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22. A STUDY ON AIR POLLUTION AND ENVIRONMENTAL CHALLENGES IN CHENNAI CITY

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ABSTRACT

Environmental pollution is a severe issue in both developed and developing countries. Pollution is defined undesirable state of natural environment being contaminated with harmful substances as a consequence of human activities. There is clear relationship between the growth manmade green house gas emissions and observed environmental climate change are claimed by policymakers. The most important causes of air pollution are human economic activities such as use of vehicles and industrial operations mainly in Chennai city. Air pollution is various types such as noise, water, air. It causes damages that are normally inflicted in society at large rather than on those directly responsible. In several city air is already polluted that it has been causing illness and deaths among elderly people and children. The high pollution density has placed great strain on available infrastructure and major problem for environmental in major cities of Tamil Nadu. It is recognized that climate change due to global warming going to important threat safety of millions of people not only living near coastline but also impacts on changing cyclones. The aim of the study focuses on objectives to environment in Chennai city to estimate the problems of air pollution environment in Challenge in Chennai city and suggest health cost of vehicular pollution and to suggest the Government measure to control air pollution in environment Chennai city.

INTRODUCTION

Environmental pollution is a global phenomenon experienced by economically advanced as well as developing countries. Due to urbanization there is a problem of environmental pollution congestion, transportation etc. In several cities air is already polluted that it has been causing illness and death among elderly people and children. Environmental challenge is to deal with carbon dioxide the emission can include various toxic and carcinogenic chemicals and fibers, photo chemical pollutants, lead and carbon monoxide which is harmful to human health. Rapid and uncontrolled growths of mega cities in India have lead to the problems of increasing slums vehicular traffic and air pollution. Environmental pollution is classified into various groups. For instance, pollution of air is termed as the atmospheric pollution, the

pollution of hydrosphere or water is termed as water pollution, while pollution due to disposal of waste water is termed as industrial effluents pollution, Indian cities also have serious problem of noise pollution.

OBJECTIVES OF THE STUDY

- The objective of study is to focus the environment in Chennai city.
- To estimate problems of air pollution environment in Chennai city.
- To suggest growth of population health cost and cost of time in Chennai city.
- To control the Government measures to control air pollution environment Chennai city.

METHODOLOGY

The data based on secondary sources. The necessary secondary data have been obtained from various published works such as books, reports, sound, articles, magazines, periodicals and electronic web materials. In addition to this the researcher has made use of the data and other information pertaining to air quality, pollution and health conditions. Secondary data are derived from documents and files of Tamil Nadu pollution control board and internets.

The table given below shows decadal growth of population in Chennai city. With the increase in population the harmful effects of pollution tends to increase. Health costs of vehicular pollution in Chennai increases air pollution this leads to cost of time working peoples.

THE FOCUS OF AIR POLLUTION IN CHENNAI

Air pollution may result in negative effects such as global warming, respiratory and heart complicatory acid rain, destruction ozone layer and natural habitats.

VEHICULAR POLLUTION

Transport activities have a wide variety effects on the environment challenge such as air pollution, noise from road traffic. The different factors are types of engines used, the age of vehicles, poor road conditions and congested traffic in Chennai. The principal vehicular pollutants are carbon monoxide, oxide of nitrogen, hydrocarbons suspended particulate matters, a varying amount of sulphur dioxide, depending on sulphur content of fuel and lead compounds.

ENVIRONMENTAL PROBLEMS OF AIR POLLUTION IN ENVIRONMENT CHENNAI CITY

Air pollution in Chennai cities has increased

more and more people crowded the city.
RESPIRATORY AND HEART PROBLEMS
 The effects of air pollution are alarming. This leads to several respiratory and heart conditions with cancer among body some of them direct or indirect effects of air pollution in millions.

ACID RAIN

Another direct effect in Chennai is immediate alterations due to Global Warming like acid rain.

Harmful gases like nitrogen oxides and sulphur oxides are released into atmosphere duty burning fossil fuels.

GLOBAL WARMING

Global Warming also adversely affect human health leading to increases in heart related diseases and death.

To suggest health cost vehicular pollution table population growth and cost of time table.

Component	City Population	Area in sq. Km	% Annual growth rate in lakhs	P o p u l a t i o n density per/sq. km
1901	5.41	68.17	—	8000
1911	5.56	68.17	0.26	8200
1921	5.78	68.17	0.41	8500
1931	7.13	68.17	2.12	10500
1941	8.65	77.21	0.69	11200
1951	14.27	128.83	0.22	11100
1961	17.49	128.83	2.06	13600
1971	26.42	128.83	3.93	20000
1981	32.84	176	0.41	18700
1991	38.84	176	1.58	21800
2001	43.44	176	1.23	24700

Source : Census of India 2011

Table explains the population growth, area, growth of population and density of population. It is estimated that the total population of Chennai city stood at 5.41 lakhs in 1901 but it was increased to 7.13 lakhs in 1931 due to migration of people from various parts of the country to Chennai city and to seeking employment opportunity and better education. Subsequently, the total population has grown up to 14.27 lakhs in 1951 and 17.49 lakhs in 1961. It is estimated that the Area of population in Chennai city stood at 68.17sq. km in 1901 but it was increased to 77.21 sq. km in 1941 due to migration of people from Chennai city. Subsequently to area of population has grown up to 128.83 sq. km in 1951 and 176 sq. km to 2001. It is confirmed that urban population in Chennai city has increased. Since 1981 to 2011 which account for 176 sq km population. It is estimated that the population density in Chennai city stood at 8000 lakhs in 1901 but it was increased to 2.12% Annual growth rate increased in 1931 due to annual growth rate and population density of Chennai city. Subsequently, Annual growth rate 3.93 lakhs in 1971, population density 20000 sq km increased.

It is confirmed that urban population in Chennai city has tremendous increased. Since 1971 to 2011 which account for 26.42 lakhs to 43.44 lakhs. The growth of urban areas influences the growth of population meantime. The city faces many urban problems such as housing, water, sanitation and pollution. Therefore, due to increase the urban population the number of vehicle increases as a result, the vehicle emits large number of chemical in the air. However the urban population creates severe air pollution by the ways of vehicles. Hence we have to reduce population to reduce pollution.

The above table 2 shows that the health costs are incurred by the people who affected by the air pollution increases due to the number of taxi increases which accounts for 13.28 were due to pollution emitted at 8.95 for CO, 29.61 for NOX. The health cost are incurred by the people who affected air pollution increases due to number of bus increases. Which account for at 1.91 for CO, 1.44 for NOX total pollutant 78.01 were due to pollution emitted at 37.44 for CO, 35.72 for NOX. It is confirmed that the urban population in Chennai city is increasing total health costs and total pollutant. Therefore, due to increase the urban population vehicles are increased as

result, vehicle emit large number of chemicals in Air. However the health cost of vehicular pollution creates severe Air pollution by the way of vehicles. So we have to reduce vehicles without air pollution.

TABLE 2 : HEALTH COSTS OF VEHICULAR POLLUTION IN CHENNAI

Estimated Emission Tonnes Per km/day Estimated for 2008 (Based on CCTS Data)					Estimated Health Damages (for 2008-2009) in Rupees crores				
Health Costs (Rs/Kg) Based Sengupta etal (2005)	CO	NOX	HC	PM	CO	NOX	HC	PM	Total Health costs
Two Wheeler	7.23	0.28	4.68	0.20	0.03	0.26	0.28	1.48	2.05
Car	2.33	0.60	0.38	0.09	0.01	0.56	0.02	0.69	1.28
Auto	6.86	0.04	4.53	0.15	0.03	0.04	0.27	1.17	1.50
Taxi	10.16	3.75	0.74	1.28	0.04	3.51	0.04	9.69	13.28
Bus	8.95	29.61	2.48	3.76	0.04	27.72	0.15	28.45	56.36
Other Modes	1.91	1.44	0.23	0.29	0.01	1.35	0.01	2.16	3.53
Total by Pollutant	37.44	35.72	13.04	5.77	0.15	33.44	0.77	43.64	78.01

Source : Computed by authors based on CCTS (2010) Velmurugan (2005) and Sengupta e tal (2005).

TABLE 3 : COST OF TIME					
Vehicles	Work	Business	Education	Others	Modal Share
Two Wheeler	0.53	1.06	0.26	0.26	26
Car	1.08	2.16	0.54	0.54	7
Auto	0.35	0.7	0.15	0.11	6
Taxi	0.42	0.84	0.21	0.21	30
Bus	0.32	0.64	0.16	0.16	27
Train / Metro	0.5	0.99	0.25	0.15	4
Total by purpose	47.99	19.79	6.53	67.05	0.54

Source : Value to Time by Nature Work and type CCTS (2010) data indicates estimates computed by authors based weighted average.

The above table shows that the cost of time Two wheeler, Car in working condition 1.08 increased in 2.16 in business peoples in economy of Chennai city. Likewise business people in Chennai city Train/Metro increase to total by purpose 19.79. The problem in vehicles of Chennai city to working peoples and Business peoples in cost of time lead to population in Economy.

The education in cost of time leads to 0.26 in others 0.54. The model share of cost of time in 26 Two wheelers is cost of time increasing 30 in Taxi. This is cost of time increase in vehicles resulted increasing in working condition. Therefore we have to reduce air pollution the cost of time decrease.

STEPS TAKEN BY THE GOVERNMENT TO CONTROL POLLUTION

Enforced special measure taken

- 1.The Supreme Court has also banned the registration of luxury SGVS and diesel cars above 2000cc in the national capital. Diesel cars are believed to major source of vehicular emissions.
- 2.The Delhi Government prepared odd/even rule where odd numbered registration plates would even dates. This is to reduce congestion well to reduce pollution resulting vehicular

emissions.

- 3.The top court ordered taxis plying city must convert CNG from March next year.

MEASURES TO CONTROL AIR POLLUTION

In Chennai, pollution is not simple as prevention of air pollution. Fuel selection and utilization process change or equipment site selection and zoning control of aerosol emission. Zoning is a control measure based upon knowledge mechanics of atmosphere.

LEGAL CONTROLS

Technical and scientific knowledge alone is not sufficient in controlling air pollution administrative control of atmospheric pollution can be most effectively developed into laws national level public health administration, industrial hygiene, fuel usage, agriculture, science, industry and urban areas through the formation of committee representing.

CONCLUSION

There are several simple things that people can do daily basis to minimize impacts on environment challenge in Air Pollution. All types of environmental pollution have negative impacts on human health and types of pollution challenging in Chennai. The impact of environmental systems of the country well as global eco system. The growth of population increases in Chennai due to vehicular air pollution and cost of time for working people in environmental challenges in Chennai city. The carbon monoxide, nitrogen oxides and sulphuric acid are causes threat to human life. Thus Government International Organisation and Committees must work together. Each and every person must ensure the work economically in environmental challenge to sustainable.

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