Delineation of Environmental Issues in Urban areas of Hooghly District in West Bengal

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Abstract- This paper provides an overview of some of the significant urban environmental issues in Hooghly district. These issues are giving challenges to governments and other stakeholders within and outside Hooghly district to seek for long term solutions by addressing the causes of these problems. The paper addressing although the environmental issues which are facing the urban areas of Hooghly district, but those have to be tackled at the national level, the different agencies and outside government need a strong coordination and interventions in different sectors in the rural and urban areas. The major issues are the outcome of poor terms of International trade, political instability, poverty, declining economic performance and international debt.

Key Words: environmental problems, poverty, Hooghly district

I. INTRODUCTION

Today, some 55% of the world's population – 4.2 billion inhabitants – live in cities. This trend is expected to continue. By 2050, with the urban population more than doubling its current size, nearly 7 of 10 people in the world will live in cities (World bank 2019).

As per the Census of India 2011, the definition of urban area is as follows;
1. Statutory Towns- All places with a municipality, corporation, cantonment board or
notified town area committee, etc.
2. Census Town- All other places which satisfied the following criteria:
i) A minimum population of 5,000;
ii) At least 75 per cent of the male main working population engaged in non-agricultural pursuits; and
iii) A density of population of at least 400 persons per sq. km. (Census, 2011).

Accelerated urbanisation in the developing countries coupled with growing industrialisation has created an ecological and economic imbalance of unprecedented magnitude that threatens to undermine the development process and outstrip the environmental resource capacity of many developing countries (Singh, 1996).
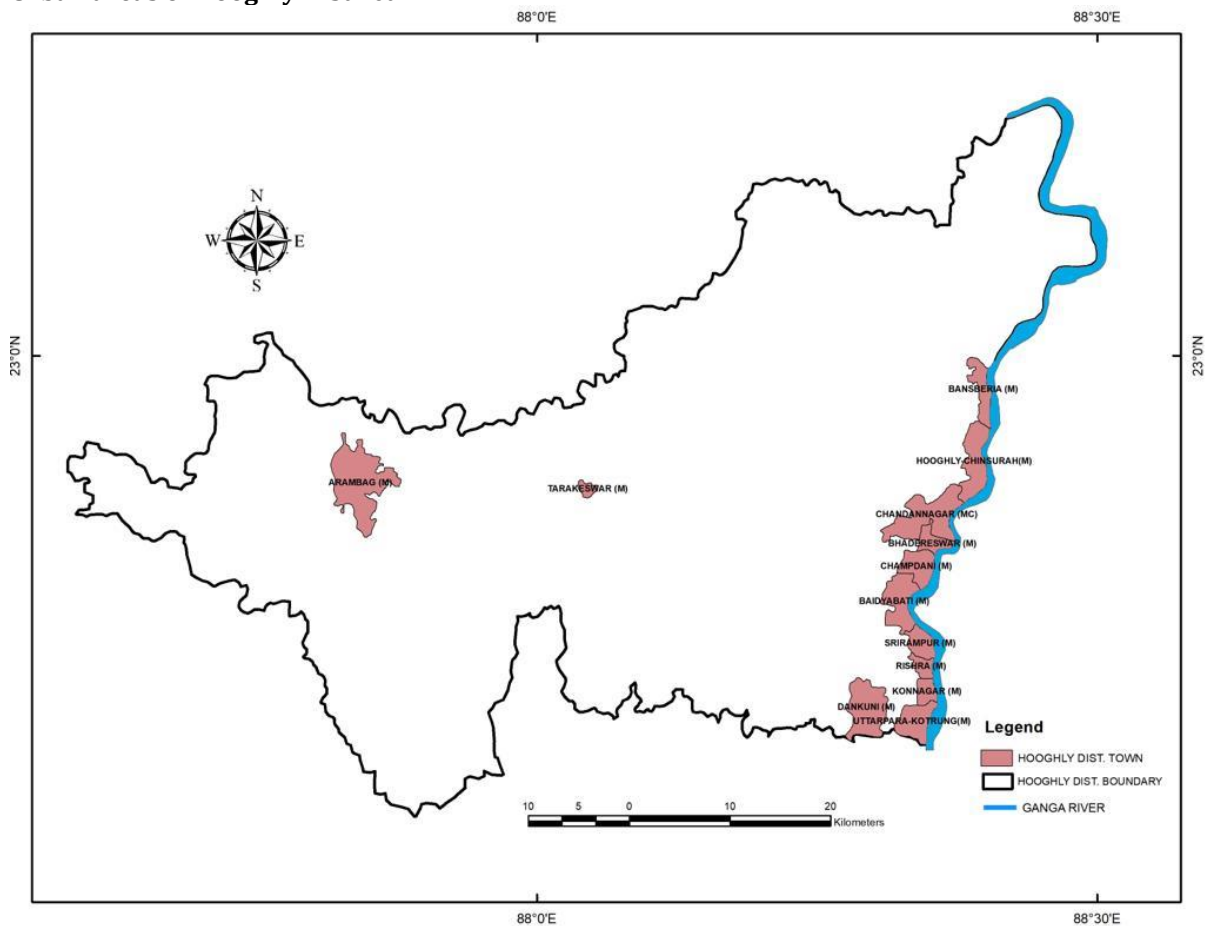Urban areas are facing a range of environmental health challenges including contamination of air, water and soil. Sprawling urban areas contribute to traffic congestion, with associated air pollution, noise and long commuting times affecting public health and productivity across the world (Vardoulakis, 2016).

In this research article the basic emphasis is given to find out the urban environmental issues of the study area.

Study Area

The study area, i.e., Hooghly district has 12 Municipalities (M) and 01 Municipal Corporation (MC) within its jurisdiction. Except three municipalities all are located at the eastern boundary of the district i.e., along the western bank of the Hooghly river from Bansberia Municipality to Uttarpara-Kotrang Municipality. Arambagh Municipality is located in Arambagh Sub-Division, it is also one and only municipality in this Sub-Division. Tarakeswar Municipality is located in Tarakeswar Block within Chandannagar Sub-Division. Dankuni Municipality is located in Chanditala-II Block within Serampore Sub-Division.

Urban areas of Hooghly District

Source: Census 2011

Urban centres in Hooghly District

SL.NO.	NAME (MC+M)	AREA(km^2)
1	Hugli-Chinsurah Municipality	17.29
2	Chandannagar Municipal Corporation	22.1
3	Bansberia Municipality	9.07
4	Tarakeswar Municipality	3.88
5	Champdani Municipality	6.54
6	Arambagh Municipality	34.75
7	Bhadreswar Municipality	8.28
8	Serampore Municipality	17.6
9	Baidyabati Municipality	12.09
10	Konnagar Municipality	4.32
11	Rishra Municipality	6.48
12	Dankuni Municipality	19.5
13	Uttarpara-Kotrang Municipality	12.56

Source: Census 2011

Objectives

The main objectives of this research paper are

- To identify the environmental problems of the urban areas of the district
- To analyse certain parameters of urban environmental problems
- To chalk out the spatial distribution of urban environmental problems

II.   LITERATURE REVIEW

Census report 2011 is the source of main secondary data, that gives a clear picture of statutory urban centres of Hooghly district. It also provides the detail information regarding demographic scenario of each urban centres. Hooghly Jelar Itihas (in Bengali) (1948) by S.K. Mitra described about the initial stages of the urban centres of Hooghly district. West Bengal District Gazetteers: Hooghly (1972) by A.K. Banerjee, gave a detail account of the entire district. This is an authentic source of spatial information about the district.

The immediate and most critical environmental problems are referred to as the "Brown Problems". These include lack of safe water supply, sanitation and drainage, inadequate solid
and hazardous waste management, uncontrolled emissions from industries, automobiles and low grade domestic fuels, accidents linked to congestion and crowding, and the occupation and degradation of environmentally sensitive lands as well as the inter-relationships between these problems (Singh et.al, 1996). The growing gap between demand and supply of urban environmental infrastructure and services is very significant in Asia (Imura et. al, 2005).
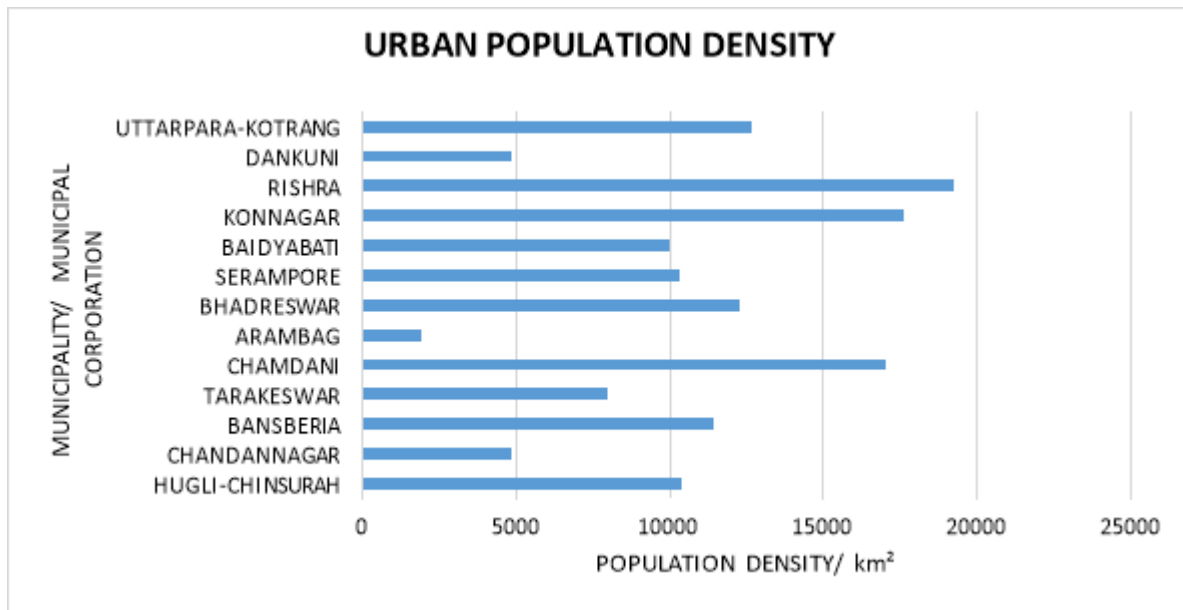
III.   METHODOLOGY & DATA SOURCE

To find out the environment issues of urban areas of Hooghly District several sources of information are gathered. Basic information has been collected from different secondary sources like census 2011, Hooghly District handbook of several years, data published from District Industrial Department, Agriculture Department and publications from West Bengal pollution control Board.

 Primary data are collected from field visit through observation, knowledge exchange, unstructured interviews and group discussions.

For determining Methodology and preparation of structure for analysis qualitative and quantitative methods are used for this study purpose. Quantitative data are used to specify the magnitude of different aspects which are directly related with environment concern. Moreover, those Quantitative Data are analysed and diagrammatically represented. Qualitative method has been used to realise the magnitude of interconnection between environment and the local people.
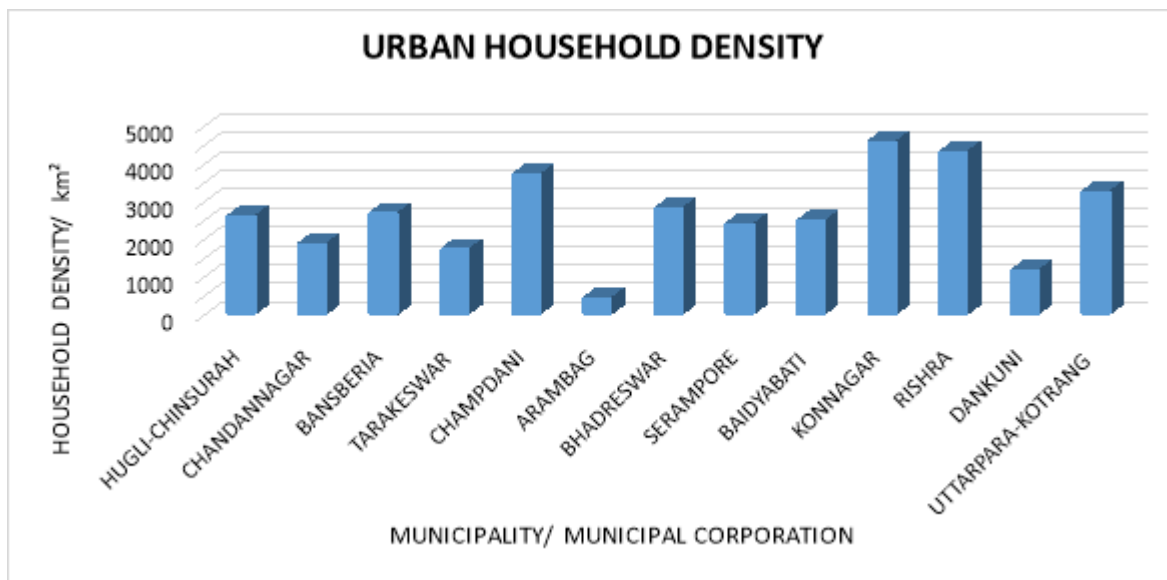
IV.   RESULTS AND DISCUSSIONS

Urban areas are always designated on the basis of high concentration of population within a specified area. Urban environment degradation caused due to human activities like transportation, industrial activities and disposal of solid, liquid and gaseous wastes due to their daily activities. So, basic knowledge about the demographic scenario must be taken into consideration to inculcate the environmental issues of the urban areas.

URBAN POPULATION DENSITY
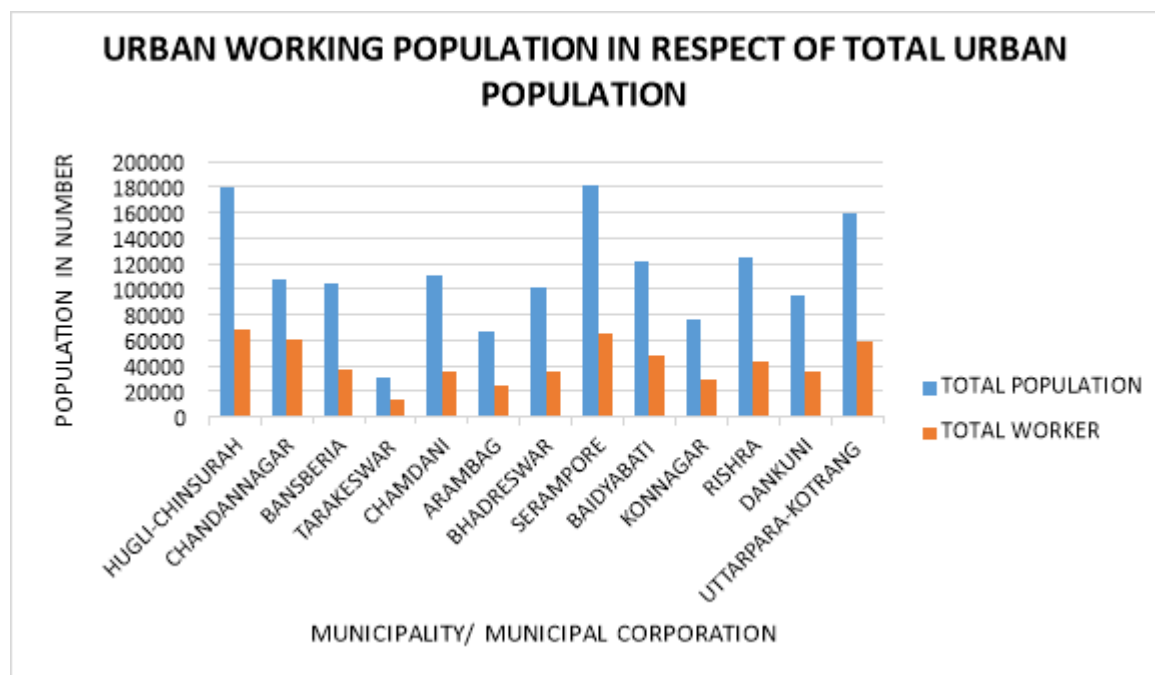
Source: Census 2011

On the basis of obtained data from the Census 2011, population density has been calculated of all the 13 urban centres of the district. High population density can be found in Rishra, Konnagar, Champdani and Uttarpara-Kotrang Municipalities, while Arambagh, Dankuni and Chandannagar have low population density. Rest municipalities are in medium position.

URBAN HOUSEHOLD DENSITY

Source: Census 2011

In respect of Household density also Konnagar, Rishra, Champdani and Uttarpara-Kotrang Municipalities are holding top position while Arambagh and Dankuni have very low Household density. Rest are in a medium position.
In Konnagar, Rishra, Champdani and Uttarpara-Kotrang Municipalities have more population density and household density too. Due to these factors these municipalities are facing more environmental problems related with over population.

URBAN WORKING POPULATION IN RESPECT OF TOTAL URBAN POPULATION
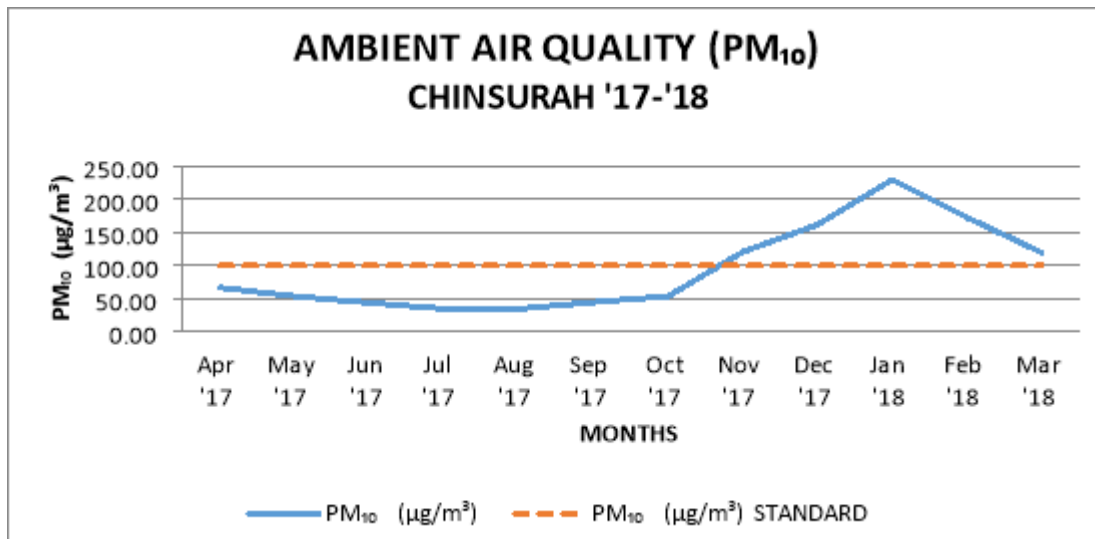
Source: Census 2011

So far the concentration of industries is concerned, the urban areas of Hooghly was industrialised in British Colonial period. That time this area was known for Jute and Cotton Mills as it was an indispensable part of Hooghly Industrial Belt. During post-colonial period both the industries declined. This gave rise to a different industrial scenario in the district that had shifted the type of industries along with the location also. Instead of large jute mills several small factories established to fed the daily household requirements oriented productions. The location of industries also shifted from Gangetic urban belt towards the rural areas of the district based on availability of transportation. A brief account of industries of the district has been given in tabular form.

SL NO	MACRO AND SMALL ENTERPRISES	NUMBERS
1	AGRO BASED ENTERPRISES	7
2	LIVE STOCK BASED ENTERPRISES	4
3	FOOD AND ALLIED ENTERPRISES	14
4	TEXTILE PRODUCTS	10
5	LEATHER AND REXIN PRODUCTES	6
6	RUBBER AND PLASTIC PRODUCTS	10
7	CHEMICAL PRODUCTS	15
8	PAPER PRODUCTS	4
9	GLASS AND CERAMIC PRODUCTS	14
10	MECHANICAL AND METALLURGICAL PRODUCTS	15
11	ELECTRONIC AND ELECTRICAL PRODUCTION	21
	TOTAL	120

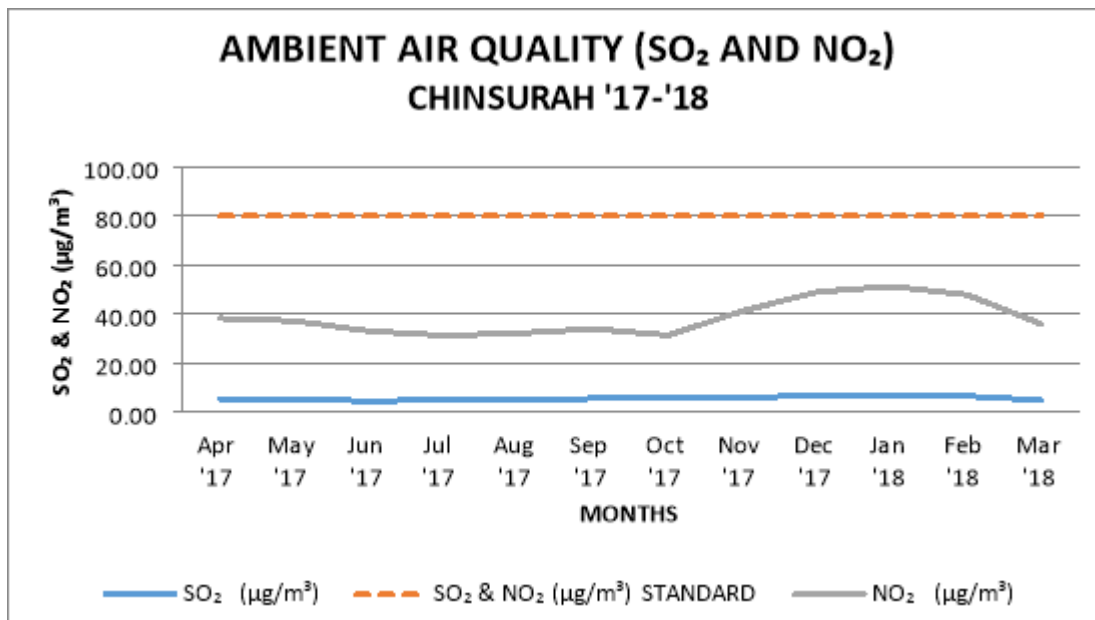Source: District Human Development Report: Hooghly

Whenever environmental issues are concerned air quality becomes the most important parameter. According to West Bengal Pollution Control Board data of 2017-18 ambient air quality in respect of PM_{10}, SO_2 and NO_2 has been diagrammatically represented for the station Chinsurah which is the district headquarters. It reveals that only PM_{10} crossed the normal limit between October and March. Urban

traffic and industries are the major reason for above mentioned parameters. Here those parameters are not so alarming for the environment.
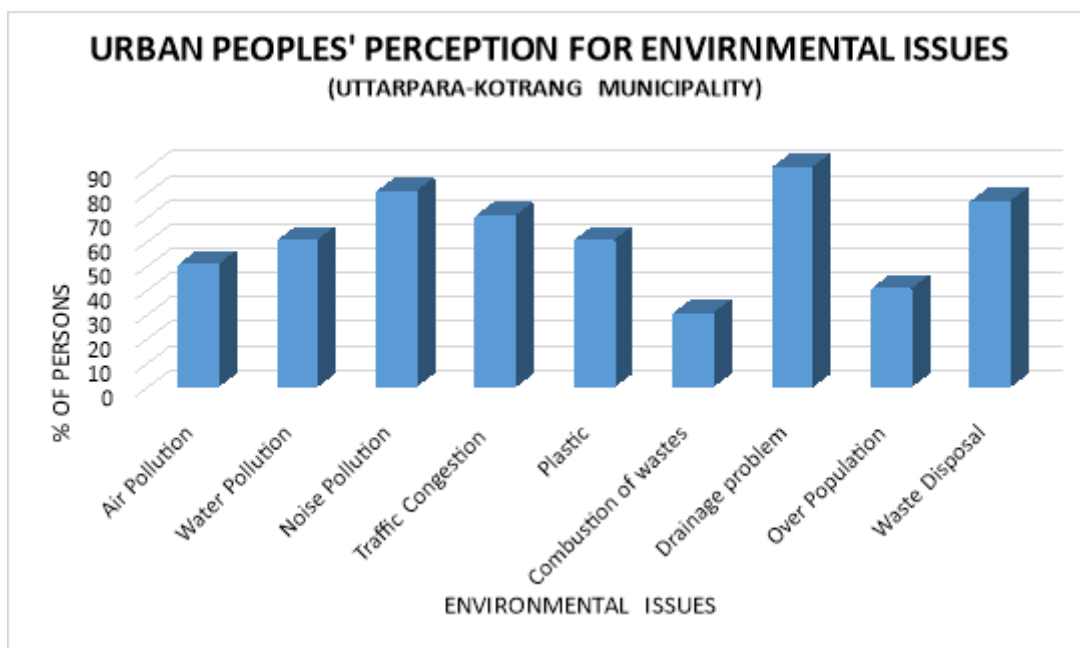
AMBIENT AIR QUALITY (PM$_{10}$)
CHINSURAH '17-'18

Source: WBPCB 2017-18

AMBIENT AIR QUALITY (SO$_2$ AND NO$_2$)
CHINSURAH '17-'18

Source: WBPCB 2017-18

A survey has been conducted by the author to excavate the perception of the urban people about the environmental issues. Uttarpara-Kotrang Municipality has been selected for this purpose as it is one of the municipalities having high population density. From the survey the fact has come into existence that Drainage problem, Noise pollution and Urban Waste disposal are the most alarming issues, followed by Traffic Congestion, Plastic and Water pollution.

URBAN PEOPLES' PERCEPTION FOR ENVIRNMENTAL ISSUES
(UTTARPARA-KOTRANG MUNICIPALITY)

Source: Field Survey

Considering all the parameters following environmental issues may be pointed out:

1. **Air pollution-** Air pollution is a mixture of solid particles and gases in the air. Emission of chemicals from urban and industrial activities in the form of dust, pollen and mold spores may be suspended as particles. Nearly all the towns are suffering from this problem particularly for fossil fuel combustion. Moreover, towns like Bansberia, Bhadreswer, Champdani, Dankuni are also getting industrial wastes for air pollution.

2. **Water pollution-** Water pollution is the contamination of water bodies, usually as a result of human activities. All the towns besides the Hooghly river have a general tendency to contribute sewerage channels into the river. Purification of sewerage water before mixing with river water have been taken by the municipalities but it has not got proper goal. Moreover, a huge number of kuccha drains are also creating water pollution particularly in comparatively newer municipalities like Tarakeswar, Dankuni and Arambagh Municipality.

3. **Soil & Land Pollution due to Household & Industrial Waste -** Land pollution simply means degradation of the earth's surface as a result of human activities. Though all the town administrations are trying their best to manage urban solid wastes, but in reality it is going be in a very unmanageable situation due to influx of population. All the measures are not running successfully due to lack of public awareness.

4. **Public Health Issues –** Dirty water is the greatest well-being of world and possess a risk to health and lifespan of people and animals. It is observed that due to lack of public awareness drainage system of each town is not running properly, so water logging has become a serious problem in all the towns. Recently due to this problem public health issues are arising particularly in Uttarpara-Kotrong, Rishra, and Serampore.

5. **Overpopulation-** Due to the nearness and having very easy access with the state capital, population is increasing day by day. All the towns have compelled to grow vertically. This huge population within a confined area creating too much burden on its environment. Town like Serampore, Rishra and Konnagar have reached an optimum level in terms of vertical growth.

6. **Loss of Biodiversity-** It is yet another casualty due to the impact of human beings on the environment. Open spaces are decreasing rapidly. Those open spaces were the home of so many species. Always so many endangered species are lost from our environment.

7. **Urban Sprawl-** Urban Sprawl brings about expanded movements, environmental concerns, and well-being concerns. It is observed that urban sprawl is going on in large scale in this area. It is expanding in the western margin of the towns besides the Hooghly river. In near future urban administrative boundaries should have to revise.

8. **Social Environmental Issues-** Huge population influx in these towns creating so many social environmental issues based on some parameters like class, cast, religion, language, wealth so on. These are exposed in the form of mental division on social space and loss of trust among each other.

V. CONCLUSION

There is now a widespread agreement that urban environmental Issues are very important to all communities, at the present and in the future. It is essential and ongoing task to involve stakeholders in identifying urban areas challenges for informed decisions making and effective implementation of adopted policies. This study,

Frist, identified the relevant environmental challenges, and then provided a comprehensive snapshot of public opinion on their importance and priorities in the Hooghly district. Respondents perception of the identified urban environmental challenges resulted from their day-to-day interactions with the immediate environmental as well as their aspirations for the future. Most of these Hooghly district have resulted from the county for any decades.

Responsible consumption and conservation are ways to solve environmental problems. In spite of all issues aviation has been improved constantly for the last 50 years.

Second, Urban waste recycling must be prioritised to convert different types of waste into useful products while preventing their accumulation. Waste recycling reduces the consumption of raw materials and energy.

A good response rate and the nationwide representation suggest that the findings of this study are appropriate for consideration in the development of future and guideline at the urban scale.

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