthecleaning,thetowerreleasesclean air.

The smog tower-like device essentially sucks up smog like a vacuum from the top andthen releases the filtered air through its six-sided ventilators, by charging the smog freetowerwithasmallpositivecurrent,anelectrodewillsendpositiveionsintotheair.Theseions will attach themselves to find dust particles. Smog towers can only filter out theparticulatematterfromtheair,theycannotcontrolthelevelofotherseriouspollutantslikeNox -majorityemittedfromthetailpipesofvehiclesandburningoffuelsinindustries.Thesolutions like smog towers will work only when we successfully control the emissions fromthe sources, i.e. from the tailpipe of the automobiles and industries, which as of now canonly be done by promoting the use of green fuels and pollution control device. Everyonecandotheirparttoreducesmogbychangingafewbehaviours,suchas.

- Driveless.
- Takecareofcars.
- Fuelupduringthecoolerhoursoftheday-nightearlymorning.
- AvoidproductsthatreleasehighlevelsofVOCs(Volatileorganiccompounds).
- Avoidgas-poweredyardequipment,likelawnmovers.

Methodsandmaterials:-

In a city like Delhi, is an open outdoor environment , where pollution levels are high,weather is dynamic and source of pollution multiple, investing in such device is not feasible.HerearefivethingsyouneedtoknowaboutDelhi'sfirstsmogtowerorgiantairpollution.

1. Height

Thesmogtoweris20-ft-tall.Ithasbeenerectedonafourfeethighplatformonacovereddrain,nearVeerSavarkarMargin LajpatNagarCentralMarket.Thetotalheightfromtheroad level is 24 ft last year. China built the largest smog tower over 328 ft high Xi'an isShaanxi.

2. Cost

Thecostofthedeviceis7lakh.IthasbeenproducedbyGautamGambhirfoundationandhasbeeninstalledwiththehelpofLajpatNagarTradersAssociation.Therunningcostofthedevicewillbearound Rs.30000,whichwillbebornebythetrader'sassociation.

3. Design

It is cylindrical in design and built like a pole with a big inlet and four outlet units. Thegiant air purifier is fitted with exhaust fans to suck in polluted air with the help of a big inletunit. It is painted in four colour – orange on top, white in the middle, green colour justabovethebottomandblueatthebottom.Thetowerwillrunonelectricity.

4. Areaofinfluence

This smog tower will purify the air within a circumference area of almost 500 meters to750 meters. The purifier aims at treating 250000 to 600000 cubic meters air per day andreleasefreshairinreturn.

5. Pollutantitwilltreat

Amachinefixedinsidethetowerwillremovenearly80%oftheparticulatematteri.e.PM(Particulate Matter) 2.5 and PM (Particulate Matter) 10 and help to bring down pollutionlevelsandspewfreshairoutthroughfouroutletunits.The'smogtower'inDelhi,thegiant20-ft-talldevicehasbeeninstalledatsouthDelhi'spopularLajpatNagarCentralMarket,the'smogtower'purifiesairinLajpatNagarCentralMarket,whichseesanaveragefoot

ballofnearly15000peopleeveryday.Thesmogtowersweretobeinstalledonthelinesof China,whichhaveexperimentedwiththistechnology.

Expert, however, have questioned the feasibility of the project given that Delhi is acongested city where space is at a premium. Anumita Roychowdhury, executive director(Research and advocacy) at Centre for Science and Environment said that there was no dataavailabletoestablishthatthesetowerscleanupoutdoorambientairquality.

Resultsanddiscussions:-

Benefitsofsmogtowers

- Smogtowerscanbeusefulinanareawherethereistoomuchsmog.
- Smog towers can be provided in open public places such as gardens or wherepeoplegathertogetcleanair.
- Low power consumption does not require any special enclosure for its powersource.

The smog tower works with the goal that it helps to decrease approx. 94% of air boneparticlesissues.Thisconvertcoarseandultrafinedustparticlesintocoarsebuildup.Thisco ntraceptive is arranged as a crest in such a way that, like a vacuum, it sucks the darkclouds present in the earth from above and then release the isolated air through its holes.Hence,expertshavequestionedthefeasibilityofsmogtowers.Accordingtoexperts,smog towers were not suitable for Delhi's meteorological condition. There is not enough evidenceto prove that the anti-pollutant tower can significantly improve air quality they claim.Experts say the tower is not reducing pollution, even in the area around it. When fiveexperts-including scientists associated with care for air –visited the tower, they found thelevels of lung-damaging PM (Particulate Matter) 2.5 particles some distance away from thetowers were lower than those close it. "The only way to clean our air is to stop pumpingpollutantsintoit."Scientistsaid,"wehavetocontroltheemissionsattheirsource,sucha smaking coal-fired power plants to conform to emission norms, ensuring a clean and reliablemass transit system, and improving waste management by stopping incineration. Themoney being spent on smog towers would be put too much better use on these provenmeasuresratherthanexperimentingwithfailedtechnology".

One scientist said " Like China and other countries, where these towers are installed forcombatingairpollutionduetosmog,butinIndia,themajorcauseofairpollutionisnotthesmog butthesmogandhighconcentrationofdustintheair."Hence,thosetowersmaynotbe effective to control air pollution in India cities. Now, one another scientist said that " Wedo not have any data to establish that these towers clean up outdoor ambient air quality.Also, nowhere in the world have we seen any data published to establish that thistechnology improves air quality." All these statements indicate that the effectiveness ofsmog tower to control air pollution in India is still questionable. Smog towers can only filterout the particulate matter from the air, they can not control the level of other seriouspollutants like NOx (Nitrogen oxides) -majority emitted from the tailpipe of the vehiclesandburningoffuelsinindustries.

Conclusion:-

If one draws only one conclusion from this, and previous attempts at removing pollutionfrom air, it is that it is far, far easier to come up with technologies and schemes that stopharmful emissions at source, rather than to try to capture the resulting pollution once its freeandintheair.Ifsmogtowersareeffective,theycould beanoptionfor local government.

Inthefuture,thedecisionregardingtheinstallationofasmogtowercouldbelefttoalocalgovernment. The biggest drawback is that you need to change the air purifiers at regularintervals. Alternatively, by products that have a filter change alarm to notify you in case thefilters need a replacement. The noise is due to the speed of the fans, you can reduce thenoisebyreducingthespeedofthe fans.

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