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Urbanization and Solid Waste Management: It's Impacts on Human Health and Environment in Asansol Town.

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Abstract:

Both urbanization and population are solely responsible for the increasing rate of solid waste and it is a major problem in Municipal Corporation. Urbanization and modernization lead the economic development of any region in the world and are reflecting towards progress and at the same time set a new challenge to the modern society. The urbanization and the environmental problem are associated with each other. The process of urbanization also affects the area with its unhygienic environmental condition caused by the waste generated in the form of household waste, construction, demolition debris, sanitation residue and waste from streets. The garbage is generated mainly from residential and commercial complexes. Solid waste is unwanted materials disposed of by the people, which can neither flow into streams nor escape immediately into the atmosphere, with rising urbanization and change in life style as well as in food habits, the amount of municipal solid waste has been increasing rapidly and poses significant disposal problems too. The present paper tends to focus the role of urbanization and solid waste management along with its haphazard condition prevailing in the Asansol Town. The principal objective of the present investigation is to study the solid waste management and its effects on environment as well as on human health in Asansol Town. The haphazard condition of the waste generation and its disposal is responsible for the creation of unhealthy environment in the town. The study shows that there is a significant link between the improper management of urban solid waste and the environmental pollution. Finally the paper suggests some measures and steps to keep the town nice and healthy.

Keywords: *urbanization, solid waste, management, condition.*

Introduction:

Modern man's greatest contribution to pollution is increasing which is mainly taking place on land. Out of which solid waste pollution creates a havoc for the modern man's society. The ramification of the uncontrolled solid waste generation would create a severe environmental hazard in future days. Thus its proper management should be the prime duty of any concerned city. Many developing and developed countries are also facing solid waste problem. So an effective, efficient, and sustainable waste management system is still rare in India. Hence, it is noteworthy to make proper management or plan of this

increasing hazardous problem. Keeping in view of this problems, Asansol town in west Bengal has been selected as the study area.

Significance of the study: The basic purpose behind this present study is to find out the environmental crisis which is taking place in Asansol town. To understand the urbanization and its problems associated with the solid waste management and disposal process.

Objectives: The main objectives of this present paper is:

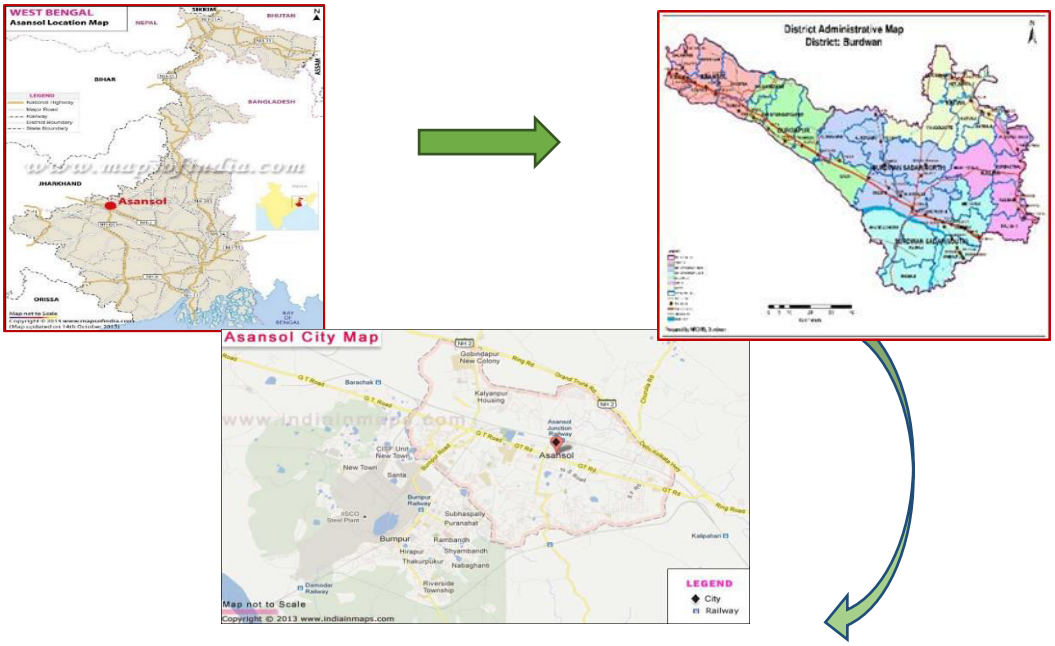
- To identify the sources of solid waste generation in the Asansol town.
- To find out the environmental crisis, an aesthetic disturbance which is taking place in Asansol town due to solid waste.
- To study the urbanization, the waste generation and its disposal in the study area.

- To concentrate to focus on the impact of garbage on human health and environment.
- To suggest the planning strategy for garbage disposal system and its management.

Methodology: The present empirical study is conducted in Asansol town of west Bengal which is an important industrial town of this state. The study is based on both qualitative and quantitative data collected through survey method and interview. The sources of data are both primary and secondary. The primary sources of data have been collected through field research and sample survey. The secondary sources of data are collected from municipal authority by interview and from various related books and journal.

Study area: Asansol is one of the largest cities in the State of West Bengal outside Kolkata Metropolitan area which extends $23^0$88'N, to $23^0$38 north latitudeto $87^0$10''E $87^0$20''E longitude. It emerged as a Municipal Corporation in the year 1994 by way of a merger which brought together the Burnpur Notified Area, some rural parts of Asansol Block and some colliery areas with erstwhile Asansol Municipality. Obviously, the erstwhile Asansol Municipal town had grown into a vast service city from the industrial as well as mining point of view. Gradually, within the city, both wealth and poverty began to co-exist side by side. Poor population of the city was localised in the clusters of crude dwellings, mostly squatter colonies, dotted all over the city area.TheAsansol town has been experiencing rapid urbanization and congestion.one of the major problems faced by the study area is in the field of pollution. The industry profile of the area, the congestion and limited enforcement has resulted in severe pollution. Overall the

present solid waste management covering the entire Asansol urban area is found to be highly in adequate. Presently the waste are simple thrown either on the roadside heap or close to nearby waste bin and the roads end up being storage of enormous amount of waste. There is virtually no solid waste management system in almost the whole of the Asansol urban area.



Location of the study Area

Major problems of the solid waste management (MSW) in the study area: the major shortfall in the solid waste management in Asansol town are as follows:

1. ***Absence proper collection and transport***: the process of collection, which requires substantial man and logistics management, is very poor in Asansol town. This coupled with lack of proper transportation has resulted in a situation where in 50-60% of the waste is not collected at all.

1. ***No segregation of waste***: Concept of segregation of waste is largely absent and people are totally ignorant about the significance and necessity of segregation of solid waste.
2. ***Bio- medical waste***: Asansol urban area contains a good number hospitals, nursing home, there is no provision of updated and sophisticated solid waste management facilities. The bio-medical are also getting dumped along with domestic waste.
3. ***Absent of landfill site for disposal of garbage***: In Asansol town area there is no identified landfill site for disposal of garbage as such it is indiscriminately disposed through the filling of low lands as well as the agricultural land spread over the city.

4. ***No awareness to general public***: In Asansol town there is no awareness among the general public about the solid waste management. People are not aware of the way to dispose the waste. Careless disposal of waste on street has resulted in littering of waste.

Health Impacts of Solid Waste:

Exposure to hazardous waste can affect human health, children being more vulnerable to these pollutants. Many studies have been carried out in various parts of the world to establish a connection between health and hazardous waste. Waste from agriculture and industries can also cause serious health risks. Waste dumped near a water source also causes contamination of the water body or the ground water source. Disposal of hospital and other medical waste requires special attention since this can create major health hazards. Waste treatment and disposal sites can also create health hazards for the neighbourhood.Improperly operated incineration plants cause air pollution and improperly managed and designed landfills attract all types of insects and rodents that spread disease. Recycling too carries health risks if proper precautions are not taken. Direct handling of solid waste can result in various types of infectious and chronic diseases with the waste workers and the rag pickers being the most vulnerable.

Environmental impacts of solid waste:

Rapid urbanization can create an enormous stress on the natural environment. These stresses extend far beyond the land that urban areas actually occupy to affect the land that provides the resources to sustain urban life. Urban areas claim the ecological output and life support functions of both nearby areas and distance regions. The growing rate of population in the township of the planning area is a well example of effect of urbanization. Environmental impact of urban areas is often invisible to urban residents themselves because the ecosystems that support them may be far a way.as urban areas expand, so does their environmental impact. Lack of sanitation maintenance in the market. The existing drainage system affects the city environment and leads to unhygienic conditions. Landfill sites are not scientifically designed so create air, water, and soil pollution. Which itself releases many toxic elements and gases to the environment.

Analysis and Discussion: Urbanization is a dynamic process involving the spatial and demographic changes leading to the increase in urban area with the concentration of population mainly due to migration. Urbanization directly contributes to waste generation, because of everything in packing and fast food products which increases the quantity of waste. The unscientific waste handling causes health hazards and urban environment degradation. Municipal solid waste is define to include refuse from the households, non-hazardous solid waste

discarded by the industrial, commercial and institutional establishment, market waste, yard waste and street sweepings which are collected by the municipal authorities for disposal.

Solid waste generation in the study area:

Per capita Generation per day	320gms.
Estimated Generation of Solid Waste Per day	Garbage 175 MT, Building debris 45 MTs s.

Different types of solid west generation in Asansol Town

Food waste	**8.00 %**
Green waste	**32.25 %**
Timber(wood)	**6.99 %**
Consumable plastic	**5.86 %**
Industrial Plastic	**1.18 %**
Steel & Material	**0.03 %**
Rags & Textiles	**3.14 %**
Paper	**6.45 %**
Rubber & Leather	**1.45 %**
Inserts	**34.65 %**

Source: Asansol Municipal Corporation.

Chemical Analysis of solid waste generation in Asansol Town

Moisture Content	**27.60 %**
PH Value	**7.68**
Organic Content	**39.06 %**
Carbon content	**21.53 %**
Nitrogen Content	**0.73 %**
Phosphorous P2 O5	**0.63 %**
Potassium K 2 O	**0.63 %**

Source: Asansol Municipal Corporation.

Waste Generation By Category:

Residential	**68 %**
Commercial	**16 %**
Halls, Schools, Institutions	**14 %**
Industrial, Hospitals & Clinics	**2 %**

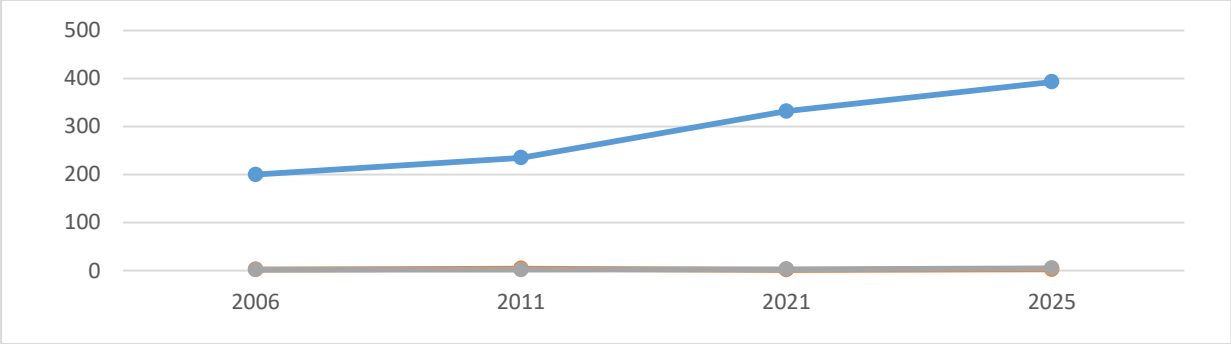
Source: Asansol Municipal Corporation.

Total quantity of solid waste generated in Asansol Town

Sl no.	Source	Total waste tons/day	% of total
1	**Residential waste**	**125**	**62%**
2	**Commercial waste**	**50**	**25%**
3	**Hotel and restaurant's**	**5**	**3%**
4	**Street sweepings**	**20**	**10%**
	Total	**200**	**100%**

Source: Asansol Municipal Corporation.

Projection of solid waste generation in Asansol town



Planning strategy: Planners need be aware of the amount of garbage generation and its associated problems. Then only they could design the proper and suitable plan for development of the Asansol Town. The due attention to be paid from the

grass root level regarding cleanliness and the same has to be enforced. Mutual co-operation between the civic authorities on the one hand and the participation of the local people on the other hand.

Suggestion: Every individual has the fundamental right to seek a health environment for living. Simultaneously, every individual has the fundamental duty to keep the environmental safe and free from pollution. Creating environmental awareness among general masses is equally important. There is a need to create a civic sense and sensitize the masses towards environment and related problems. Every individual should follow the concept of ‘‘Four Rs’’ to minimize the amount of garbage generation at a given space. The popular and well known concept of Four Rs (Refuse, Reuse, Recycle, and Reduce) should be followedfor waste management.as of today, solid waste has emerged as a major environmental problem. The need of the day is to adopt proper waste management techniques. The greater production of waste has posed the problem concerning there management which includes collection, transportation, and safe disposal. . Collection of Municipal Solid Waste at source (Door to door collection) has been implemented at 33 Nos. Ward this has been achieved only on introduction of Tricycles which stands as a wonder tool for better collection of MSW at door steps. Now about 200 Tricycles are put in use.

Primary Collection:

- Fully with Manpower
- Operation in one stretch per day 6.00 am to 11.00 pm. & 2.00 pm TO 5.00 PM
- Night Conservancy between 8.30 pm to 1.00 am.

Implements Used: Brooms, Baskets (Bamboo and Aluminium), Brushes, Iron Plate, and Containerised push carts, Tricycles, Root mould wheeled bins

Activity: Sweeping, collecting, storing in the specific bins. Door to door collection of garbage collecting the Waste from the House holds by Tricycles for unloading in transfer stations.

***Secondary Collection*: (Transportation):** Street to disposal site. Transportation to disposal site from transfer station. Route schedules for each and every vehicle for each trip.

Conclusion: There is a limited focus on control mechanisms which is adversely effecting on safety, health and the environment. Regulations are inadequately enforced and SWM does not seem to be a priority. None of the cities has an

integrated solid waste management system Hospital and industrial wastes are treated as ordinary waste. A lot of potential for recycling and involvement of private sector which is overlooked. No disposal facilities, Open burning of waste or open disposal is most common practice. Open burning of non-degradable components like plastic bags are adding to air pollution. Much of the uncollected waste poses serious health hazards.

Recommendations: Following recommendations are proposed for sustainable SWM in Asansol town. The involvement of people and private sector through NGOs could improve the efficiency of SWM.Public awareness should be created especially at primary school. Littering of SW should be prohibited in cities, towns and urban areas. Moreover, house-to-house collection of SW should be organized. The collection bins must have a large enough capacity to accommodate 20% more than the expected waste generation in the area.

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