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# RELATION BETWEEN SOLID WASTE MANAGEMENT AND SUSTANIABLE DEVELOPMENT AS WELL AS ITS IMPACT ON POVERTY AND HEALTH ISSUES OF THE MUNICIPAL TOWNS OF BIRBHUM DISTRICT, WEST BENGAL

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## ABSTRACT

*In this present day life of any town the solid waste management specially household waste management is a challenging issue for any municipal authority. To make the city or town clean from garbage disposal is a prime aim for them. To maintain the overall sustainable development of any town, scientific garbage disposal to the dumping ground is a major task for the responsible authorities. Giving a healthy environment to the town dwellers to live and making the air and water free from pollution is the success key for any municipal authority.*

**KEYWORDS :** *Household waste, garbage disposal, sustainable development, dumping ground.*

## WASTE MANAGEMENT AND SUSTAINABLE DEVELOPMENT:

For a sustainable development, the natural resource base will be the key parameter for a long and sustained development for any country and society. For the scientific solid waste management, scientific and environment friendly action plans need to be taken. For a healthy environment for the citizen regarding solid waste management, the municipal authority should give more emphasis on water supply, sanitation, air quality and solid waste management.

Depleted ground-water, $CO_2$ accumulation in the atmosphere, and deforestation are some examples of rapidly depleting assets. In the present time with the increasing patent of our livelihood, we became dependent more on consumed products, which intern increases the waste materials. To understand the integrity concept of “Sustainable Development” at present time we need to be more careful about our future generation and their sustainability with remaining natural resources on this planet earth.

The municipal authorities are faced with the difficulties of how to resolve urban problems from drinking water to waste management, from housing and transportation in their urban areas. Beautification and greenery expansion are some of the major attention for all the municipalities of the study area. Bolpur, Suri and Rampurhat municipalities have taken various steps towards beautification. They have taken up various schemes for the town to make their township more beautiful. With the beautification schemes the people will be more aware of keeping the town clean by every means and not to dispose solid wastes haphazardly. Beautifications of the urban towns are now a major concern of West Bengal Govt. the municipal authorities also need to become more aware of the impact that their consumption patterns have on other regions and ecosystems. Then only a sustained development of a town will remain for long time. Scientific disposal of waste is needed to give a society a pollution free environment. This is a prime responsibility of any municipality.

## WASTE GENERATION AND URBANIZATION:

Urbanization directly connected to waste generation, and unscientific waste handling causes health hazards and urban environment degradation. As the urbanization grows up, the waste generation and the types of wastes increase simultaneously. Municipal Solid Waste the wastes produced from the households, non-hazardous solid waste, discarded by the industrial, commercial and institutional establishments, market waste, yard waste and street sweepings which are collected by the municipal authorities for disposal.

**Plate: Pollution of the central bus stand in Suri town due litters thrown in the premises**

Municipal Solid Waste Management broadly deals with wastes that are created by the residents of the area. The municipalities mainly collect, processed and disposed those wastes materials. The municipalities of Suri, Bolpur, Rampurhat, Dubrajpur and Sainthia are well aware about the issue. As Suri and Bolpur are more urbanized than others in in consideration of all the facilities and amenities. In terms of education, health issue and other modern facility these two municipal towns are most perfect place to reside. So as a result huge number of people from outside the town reside there as a result the population density has increased and urbanization has take a pace there. These are some parameters for increasing the amount of waste generation day by day. Bolpur municipality has become more urbanized due to the presence of a CentralUniversity, Visva-Bharati at Santiniketan. In order to avail education in the university a huge number of students and their relatives now reside around Bolpur town coming not only different parts of this state but also from other states and foreign countries. Due to this huge temporary migration of these people the urban status of the town automatically gets geared up due to national and international effects of those students. Suri municipality is the Headquarter of Birbhum district, so automatically the town gets some extra emphasis being a district administrative head quarter. Rampurhat and Sainthia municipalities are also very important municipal towns of Birbhum district. These two towns are moderately urbanized with their various parameters as Sainthia is most important business centre as well of the district and Rampurhat is a junction rail station and 'Tarapith' temple is one of most important holy temple nearby Rampurhat town, which is not only attract holy people at the state level but it has a nationwide importance.

Following table describes the water supply facilities offered by the municipalities of the study area to the residents of the towns. This table is most significant for understanding the water sources and present water supply condition by the municipalities. Ground water condition is significantly related with the waste disposal system of the area. In Suri, Rampurhat, Sainthia and Dubrajpur municipalities, the daily wastes are disposed here and there on the roadsides and in ponds which pollute the water table adversely. Those

polluted water may pollute the drinking water around the dumping grounds. The residents around the dumping grounds face serious health hazards for using this polluted water.

**Table: Water Supply Facilities at a glance of all the Municipal towns of Birbhum District**

| *Sl. No.* | *Name of MunicipalTown* | *Actual requirement of water per day* | *Supplied amount of water per day* | *No. of domestic water supply connection* | *Road-side taps (supplied water)* | | *Road side Hand pumps (for underground water)* | *No. of Big tanks (surface water storages)* | *Source of Water* |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total Nos | In working order | | | |
| 1 | Suri | 8 Lakh gallon | 13 Lakh ltr/day | 2160 | 327 | 90 | 278 hand pump 10 underground tube well | 3 | Mayurakhshi river bed |
| 2 | Bolpur | 12 Lakh gallon | 10401kilo ltr/day | 6650 | 326 | - | 252 hand pump 14 underground tube well | 5 | Underground aquifer |
| 3 | Rampurhat | 25 lakh gallon | 8 lakh ltr/day | 632 | 400 | - | 400HP 9 Tube wells(120-125ft) | 2 (485000 gln) | Underground spot source in Jhanjhania Mouza |
| 4 | Sainthia | 20250 lte | 5284575 ltr/day | 426 | 550 | 550 | 248 hand pump 12 underground tube well | 2 | Mayurakhshi river bed |
| 5 | Dubrajpur | 12 lakh ltr | 9 lakh ltr/day | 740 | 120 | - | 158 hand pump 8 Tube wells in land & river bed | 1 | Ajoy river bed |

*Source: Data Collected from all the municipalities of the study area*

In this table, the water supply facilities of all the municipal towns of Birbhum District can be seen at a glance. From the table the entire picture of total water requirements, total water supply by the municipalities, domestic water connections, numbers of road side taps and tube wells, source of water for the municipalities is clear at a glimpse. In Suri municipality 8 lakh gallons of water is required likewise in Bolpur 12 lakh gallons, Rampurhat 25 lakh gallons, Sainthia 20,250 litters and in Dubrajpur 12 lakh gallons of water is required. The municipalities supply the required water to the residents as per their capacity. Suri municipality supplies 13 lakh litters / day whereas Bolpur supply 1,0401kilo litters of water per day. Rampurhat municipality supplies 8 lakh litters / day, Dubrajpur municipality supplies 9 lakh litters / day and Sainthia municipality supplies 5 lakh litters / day. Number of domestic water supply connection in the municipalities are 2,160 in Suri, 6,650 in Bolpur, 632 in Rampurhat, 426 in Sainthia and 740 in Dubrajpur. The details of road-side taps in the municipalities are also there in the table. In Suri municipality 327 numbers of road side taps are present, in Bolpur this number is 326, in Rampurhat 400, Sainthia 550 and in Dubrajpur

municipality this figure is 120 only. There are some large water storages in all the municipalities from where the domestic water is supplied to the residents. For the source of water the municipalities have to depend on either river or on underground aquifer. The water from the sources gets purified and then it is supplied to the households and to the residents of the municipalities. Suri and Sainthia municipalities depend on the river MayurakhshiRiver water, Dunbarjpur municipality on Ajay river and the rest two municipalities i.e., Bolpur and Rampurhat municipalities depend on underground aquifer for the total water supply for the area. However, gets some amount of water supply from the boreholes on the river bed of Ajoy.

**Plate: Researcher is taking interview on perceptions of the local residents in Bolpur municipal area**

**Impact on Health and Environment:**

Some of the severe and hazardous environmental impact due to unscientific disposal of solid wast6es has been noticed as follows:

- Ground water gets contamination because of the waste dumping.
- Surface water also gets affected and contamination by the runoff from the waste dumping grounds.
- Carbon dioxide and methane gas release from the dumping ground.
- Methane gas generated from the dumping areas which is highly inflammable.

**Plate: Solid waste encroaching upon the water body near Suri municipal town**

## Poverty and Waste Management:

Environmental degradation and poverty is interconnected.The urban poor, or the poor who live in various municipalities, sometimes they do not have a scientific health access. Their houses are sometimes surrounded by extremely unhygienic environmental conditions. Due to the compulsion of poverty, many of them (mostly women) are involved in waste picking as rag pickers and they sold those collected wastes materials to the scrap dealers.These scrap dealers have an access to the recyclable waste of the industry and commercial establishments, they buy the wasted materials from the rag pickers.They collect the wastes from the bins and those materials are not segregated or processed. As a fact they collect those un-segregated materials. The residents around the landfill areas of the study area are the worst affected by the waste disposal. In Bolpur municipality, around the main dumping ground at KhoskadampurMouza, near Bolpur Nursing home there are some households spread over. These families are the main victim of waste disposal. In Suri and Rampurhat municipalities, the wastes are spread beside road sides within the wards.

**Plate: A Rag Picker collecting rags from the road-side dump in Suri town**

**Plate: Rag pickers collecting rags from the waste dumped in the open**

## COMMUNITY PARTICIPATION:

Community participation becomes very important for an innovative and sustainable approach to Municipal Solid Waste Management.

In order to achieve the objective of sustainability it is necessary to establisha scientific system of solid waste management. With the increasing population of any city or town the economic and social profile also change. The quantity of waste generation and the types of waste generation also change with the time.The financial limitations of the municipalities and their other limitations are a huge challenges for a municipality. Thus waste minimization and a community-based waste management needs more attention and should be on the top priority service for the authority for a sustainable condition.

**Plate: A road-side vegetable market in Suri – Generation point of bio-degradable waste**

### Some Policies which all Municipal Authorities are bound to Obey:

### 1. Accountability of Municipal Authority

i) Each municipal authority, within its territorial area isaccountable for the application of the supplies of many rules for the infrastructuralexpansion for collection, storage, separation, transportation, processing and removal of municipal solid wastes.

ii) The municipal authority or an operative of a facility shall make aappeal in Form - I, for grant of authorization for setting up waste processing and removal facility counting landfills from the State Board or the Committee in order to comply with the applicationprogrammeplaced down in Schedule I.

iii) The municipal authority shall furnish its annual report in Form-II. This is a mandatory that every municipality achieves.

iv) To the District Magistrate or the Deputy Commissioner troubled in case of all other towns and cities, with a copy to the State Board or the Committee on or before the 30$^{th}$ day of June each year. The concern State teach the municipalities in this respects in due time.

**Plate: Waste dumping in the dumping ground outside Bolpur by the municipal staff**

**Plate: Burning of municipal waste at the outskirt of Bolpur town**

**2. Accountability of the State Government Administration:**

i) The Secretary-in charge of the Department of Urban Expansion of the concerned State or the Union territory, as the case may be, shall have the generalcharge for the implementation of the provisions of these rules in the metropolitan cities.

ii) The District Magistrate or the Deputy Commissioner of the apprehensive district shall have the inclusive responsibility for the submission of the provisions of these rules within the territorial bounds of their dominion.

**3. Responsibility of the Central Pollution Control Board and the State Board or the Committees:**

i) The State Board or the Committee shall monitor and observe the compliance of the standards regarding ground water, ambient air, leachate quality and the compost quality including incineration standards as specified under Schedules II, III and IV. They have a continuous observation regarding these aspects vigorously.

ii) The State Board or the Committee, after the reception of claim from the municipal authority or the worker of a facility in Form I, for grant of authorization for setting up remaining processing and disposal facility including landfills, shall scrutinize the proposal taking into consideration the opinions of other agencies like the State Urban Development Department, the Town and Country Planning Department, Air Port or Air Base Authority, the Ground Water Board or any such other supportpreceding to issuing the authorization. In this step the State Board or the Committee examine the proposed dumping ground and its surroundings minutely for the setting up of the landfill dumping ground of the concern municipality or the corporation.

iii) The State Board or the Committee shall matter the authorization in Form-III to the municipal authority or an operator of a facility within forty-five days specifyingamenabilitystandards and standards as quantified in Schedules II, III and IV including such other conditions, as may be needed.
iv) The agreement shall be lawful for a given period and after the cogency is ended, a fresh agreement shall be mandatory. The municipal authority and the corporation need to send new proposals for the authorization as the validity ends up.
v) The Central Pollution Control Board shall co-ordinate with the State Boards and the Committees with particular reference to implementation and review of standards and guidelines and compilation of monitoring data.

## OVERALL ASSESSMENT:

i) Sustainable development and waste management for any municipal town is interlinked with each other. To maintain the sustainability in the developmental process proper waste management in scientific way is most important.
ii) Proper collection house to house collection of household waste, segregation of wastes at the source point is needed.
iii) Dumping ground should be prepared maintain all the scientific rules and regulations to avoid air and soil pollution.
iv) Rag pickers who picked up various non biodegradable wastes from the dumping ground, their health and habits should be checked by the municipal authorities if possible to give them safety from the toxicities arises from the dumping ground.
v) If the health and habits of the rag pickers can be checked the poverty eradication can reduce to some extent.
vi) A pollution free environment of any town is only possible when the town is neat and clean, garbage disposal are done properly and no solid wastes are found scattered around the town. This is the prime responsibility of the municipal authority.
vii) The waste processing and disposal facilities to be set up by the municipal authority on their own or through an operator of a facility shall meet the specifications and standards as specified in Schedules III and IV.

## REFERENCES:

1. Bai, R. and Sutanto, M. (2002): The practice and challenges of solid waste management in Singapore. *An article from Waste Management, Pergamon*, 22 p- 557- 567.
2. Dewan. J.M. and Sudarshan. K.N. (1999): *Solid Waste Management*. Descovery Publishing Pvt Ltd.
3. Gupta,S.,Krishna,M.,Prasad,R.K.,Gupta,S.,Kansal,A.(1998):Solidwaste managementin India: Options and opportunities. *Resource, Conservation and Recycling,*24,pp.137–154.
4. O'Malley, L.S.S. (1995): Birbhum District Gazetter. Govt. of West Bengal
5. Register of Bolpur Municipality(2012):Office record of Bolpur Municipality.
6. Ramulu, U.S. and Shoba U.S. (2008): *Urban Solid Waste Management in India.* Scientific Publishers(1st ed.)
7. Sarkar N. (2016): Waste disposal and environmental consequences in the municipal towns of Birbhumdistrict,West Bengal with special reference to Suri. Ph.D. Thesis (unpubl.), Visva-Bharati Santiniketan.