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The Impact of Urbanization on Various Components of the Environment

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ABSTRACT

Urbanization refers to general increase in population and the amount of industrialization of a settlement. It symbolizes the movement of people from rural to urban areas. It includes increase in number and extent of cities. Urbanization happens because of the increase in the extent and density of urban areas. Although urbanization in different cities provides opportunities for better employment, housing, education, knowledge, transportation, hospital, healthy potable water and ready markets for agricultural and other products. Due to uncontrolled urbanization in different places in West Bengal, environment degradation has been occurring very rapidly and causing many problems like land insecurity, future food insecurity, worsening water quality, excessive air pollution, noise pollution, uncontrolled population growth, increase of slum areas, job insecurity, health problems, increase of global energy consumption, green house gas emission, and the problems of waste water disposal. Hooghly district is traditionally well known as one of the most prosperous agricultural region of West Bengal, but the district and specially developing city like Chinsurah is experiencing rapid urban extension and agricultural development toward productive agricultural land since 1991. And it caused decline in the amount of agricultural production, which may be treated as an indicator of increasing threat to the long run sustainable livelihood, security of the people of the whole of West Bengal. This paper emphasizes on the impact of urbanization on various components of environment of ward no: 11, Hooghly-Chinsurah municipality, Chinsurah city, Hooghly district is carried out leading to conclude on the existing cases of damage to the environment due to urbanization. It is impossible to restrict urbanization but it has to ensure that urbanization proceeds in the right path causing minimum impact on environment.

Keywords: *Environmental degradation, Land Insecurity, Food Insecurity, Job Insecurity, Population Growth, Waste Water Disposal, Global Energy Consumption, Green House Gas, Hooghly district.*

INTRODUCTION

Urbanization is a process that leads to the growth of cities due to industrialization and economic development, and that leads to urban-specific changes in specialization, labor division and human behaviors.

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Although urbanization in different cities provides opportunities for employment, better housing, education, knowledge, transportation, hospital and ready markets for agricultural and other products. India is facing a serious crisis of urban growth at present time whereas urbanization has been an instrument of economic, social and political progress; it has led to serious socio-economic problems. Development trend in cities has been caused by three main factors: notable population growth and reproduction in cities, immigration and metropolises, has caused numerous impacts. In India, the process of urbanization increased with the start of globalization and industrial revolution in 1970s. For the urbanization forests were cleared, grass lands grazed, wetlands drained and cropland encroached in my project area chinsurah, Hooghly. The population is growing at the rate of 17 million annually which means a staggering 45,000 births per day and 31 births per minutes. If the current trend continues, by the year 2050, India would have 1620 million populations. Where the urbanization creates more opportunities for people, for example, jobs, modern life style, easy access to facilities, hospitals, schools, railways, etc., but there is also created the biggest challenges to the environment. The main cause of degradation of the environment is rapid urbanization because of all industries, which create GHGs located in urban area. Urban areas are the main source of anthropogenic carbon dioxide emission from the burning of fossil fuel for industrial progress; transportation of people and goods etc. This increase has been rapid increased since mid of the 1990s century which has affected the quality of the environment. In recent time the COVID-19 crisis has impacted cities throughout the world. The disease's worst effects are closely linked with urban areas, where death rates tend to be higher because of a complex condition of factors, including population density, national and international connectivity and public health response. Hooghly district in West Bengal is unique in several respects. This part of country has experienced with first European settlement way back in 15th century. The proximity to state capital and well connected by railways, roads and water transports, have helped the district to enjoy the fruits of modern development at a greater speed than most of the districts of the state. Along the bank of river Hooghly, the district is economically better-of both in terms of agriculture and industry. It is among the few districts in West Bengal which successfully adopted the strategy of green revolution especially with respect to rice and potato cultivation. The river belt of Hooghly is heavily industrialized. The district has the experienced of first wave of industrialization with the setting up of jute mills along the Hooghly river bed during the British era. It also has a long foundation of education since the dawn of history. Due to uncontrolled urbanization in (Chinsurah) Hooghly, environmental degradation problem has been occurring very rapidly and causing many problems like shortages of housing, increase slum areas, worsening water quality, ground water degradation, excessive air pollution, noise pollution, water pollution, dust and heat and the problems of disposal of solid wastes and hazardous wastes. Urbanization is significantly exaggerated emission of carbon dioxide over the next 40 years as the Executive Director of the United Nation Centre for Human Settlements has specified that cities are responsible for 75% of global energy consumption and 80% of greenhouse gas emissions. Shortage of natural resources and also many environmental crises have been developed in this area where people are not aware, this is also led to a grove concern for us and my project is about the impact of urbanization on various components of environment: a case study of ward no: 11, Hooghly-Chinsurah municipality, city Chinsurah, District Hooghly.

AIMS AND OBJECTIVES:

- To identify urbanization process.
- To know high pick urbanized area.
- To identify immigrant people.
- To know pollution status (air, soil, water, noise).

- To know percentage rate of slum area present in chinsurah, Hooghly.
- To know the amount of waste generation from variety places.
- To assess the rate of urbanization in chinsurah, district Hooghly.
- To examine the extent to which rural land use is affected by urban extension and infrastructural development.
- To know the rate of decrease of agricultural land and productivity.
- To estimate the future food security.
- To know population status due to urbanization.
- To know the health status due to urbanization.

Beside this to overcome different problems due to urbanization this aims of proper urban planning should be as follows:

- Removal of slums.
- Providing people with proper housing facilities or accommodation along with the basic infrastructure like electricity and water supply.
- Organization and improvement in the means of transport and communication.
- Setting apart space for industries, parks and public places including burial sites.
- Making arrangements for recreation both for children and for older people.
- Arranging for sanitation and cleanliness of the town and its adjoining areas.
- Allocating space for marketing centers, shops and so on.
- Arranging for education, health and medical services.

BRIEF DESCRIPTION OF STUDY AREA:

1. GENERAL DESCRIPTION:

The district Hooghly lies between the latitudes 22 degree 39 minutes 32 second and 23 degree 01 minutes 20 second in the northern hemisphere. The eastern most extremity of the district is marked by 88 degree 30 minutes 15 second east longitude and its westernmost extremity by 87 degree 30 minutes 20 second east longitude. With a territory extending over 1,216 square miles the district is bound on the north by the district Burdwan, on the east by the river Hooghly, on the south by the district Howrah, and on the west by the district Midnapore, Bankura and Burdwan. Except on the east, the boundaries on the other three sides are, except for short distances, artificial. On the eastern side the river Hooghly separates the district from the Ranaghat Subdivision of the Nadia district and the Barrackpore Subdivision of the 24-Paraganas district.

The chief town Hooghly-Chinsurah is situated on the western bank of the river Hooghly at 22 degree 55 minute north latitude and 88 degree 24 minute east longitude. The city is on the flood plain on the right bank of river Bhagirati-Hooghly. The area is composed of flat alluvial plains that form part of the Gangetic Delta.

LITERATURE REVIEW:

The rapid rate urbanization during the last few decades accelerated the demand of urban land and continuous replacement of different natural land cover types brought ceaseless substitution in urban land use pattern particularly in developing countries such as China, India and Africa which leads to a decline of the ecosystem services gained from urban ecological land (UEL) in an urban areas. About 50% of the world's total population is now residing in urban areas and which will reach to 60% by 2023 (Manob et al., 2006). Urbanization is defined by the United Nations as the movement of people from rural areas of a country to the urban areas with population growth equating to urban migration. Most of the increase in urban population will occur in third world countries and more than half the growth will occur in just two countries, India and China (Sandeep, 2016). Although India is one of the less urbanized countries of the world with only 27,78 percent of population living in towns, India is facing a serious crisis of urban growth at present time whereas urbanization has been an instrument of economic, social and political progress, it has led to serious socio-economic problems. Urbanization is a process that leads to the

growth of cities due to industrialization and economic developments (Mohit , 2017). Urbanization is the procedure by which the extension of the aggregate population in urban settlements is increased. Urbanization isn't just the aftereffect of industrialization but at the same time is the consequence of 'modernization'. The urban characteristics of West Bengal are notably its unique features. West Bengal has been endowed with rich environmental resources, strong people centric political governance, historic urbanization, high density patterns of population has given way to rich rural traditional background that contribute to a vivid yet challenging picture of urbanization. It is the fact that the rate of urbanization in West Bengal has been slightly greater than that of Indian. But there has not been dispersal of urbanization in this state (Pratidhwani, 2019). Development of a nation presupposes inter alia growth of urban areas, on the one hand and industrialization, on the other. While rapid urbanization and industrialization is considered cornerstone for faster growth of a nation's economy, it comes at a significant environmental cost, if the process is not directed and controlled appropriately and if does not imbibe the principles of the much used and abused term 'sustainable development'. Rapid, unregulated and natural resources and environmental goods, but it also leads to compromising of environmental quality (Vinod, 2013). The notion of growth and development is associated with movement of population from rural areas to urban areas in search of better life and living standards. But unfortunately this influx of population further puts pressure on limited resources of urban cities. India has observed a tremendous economic growth coupled with population growth and thereby leading to excessive urbanization. Economic growth on one hand has increased agricultural and industrial growth and at the same time on the other hand tremendous increase in population has put an excessive pressure on limited resources of urban areas (Pooja & Sumit 2016). Chandannagar is one of those urban centers which is quite older than Kolkata and has been established by French traders primarily as a trading port to avail the opportunities offered by the River Hooghly and as an easy route of fleets engaged in export and import of commodities and also continued even after India became independent (Anushri, 2016). Homo sapiens is undergoing a radical transformation of its ecology. The proportion of world's population living in large town or cities has grown from around 5% to 50% over the past two centuries. Demographers estimate that by 2030 approximately two-thirds of all people will live in large towns or cities. The human population is thus becoming urbanized. In future, uraban populations will have a distictly higher proportion of older people than they today (Sandeep, 2016). Widespread urbanization is a twentieth century phenomenon. Although cities such as Memphis, Babylon, Persepolis, Athens, Sparta, Thebes, Mohen-ja-daro, Anuradhapura and others did exist in antiquity, there is little evidence of widespread urbanization in the early years of civilization. Rome was probably the first settlement to reach one million people in 5 BC; only in 1800 did London become the second.The total urban population of the world was not more than 250 million in 1900, less than 15 per cent of the total. The Indian urban population today is itself greater than this number. A hundred years later, in 2000, the world's urban population had increased to almost 2.9 billion, about 47 per cent of the total. The 21st century is therefore an urban century and this sets it apart from the all the centuries that have gone before it. For the first time in human history, more people will live in cities than in the countryside (Mukherjee, 2017). Urbanisation, as already well established, is the shift from a rural to an urban society and involves an increase in the number of individuals living in urban areas within a specific time. It is the result of social, economic and political advancement that lead to urban concentration and emergence of large cities, change in landuse and transformation of pattern of organisation and governance from rustic to metropolitan system through the

development of different forms of infrastructures (Kosha, 2015).

METHOD OF STUDY:

This paper is based on the empirical survey done with the help of both qualitative and quantitative methods. The data used in this paper are collected from both the primary and the secondary source. The main focus of this paper is to evaluate the impact of various environmental issues for urbanization upon the Hooghly-Chinsurah, Ward no-11.

The current study includes three stages of field research i.e., 1. Pre-field, 2. Field-method, 3. Post-field method. For the Pre-field method I selected two types of area, one is slum area and other is neighbor area. Primary data have been collected through structured and in-depth interviews based on the question sample. Few wards based on the availability of different infrastructure, industrial clustering, concentration of slum area were selected in Hooghly-Chinsurah municipality areas. For data collection 100 respondents are selected randomly by me. Some secondary data were acquired from internet. Map also collected from internet. Hooghly-Chinsurah project area map is collected from Hooghly-Chinsurah municipality official website. Some data also collected from different books and pdf.

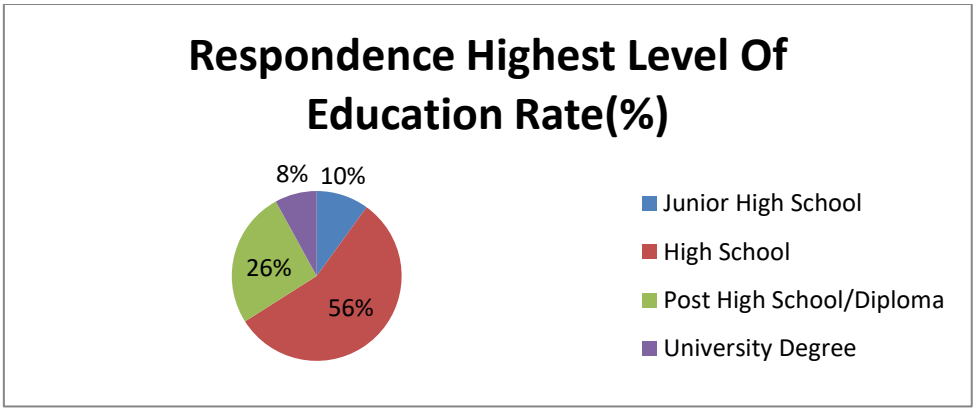
Field-method Survey involves the work that is done in the study area. It involves collection of both primary and secondary data, maps, market survey and household survey are so on. For primary data collection every three days in week of April-may month selected by me. Every day at 11:00 Am I visited this area for data collection by the help of question sample. On that day some photography also captured by me. A perception survey has been under taken to measure the level of satisfaction/dissatisfaction and to explain the factors behind it. A careful study to observe the effect of land use change on the socio-economic condition of the existing rural settlement of that region has also been made.

Post-field study is the most important part of this paper. The huge data and information are collected from the field is processed, tabulated and analyzed using various statistical and other techniques to arrive at the meaningful of the study. After collecting data, with the help of survey sheet, master table sheet and also different techniques have been applied and critically explained through the interpretation. All these information have been tabulated and maps, table diagram, pie-chart, bar-chart, column-chart, photos have been prepared with the help of Microsoft office word 2007 and Microsoft office excel 2007.

RESULT

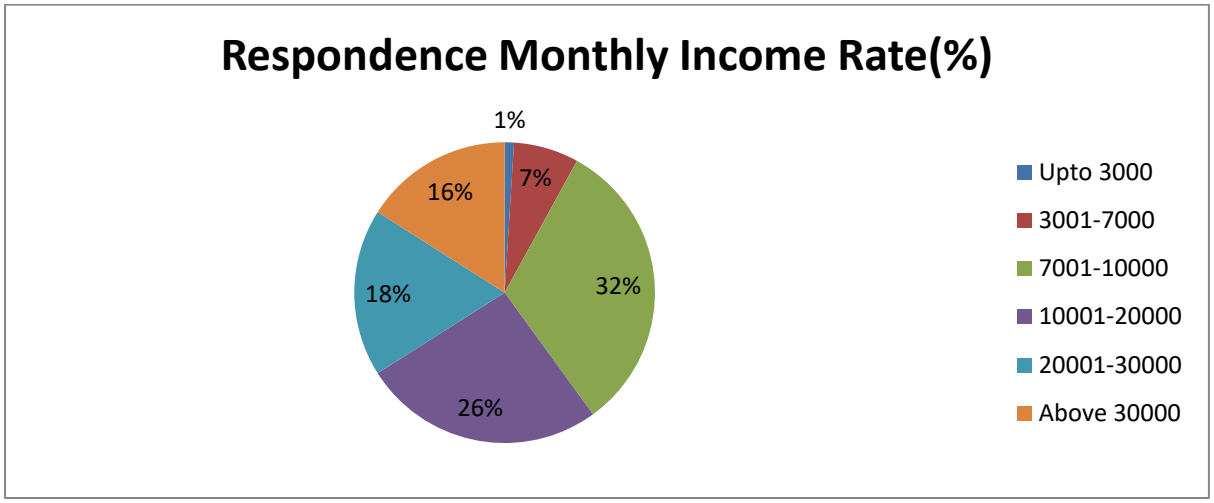
1. Respondence Highest Level Of Education Rate (%):

Serial	Name Of Particulars	Rate(%)
1	Junior High School	10
2	High School	56
3	Post High School/Diploma	26
4	University Degree	8



2.Respondence Monthly Income Rate (%):

Serial	Name Of Particulars	Rate (%)
1	Upto 3000	1
2	3001-7000	7
3	7001-10000	32
4	10001-20000	26
5	20001-30000	18
6	Above 30000	16

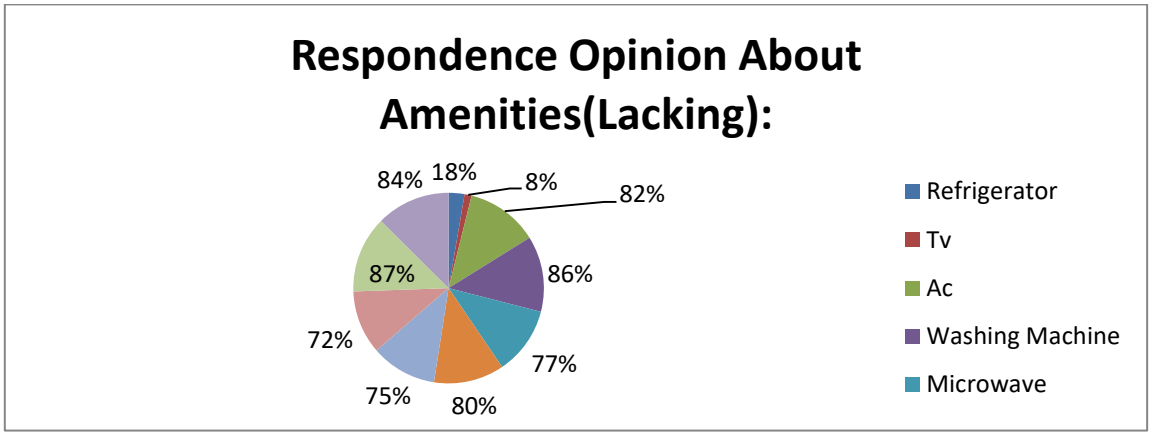


3.Respondence About Home Status:

Serial	Name Of Particulars	Rate(%)
1	Rented	6
2	Own	94

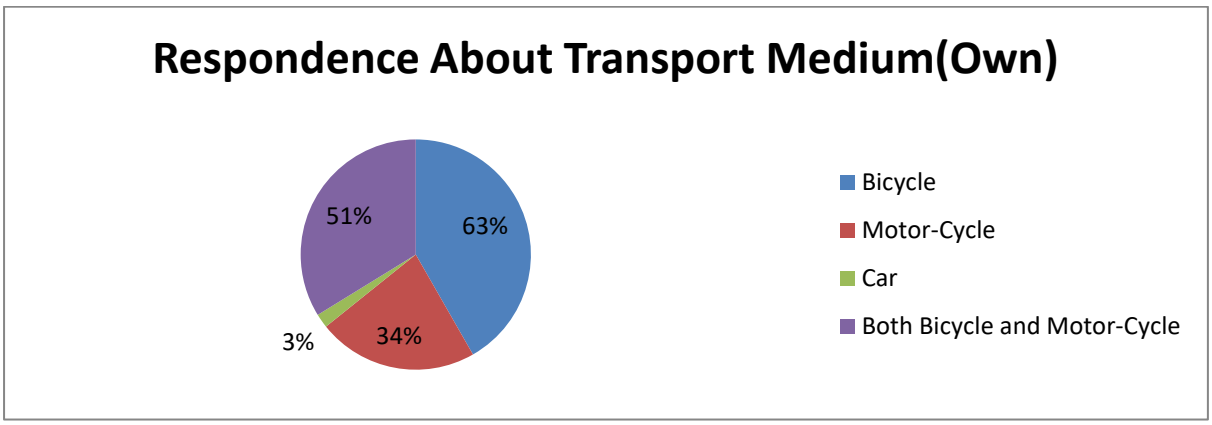
4.Respondence Opinion About Amenities (Lacking):

Serial	Name of Particulars	Rate(%)
1	Refrigerator	18
2	Tv	8
3	Ac	82
4	Washing Machine	86
5	Microwave	77
6	Computer	80
7	Laptop	75
8	Induction Oven	72
9	Cooler	87
10	Inverter	84



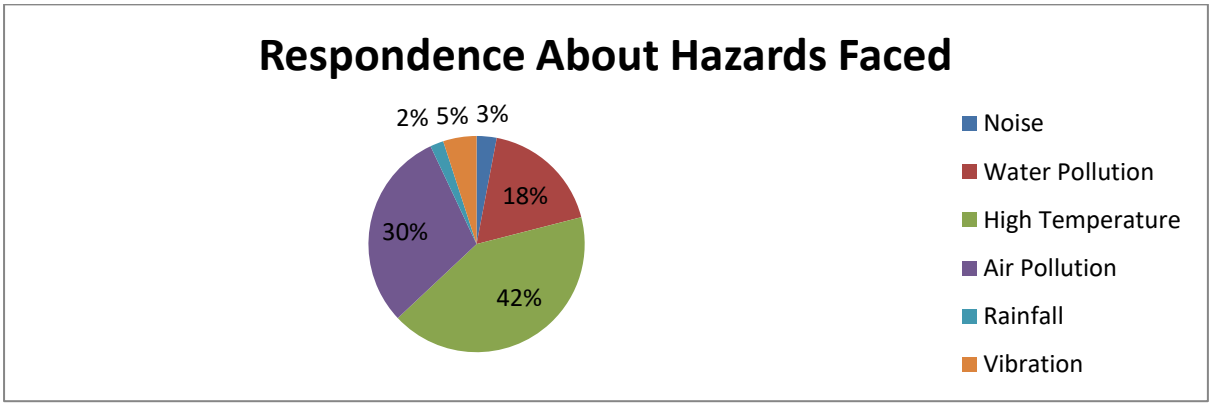
5.Respondence About Transport Medium(Own):

Serial	Name Of Particulars	Rate(%)
1	Bicycle	63
2	Motor-Cycle	34
3	Car	3
4	Both Bicycle and Motor-Cycle	51



6.Respondence About Hazards Faces:

Serial	Name Of Particulars	Rate(%)
1	Noise	3
2	Water Pollution	18
3	High Temperature	42
4	Air Pollution	30
5	Rainfall	2
6	Vibration	5



7. Respodence About Spending Times:

Serial	Name Of Particulars(Specification)	Rate(%)
1	Parents(Every Day)	98
2	Relatives(Every Week)	87
3	Neibours(Every Week)	90
4	Work Collegues(Every Day)	92
5	Friends(Every Day)	84

8. Respondence About Getting Support From:

Serial	Name Of Particulars(Specification)	Rate(%)
1	Family(A Lot)	99
2	Neibours (Quite A Bit)	70
3	Govt Officials(Quite A Bit)	50
4	Religious Group(Quite A Bit)	75
5	Friends(A Lot)	90
6	Employee(Quite A Bit)	70

9. URBAN GROWTH OF CHINSURAH HOOGLY

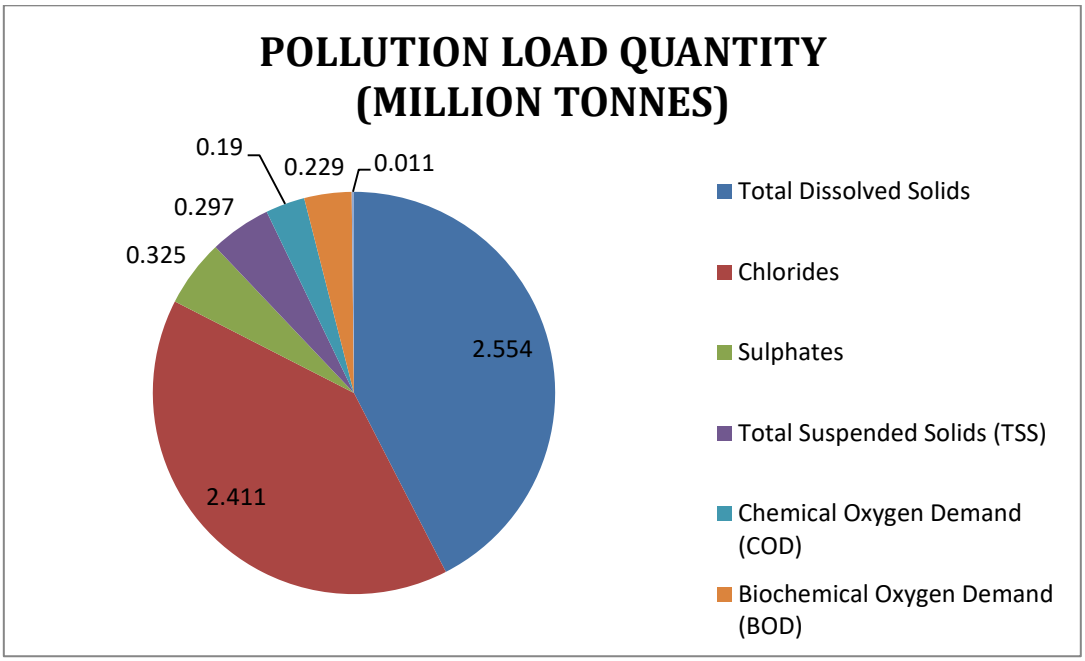
YEAR	AREA IN SQ KM	GROWTH IN PERCENTAGE
2011	81.86	-
2012	122.54	33.3
2013	140.62	22.15
2014	182.84	59.37
2015	215.33	59.4
2016	270.56	118.92
2017	300.79	81.79
2018	340.52	119.5
2019	377.39	125.54
2020	402.54	94.76

10. CLASSIFICATION OF BUILT AREA (WARD NO 11)

Category	NO	Distribution in percentage
Residence	2479	83.43
Residence, cum-other use	41	1.38
Shop, office	308	10.36
School, college, etc	5	0.17
Hotel, lodge, guesthouse, etc.	15	0.5
Hospital, dispensary, etc.	11	0.37
Factory, workshop, work shed, etc.	7	0.23
Place of worship	12	0.4
Other non-residential use	93	3.13

11. AGGREGATE POLLUTION LOAD IN THE HOOGHLY RIVER FROM 2010-2020

Parameter	QUANTITY (MILLION TONNES)
Total Dissolved Solids	2.554
Chlorides	2.411
Sulphates	0.325
Total Suspended Solids (TSS)	0.297
Chemical Oxygen Demand (COD)	0.19
Biochemical Oxygen Demand (BOD)	0.229
Oil and Grease	0.011



12. ENERGY USED BY DIFFERENT SECTORS OF CHINSURAH HOOGHLY (WARD NO 11)

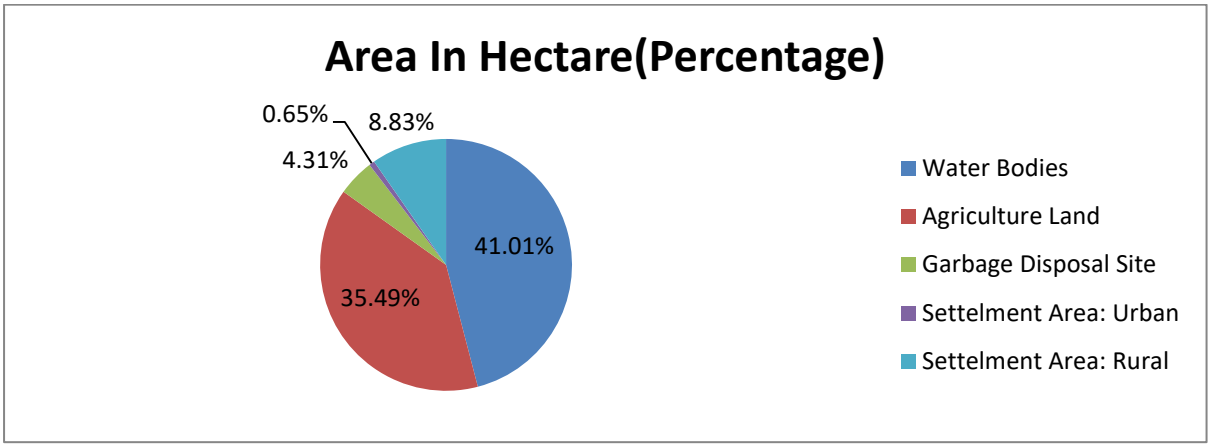
SECTOR	ENERGY FUEL	QUANTITY
Residential	Electricity (Million kWh)	8.39
	LPG (MT)	920.44
	Kerosene (kl)	470.57
	Fuel wood (MT)	0.9
Commercial	Electricity (Million kWh)	4.9
Industrial	Electricity (Million kWh)	1.9
Transportation	Diesel (kl)	1133.92
	Petrol (kl)	848.18
Waste	MSW (TPD)	7.8

13. Institutions and their role in the governance of CHINSURAH HOOGHLY

FUNCTION	INSTITUTION
Economic and Social development	Government of West Bengal Hooghly District Small Scale Industries Association (WBDISSIA) Confederation of Indian Industries (CII) Indian Chamber of Commerce and Industry (ICCI)
Water supply and Sewerage	West Bengal Water Supply and Drainage Board (WBWAD) Hooghly Chinsurah City Corporation
City Planning	Local Planning Authority (LPA) Hill Area Conservation Authority (HACA)
Roads, Highways and other transport infrastructure	Hooghly Chinsurah City Corporation National Highway Authority of India Highways Department, Government of West Bengal
Municipal Waste	Hooghly Chinsurah City Corporation Village and town municipalities Health Department, Government of West Bengal
Environmental Protection	West Bengal State Pollution Control Board (WBPCB) Hooghly Chinsurah City Corporation
Urban Forest	Hooghly District Forest Office
Slum Upgradation	West Bengal Slum Clearance Board (WBSCB) Housing and Development Corporation (HUDCO)
Sanctioning of building plans	Hooghly Chinsurah City Corporation Local Planning Authority Town Municipality or Village Panchayat Hill Area Conservation Authority (HACA)
Urban amenities including parks, lakes and playground	Hooghly Chinsurah City Corporation Resident Awareness Association of Coimbatore (RAAC)
Energy	West Bengal Generation and Distribution Corporation (WBGEDCO) Private windmills

14. LAND USE CLASSIFICATION OF CHINSURAH HOOGHLY WARD NO 11

LAND USE	AREA IN HECTARE(PERCENT)
Water bodies	76.01 ha(41.87%)
Agriculture land	64.41 ha(35.49%)
Garbage disposal Site	7.83 ha(4.31%)
Settlement Area : Urban	1.19 ha(0.65%)
Rural	16.03 ha(8.83%)
TOTAL AREA	181.5 ha



15. MIGRATIN DETAILS OF HOUSE HOLD DETAILS OF CHINSURAH HOOGLY WARD NO 11

NO OF YEARS OF RESIDENCE	NO OF SURVEYS HOUSEHOLD	PERCENTAGE
MORE THAN 30 YEARS	78	78
20-30 YEARS	18	18
5-19 YEARS	3	3
LESS THAN 5 YEARS	1	1

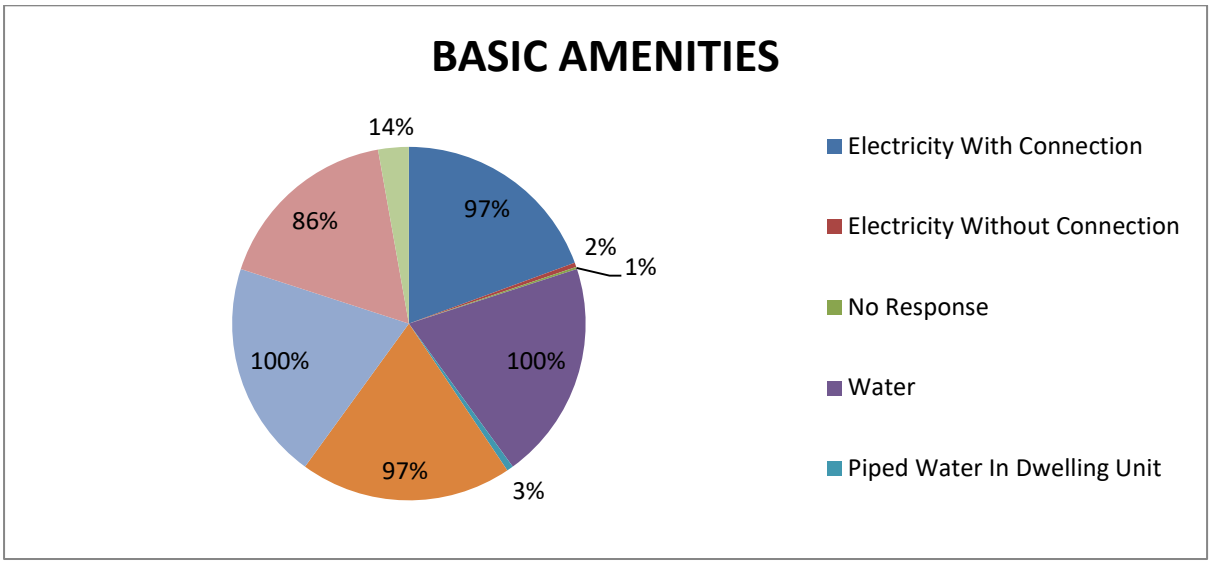
Number Of Individual (N) = 100

16. QUALITY OF DWELLING UNITS IN THE HOOGHLY CHINSURA SETTLEMENT AREA

PART OF DWELLING UNIT	TPICAL CONSTRUCTION MATERIAL USED
ROOF	TILES OR OTHERS (2), ASBESTOS(8), CEMENT(90)
FLOOR	CMENT (82), EARTH SOIL(8), TILES(10)
WALLS	TILES OR OTHERS(8), ASBESTOS(12), CEMENT(80)

17. Access to basic amenities in the chinsura Hogghly settlement area ward no 11

BASIC AMENITIES	NO OF RESIDENCES
ELECTRICITY WITH CONNECTION	97
ELECTRICITY WITH OUT CONNWCTION	2
NO RESPONSE	1
WATER	100
PIPED WATER IN DWELLING UNIT	3
COMMUNITY TAPS	97
SANITATION	100
POOR FLUSH LATRINE IN THE DWELLING UNIT	86
DETACHED MAKESHIFT TOILETS	14



18. LAND USE PATTERN IN THE YEAR 2003

Serial	Land use land cover	Detail	Area in sq km	Area in percentage
1	Rural Settlement		19.74	29.40
2	Developed Land	i)Business & Market ii)Industrial Area iii)Educational, Institutional & Cultural Area iv)Road & Transportation v)Others	14.37	21.41
3	Water Bodies	i)Pond ii)Cannel	10.53	15.54
	Green & Open Space	i)Recreation ii)Vacant land	10	0.03
4	Agricultural al Land		4.48	6.67
5	Swam Area		18.09	26.95

19. Present Status of inhabitants in CHINSURAH HOOGHLY Source: Field Survey, 2020

Serial	Particulars	Percentage of Responds
1	Total Male Population	54
2	Total Female Population	46
3	Adult Male Population	32
4	Old Male Population	8
5	Child Male Population	14
6	Adult Female Population	28
7	Old Female Population	10
8	Child Female Population	8
9	Total Literate Population	83
10	. Total Illiterate Population	17
11	Child Below 3 Years	6

20. Present Status of EDUCATION STATUS

Serial	Particulars	Percentage of Responds
1	Male Population Under Primary Level	23
2	Male Population Under Secondary Level	48
3	Male Population Under Higher Secondary Level	17
4	Male Population Under Graduate Level	9
5	Male Population Under Post Graduate Level	0.5
6	Male Population in Technical Level	0.5
7	Male Population in other education	2
8	Female Population Under Primary Level	28
9	Female Population Under Secondary Level	37
10	Female Population Under Higher Secondary Level	19
11	.Female Population Under Graduate Level	16

21. URBAN STRUCTURE OF PLANNED AREA (WARD 11)

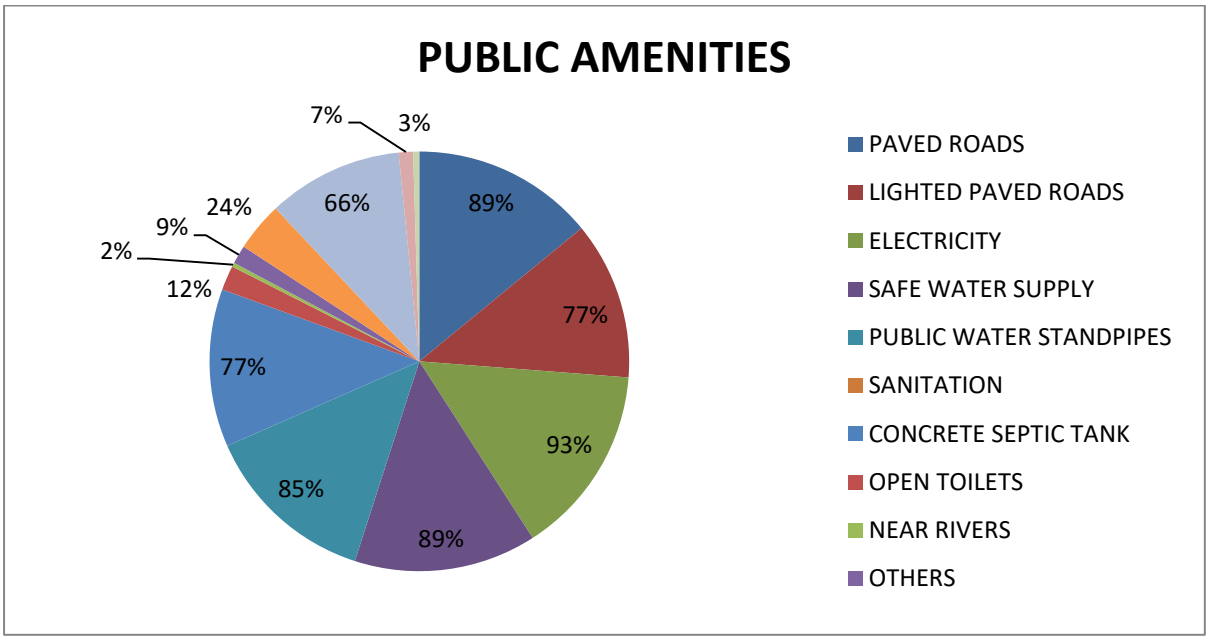
PARTICULARS	NO (PERCENTAGE)
MALLS	1 (5)
INSTITUTIONAL PLOT	4 (20)
PARK	1 (5)
OPEN MAIDAN	5 (25)
HIGH RESIDENTIAL HOUSING COMPLEX	2 (10)
SLUM AREA	2 (10)
BAZAR	1 (5)
PUBLIC TOILET	3 (15)
BRIDGE	1 (5)
FLYOVER	0 (0)

22. ACCIDENT REPORTS

Particulars	2000	2005	2010	2015	2020
CONSTRUCTION	12	7	9	6	4
PUBLIC SERVICE	7	4	3	4	2
TRANSPORTATION	30	22	17	21	15
ELECTRIC GAS /CLEANNING SERVICE	7	4	3	3	2

23. PERCENTAGE OF SLUM AREA WHO HAVE ACCESS THE PUBLIC AMENITIES METHODS OF SANITATION AND DISPOSAL

PUBLIC AMENITIES	%
PAVED ROADS	89
LIGHTED PAVED ROADS	77
ELECTRICITY	93
SAFE WATER SUPPLY	89
PUBLIC WATER STANDPIPES	85
SANITATION	
CONCRETE SEPTIC TANK	77
OPEN TOILETS	12
NEAR RIVERS	2
OTHERS	9
DISPOSAL OF WASTES	
OPEN DUMPING	24
INCINERATION	66
RIVER	7
INDISCRIMINATE DISPOSAL	3



DISCUSSION

Table – 1: Under education status maximum people have completed their education up to higher secondary level.

Table – 2: Most of people have an average income between 7001-10,000 and 10,001-20,000. Few of them have greater than 30,000 and few of them less the 7000.

Table – 3: In context own and rented, it has been observed that maximum people have their homes.

Table – 4: The basic amenities of local people are as follows; 18% people lacking refrigerator, 8% people lacking TV, 82% people lacking air condition, 86% people lacking washing machine, 77% people lacking microwave, 80% people lacking computer, 75% people lacking laptop, 72% people lacking induction oven, 87% people lacking air cooler, 84% people lacking inverter.

Table – 5: In context of own vehicle , it has been observed that 63% people have Bi-cycle, 34% people have motor-cycle, 3% people have car and 5% people have both cycle and motor-cycle.

Table – 6: 3% people faces noise hazards, 18% people faces water pollution, 42% people faces high temperature hazards, 30% people faces air pollution, only 2% and 5% people faces rainfall and vibration problem.

Table – 7: 7, 98% people spends their times with their parents, 87% people spending their time with relatives, 90% people spending their time with neighbors, 92% people spending their time with work colleagues and 84% people spending their time with friends.

Table – 8: 8, 99% people getting support from family a lot, 70% people getting quite a bit support from neighbors, 50% people getting quite a bit support from Govt. officials, 75% people getting quite a bit support from religious group, 90% people getting a lot support from friends and 70% people getting quite a bit support from employees.

Table – 9: Hooghly-Chinsurah's urbanization has led to the conversion of all forms of nature, including forests, agricultural, barren lands and wetlands for urban land use. Analysis of the ratio-temporal growth of Hooghly-Chinsurah shows rapid expansion between 2011 and 2020. The present study shows that the urban agglomeration of Coimbatore expanded from 81.86 sq. km. in 2011 to 122.54 sq. km. in 2012 and further to 402.54 sq. km. in 2020, registering over five fold growth, in less than one decade.

Table – 10: 83.43 percent of the land was used for residential purposes, followed by the commercial category which is accounted for 12 percent, and rest by public institution such as schools, places of worship, and hospital.

Table – 11: aggregate pollution load in Hooghly River (2010-2020). The discharge of effluents and sewage into the river had led to drastic reduction in the quality of surface and ground water within the basin.

Table – 12: The analysis of energy use and carbon emission by different sectors in Hooghly-Chinsurah ward no-11 showed that the residential category used nearly 8.39 Million kWh of electricity, followed by the commercial 4.9 Million kWh and industrial sectors 1.9 Million kWh. Despite being an industrial city, the relatively less use of electrical energy suggests that industries perhaps depend on alternative source of energy, which needs to probe further.

Table – 13: In Hooghly-Chinsurah, like many other cities of similar size in the state, municipal corporation and various state agencies play an important role in planning the urban programs, including land use, providing basic public services, urban infrastructure, environmental protection and so on. Details analysis, suggests functional overlap between agencies, operating at different scales in the city. However, the city corporation emerged to be the most important institution responsible for dealing with environment, planning, development, within the city.

Table – 14: Land use site is spread over an area of 181.5 ha. Analysis of land use classification shows that water bodies constitute nearly half of total area (76.01 ha), followed by agricultural (64.41 ha), human settlement (17.22 ha) and garbage disposal site (7.83 ha).

Table – 15: It shows migration and no of year of residence statuses. The study area shows

78% people move here more than 30 years, 18% people move here 20-30 years, 3% people move here 5-19 years and only 1% people move here less than 5 years.

Table – 16: It shows the quality of dwelling in the Hooghly-Chinsurah ward no-11 settlement area. Roof made up of tin (2%), asbestos (8%), other (90%), Floor made up of cement (72%), soil (8%), tile (20%) and Wall made up of asbestos (8%), bricks (12%), soil (8%), cement (72%).

Table – 17: It shows the basic amenities details according to the respondent.

Table– 18: It shows the land use pattern in the year 2003, where rural settlement (29.40%), developed land (21.41%), water bodies (15.54%), green and open space (0.03%), agricultural land (6.67%), swam area (26.95%).

Table – 19: The area surveyed under Hooghly-Chinsurah municipality shows the total male population 54% and total female population 46% are balancing halves. In this area three types of age groups are seen, there are children (male and female) population 22%, old (male and female) 18% and adult (male and female) 60% respectively and few children below 3 years. According to survey total literates (83%) and illiterates (17%).

Table – 20: According to table 20, the survey shows education status. The male population under primary level 23% and female population under primary level 28%, male population under secondary level 48% and female population under secondary level 37%, male population under higher secondary level 17% and female population under higher secondary level 19%, male population under graduate level 9% and female population under graduate level 16%, beside this male population under post graduate level 0.5%, male population under technical level 0.5% and male population under other educational level 2%.

Table – 21: It shows the overall urban structure of planed area Hooghly-Chinsurah municipality ward no-11. There are 1 mall, 4 institutional plots, 1 park, 5 open maidan, 2 high residential housing complex, 2 slum area, 1 bazaar, 3 public toilet and 1 bridge.

Table – 22: It shows statuses of accidental reports from 2000 to 2020. It divides in four categories, construction, public service, transportation and electric/gas/cleaning service accidents.

Table – 23: It shows the percentage of slum area who have access the public amenities, methods of sanitation and disposal.

After the overall discussion about the urban aspect on Hooghly-Chinsurah city it is clear that it is the modern city in West Bengal, India. Different types of cultures, languages, and religions are assimilated here. Therefore this is the city where modern services, facilities and amenities are provided by Government. This area was a vacant land, after many years this area has been changed by state Govt. with the help of central Govt. Different constructional projects are running to their finishing task and this area will be changed day by day in shape, size and amenities.

PROBLEMS AND SUGGESTIONS:

- Local people who are living at road side, facing the problem of noise pollution very much. All the time night or day vehicles are passing through the area. So, bad noise, weird horn of many vehicles is the causes of objection of the people.
- Hooghly Ghat railway station is located at very near to this planned area, approximately within 10 minutes distance, so the noise of the train create many problem such as headache, mental problem, hearing problem etc.
- Another big problem is environmental problem. Cutting of trees and making of high rise building creates air pollution, dirt problems etc.
- Urbanization growth causes increase in transportation rate and fuel consumption which leads to air and noise pollution.
- Urbanization has caused increase in water using and this has led to endangering ground water resources and water pollution.
- Urbanization and urban career growth and consequently industrial production

increase has led to increase in greenhouse gas and co2 emission.

- Due to high population density and expensive life style, the rate of consumption of natural resources (e.g., water, energy, fossil fuel, forest products etc.) is very high in urban areas.
- Due to population growth poverty, unemployment, and under employment among the rural immigrants, beggary, thefts, dacoits, burglaries and other social evils are on rampage.
- Urban sprawl is rapidly encroaching the precious agricultural land.
- The unplanned construction of large buildings in this area absorbs solar radiation and in the afternoon, these emit heat radiations increasing the climatic pressure and causes unusual rise in temperature.
- Urbanization caused the increase of the solid wastes include municipal wastes, industrial wastes, hazardous wastes etc.
- Urbanization causes the development and increase of slum areas due to shortage of housing facilities for them and unemployment.
- This type of areas without proper water supply disposes their wastes in an unplanned manner which pollutes air and water.
- The contamination of water causes diseases like typhoid, cholera, enteric fever etc.
- The unplanned wastes dumping places and open defecation become the sites of the growth of a number of disease carriers like flies, mosquitoes etc. These cause health hazards not only in slum areas but also in other nearby places.

CONCLUSION

From this we can conclude that some causes of damage to the environment due to urbanization lies in the legislation and the regulating agencies in the country. Failure of governance in today's cities has resulted in the growth of informal settlements and slums that constitute unhealthy living and working environment. Serious attention should be given to the need for improving urban strategies, which promote efficiency in resource use. Urgent attention should be given to reduce the generation of solid waste at the sources through mandatory standards and regulation fee and tax incentives, and education and voluntary compliance. In case adequate steps are not taken to prevent pollution and to improve the quality of life by providing more social amenities, the life of the urban dwellers of India may become more miserable this may be the cause of health hazards and worst devastation. So this is the responsibility of government take necessary steps to prevent the environment by taking possible solutions and also the planners should also concentrate on these views while planning and protect the environment.

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