

**PEOPLE'S PERCEPTION TOWARDS MUNICIPAL SOLID  
WASTE MANAGEMENT IN BALURGHAT TOWN**

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**Abstract**

The generation of solid waste is an obvious result of the gigantic development of human civilization. Actually, rapid industrialization attracts a large number of people to gather in the urban centers which generates a huge quantity of waste material daily. The management of those waste materials using environment friendly methods has become a matter of global concern as municipal solid waste is extremely hazardous for environment as well as for human beings. Basically, it is the responsibility of municipal authority to provide this basic facility to city dwellers. But, the task is quite difficult specially in the developing countries where the techniques used for the waste management are generally old and obsolete. The present paper attempts to study the existing solid waste management system in Balurghat Municipality and also to find out the perception of people regarding the present waste management system there.

**Key words:** Solid waste, bio-degradable and non-degradable waste, people's perception.

**Introduction**

Solid waste refers to the solid and semi-solid waste materials which is useless and unwanted to human society. Solid waste management includes the entire process of collection, transportation, disposal, processing and recycling or reusing of waste material . The generation of solid waste is an obvious result of the gigantic development of human civilization. Rapid industrialization as well as 'improved standard of living in cities and urban areas have led to the generation of varied categories of wastes'( R. Rana,R. Ganguly and A.K.Gupta).

Moreover, the irrational and unscientific utilization of resources produces huge quantity of waste product. Now, the management of that mammoth waste product has become a issue of global concern due to its hazardous impact on environment. The management of solid waste should be done using environment friendly methods. So, the task become very difficult specially in the developing countries like India because 'the solid waste management approach in India is extremely inefficient ,using old and obsolete system ,technology for storage, collection, processing, treatment and disposal'(V.Kumar &Dr. R.K.Pandit).

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### **Objectives**

The study encompasses the following objectives-

- To study the existing solid waste management system of Balurghat municipality.
- To find out the drawbacks of existing solid waste management system.
- To study the impact of waste product on the environment.
- To find out the people's perception towards the present solid waste management.
- To suggest proposals for the improvement of the prevailing waste management system.

### **Data Methodology**

The study is based on both primary and secondary data. To know the existing solid waste management system and its impact on environment necessary data have been collected through primary survey and also from Balurghat Municipality. Besides, to find out the drawbacks of the present system, the opinions and experiences of the people regarding this issue have been collected through the structured questionnaire.

### **Study Area**

Balurghat, a small municipal town of Dakshin Dinajpur district is located at 25°13'5" latitude and 88°46'5" longitude and covers an area of 10.46 sq.km. The Balurghat Municipal town is comprised of 25 wards and the total household of the town is 39209 (2011). There are 34 slums in this municipality and all the wards have slum population. This town is located very close to Bangladesh and this proximity is one of the main reasons of the rapid growth of population because during the Independence of Bangladesh, a large number of refugee migrated from Bangladesh and occupied different pockets of the towns. The total population of this town is 158553 persons(Census 2011). This huge population generates about 126 metric tons solid waste everyday. The management of solid waste is essential to keep the urban centre clean and here municipal authority is responsible to provide this basic service to the city dwellers. In Balurghat municipality, management of waste is necessary and therefore required measures should be taken depending upon the situation.

### **Sources of Solid Waste**

Generally, the quality of solid waste generated by a city is highly variable and depends on the geographic location, season and economic status of the people however, the quantity depends on food habits, people's standard of living, seasonal variations and the number of commercial activities being done.

The major sources of solid waste in Balurghat town are-

1. Solid waste from residential areas
2. Commercial areas

3. Hotels and restaurants
4. Waste gathered from road sweeping
5. Bus stand
6. Hospital, nursing home and dispensaries
7. During different ceremonies and festivals

### **Composition of Solid Waste**

The solid waste comprised of both biodegradable and non biodegradable materials. The different types of waste materials are paper, plastic, leather, glass, metals, tattered clothes, straw, vegetables, food waste, used medicine . Among these waste particles paper, glass, metals, plastic etc are recyclable while food waste, vegetables , fruits, flowers are the organic substance which can be used further for composting . It is observed that the amount of organic substances are higher owing to the food habits of the city dwellers who mainly consume fresh fruits, vegetables, fish ,meat etc. instead of pre-cooked packaged food. However, the changing lifestyle has been steadily increasing the amount of non biodegradable waste particles.

Besides, bio-medical wastes like syringe, plaster, needle, blood stained cotton, napkins, placenta etc consists a considerable portion of total solid waste generated in Balurghat municipality. There is a District Hospital, a Police Hospital, two nursing homes and several pathological clinics which produce a large amount of bio-medical waste . Though, there is an organization to deal with the medical wastes but still municipality has to do the same. Because the organization only collects the syringe, plaster, needle, used cotton etc. So the remaining food waste and used cloth of the patients, placenta etc are collected by municipality.

### **Municipal Solid Waste Management System**

The entire process of solid waste management of Balurghat Municipality is executed through four step— Primary collection of municipal solid waste, storage of solid waste at primary collection points, secondary collection of municipal solid wastes and disposal at dumping ground.

### **Primary Collection of Municipal Of Solid Waste**

Collection of solid waste refers to the gathering of waste from the different source area. In Balurghat Municipality markets, household and hospital are the three major source area of solid waste. Here, daily 126MT (Balurghat Municipality, 2014) solid waste are generated of which 65% is collected from commercial area, 28% from residential area and rest from the other sources. Therefore, the door-to-door collection and collection of waste material by road sweeping from residential area is very important. In every ward, 5 persons (1 supervisor, 2 sweeper & 2 labour) have been appointed to collect the waste material using the tricycle and hand cart (2 handcart & 1 tricycle) six days in a week. Moreover, extra labours are involved to collect waste from markets, bus stand or ceremonial houses. Generally, for a better waste management, the collection capacity of the municipality should always be greater than the total waste generation. But in India, most of the time it is invalidated and it is true in case of Balurghat town also. Here, it is observed that

municipality has appointed same number of safai workers for all the wards. Balurghat Municipality is comprised of 25 wards and all the wards having varied number of households and population. Now, on the basis of total households, they can be categorized into four groups. It is observed from table no. 1 that 11 wards have total household ranges between 1000-1500 and 10 wards have 1500-2000 households. On the basis of total population the wards can be further categorized as shown in the table no. 2. The table no. 1 & 2 clearly indicates the wards require more safai workers as well as more vehicles for collecting waste from residential areas. Because with these few personnel and obsolete equipments, it is not possible for the municipality to collect the total waste material from all the wards and there fore people dump the uncollected waste materials on vacant space. Hence, heaps of garbage is not a very rare view here.

**Table No. 1**  
**Distribution of Wards on the basis of total household, 2011**

TOTAL HOUSEHOLD	WARD NUMBER
<1000	25
1000-1500	1,3,7,8,10,11,18,20,21,23,24
1500-2000	2,5,9,12,13,15,16,17,19,22
>2000	4,12,14

**Table No. 2**  
**Distribution of Wards on the basis of Total Population, 2011**

TOTAL HOUSEHOLD	WARD NUMBER
<4000	25
4000-6000	3,7,8,10,11,18,19,20,23,24
6000-8000	1,2,4,5,6,9,12,13,14,15,16,17,21,22
>8000	4,12,14

### **Storage of Solid Waste**

After collecting waste from household, market or other sources, the safai workers store them to the primary collection points constructed in different parts of every wards. These collectoin points act as the temporary storage unit where waste are stored before transporting it to the disposal site. There is more than 300 primary collection point, some of which are covered storage unit while rest of are closed body uncovered storage unit. Here, no strict rule is followed in the construction of these primary collection points. Municipality decides it on the basis of total population and availability of open space. However, the existing collection points are not sufficient compared to the waste generation.

### **Secondary Collection of Solid Waste**

Now this step includes the collection of waste from the primary collection point and their transportation to the dumping ground. The main objective of transportation is to clear waste from the city and make the city clean and healthy. For this purpose different vehicles are used by the municipality. These vehicles include tractor trolleys (12), dumper placers vehicle(2), dumper placers container (34), mini truck(2), self unloading trailer(2), tri-cycle van(72), hand cart(75), drain cleaner(2) and cesspool emptier(3) . However, waste are loaded manually using baskets and other lifting tools to the transporting vehicles and generally the open transport of the waste is observed here.

### **Disposal at Dumping Ground**

Finally, with the help of these vehicles the waste materials are transported to the dump yard located around 4km away from the Balurghat town at Lalmati beside Dangi road and dumped there. The total area of the dumping ground is 10 acres. However, no steps have taken for further treatment of waste material, not even the segregation of biodegradable and non biodegradable material is done here. Municipality just unloads the waste product there and rarely covers them with soil.

### **Drawbacks in the Present Solid Waste Management System**

#### **No Segregation of Waste**

Segregation of waste is necessary for further treatment because the biodegradable and non biodegradable wastes are not processed in the same method and if the segregation is done at the source, it will be quite easier to manage the waste scientifically. But, in Balurghat Municipality no initiative is taken to segregate the waste.

#### **Irregular Street Sweeping**

Though it is scheduled to sweep each and every road and lanes of every ward, but it is not followed all the time. Generally, the busy and important roads are swept regularly, but the alleys and lanes are swept occasionally. Moreover, Sundays and public holidays are exempted from sweeping. Consequently, a back log is created on the next working day. Some time it is observed that roads are swept and waste products are stacked beside the road instead of transporting them to the primary storage point.

#### **Improper Planning of Waste Collection**

Municipality has appointed 5 safai workers and has allotted 3 vehicles for each ward without considering the distance of different ward from the municipality office, their total households or total population. Therefore, the larger wards like ward no. 1, 15,19,20,21 etc. having large number of household and population deprived of the proper service most of the time.

### **Age old and Obsolete Method of Waste Collection**

Here the waste are collected using the age old traditional vehicle like handcart and tricycle which do not have enough carrying capacity and also a small area can be covered within a day. In addition, this vehicles have no provision of coverage. As all the household is not covered by the present waste collection system, the remaining household throws the waste in the vacant space which makes the situation more difficult to cope with.

### **Unscientific Method of Waste Transport**

The manual loading of waste is practiced here which is not only very time consuming but also highly unsafe for the workers. Owing to the use of this unscientific and obsolete method of loading, waste are not cleared completely rather it is scattered around the primary collection point. Moreover, field survey reveals that the wastes are transported in the open vehicle without any type of coverage. As a result, the waste are littered on the road during transportation which spread foul smell and make the life of the city dwellers miserable.

### **Inadequate Vehicle**

The vehicles used for the total waste management is not sufficient in proportion to the requirement. For the collection of waste, two handcarts and one tricycle is allotted for door-to-door collection for each ward which is too little compare to the total household. The vehicles used to transport the waste are much less than the actual need. Only 12 tractors trolleys, 2 dumper placers vehicle, 34 dumper placers container, 2 mini truck and 2 self unloading trailer are used to transport the collected waste . The daily generation of solid waste generation is 126MT while the transportation capacity is much lower that. As a result a back log is done which results the unclean collection points.

### **Unscientific Disposal of Waste**

Processing of solid waste is highly essential to protect the environment because the solid waste causes large scale environment pollution . The processing reduces the waste quantity and brings out the maximum benefits by using the organic waste for composting or recycling the recyclable waste. Besides, electricity can also be generated from the solid waste. But, in Balurghat Municipality no processing of solid waste is done . Thus, on the one side municipality become responsible for the environment pollution, on the other side, they are truly wasting the potentiality of solid waste.

### **Unawareness and Irresponsibility of City Dwellers**

For a proper waste management, the cooperation of the citizen is indispensable. Sometimes it is observed that despite of the availability of this service, people throw the waste product in the open spaces and roads like throwing polypacks into the high drains. As a result the drains get choked and slight rain causes the roads to be under knee-deep water. Too in Balurghat Municipality,

sometimes people, instead of availing the service rather throw the solid waste in the vacant space which worsens the situation.

### **Impact of Solid Waste on the Environment**

This unscientific and inadequate management of solid waste affects the environment adversely. The decomposition of various types of waste material let out harmful gases and offensive smell. Besides, the combustion of solid waste produces particulates and pollutant gases which ultimately causes air pollution. In Balurghat Municipality, no steps has taken for further treatment of solid waste. So, the people those who are close to the dumping ground are severely affected for this improper and unscientific waste management.

Solid waste is one of the main causes of soil pollution. When the waste materials are dumped at a place without any type of processing, it pollutes the surrounding environment in different ways. The toxic or hazardous substances like lead, copper or acidic chemicals, used medicines when come in direct contact of the soil, it contaminates the soil. Besides, the particles of the waste sometime clog the micro holes of the soil and destroy the micro-organism necessary for soil. Thus, the soil lose its fertility and productivity. The irregular and incomplete clearance of solid waste results in the heaps of garbage which ruins the quality of the soil.

The river Atrayee flows by the Balurghat town and Danga khari flows along the northern part of the town. People of this town have a tendency to throw different solid waste specially the flowers and other articles used in worship into the river. Moreover, the images of the deities during Durga puja, Kali puja or other puja are immersed directly into the river which contaminates the water. During rainy season, rain erodes the dump and pollutes the nearby water body or underground water. Moreover, the rotting of organic waste produce a liquid substance called leachate which gets mixed with the underground water and pollutes the precious drinking water.

The impact of solid waste on human health is hazardous. The improper solid waste management causes the environment pollution and thus people suffer from different diseases like dysentery, cholera, tuberculosis, typhoid, skin diseases etc. The people who come in direct contact of the solid waste specially the sanitary workers and those residing near the dumping yard suffers severely owing to this unscientific waste management.

### **People's perception regarding the present Solid Waste Management**

To find out the real situation of the existing solid waste management system, a detailed field survey was done and the experience of the city dwellers about the waste management reveals a different view.

### People’s Perception towards Service Provided

#### About The Primary Collection of Waste

The study reveals that though it is scheduled to clean all the roads of every wards six days in a week, but it is not done regularly as 52.38% of the total respondent said that roads in their ward are not swept regularly. The study also reveals that roads are swept only once a day. In urban areas, municipality is responsible to collect the waste materials from each and every household regularly. But in Balurghat Municipality, only 19.05% respondent avail of this service regularly, while 71.19% respondents reported that safai workers collect waste material after every 2-3 days and 4.76% of the total respondents household are still not provided with this service. Moreover, the safai workers don't maintain a fixed time of waste collection as 40% of the total respondents said that the safai workers come at different times on different days.

#### About the Waste Collection System

People are also not much satisfied with the present waste collection system. Here, the majority of the respondents (90.48%) know about the segregation of the bio-degradable and non-degradable waste and 80.95% respondents also practice this as they store them separately. But, as the municipality collects the waste together, they find it meaningless to store them separately. However, they are much willing to practice it as 100% respondents stated that if municipality starts to collect the waste separately, they would definitely co-operate.

**Table No. 3**  
**People’s Perception Regarding Waste Collection System**

DIFFERENT ISSUES	PEOPLE’S PERCEPTION	
	YES(%)	NO(%)
Knowledge About Waste Segregation	90.48	9.52
Practice Segregation	80.95	19.05
Co-Operate If Municipality Start To Collect Separately	100	-

Source: Field Survey

#### About The Secondary Collection of Waste

People also get irritated if the primary collection point (PCP) is located nearer to the house because of the irregular clearance of garbage from the collection centre. Though municipality has claimed that they properly maintain the waste collection system daily but the views of the local people exhibit a different picture. 61.90% respondent stated that generally wastes are collected

after 2-3 days while 28.57% said it is after more than 7 days. Actually, the important places or those located near the municipality are prioritized whereas the distant wards or the slum areas are neglected most of the time. Besides, many storage units remain uncovered which makes the situation worse as 90.48% respondents reported that different animals and birds scatter the stored wastes on the roads. Moreover, the decomposition of waste materials permeates foul smell as stated by 85.72% respondent and make the life of the people miserable. More than 90% people are of the view that this open dumping of the waste causes large breeding of flies and mosquitoes which increases the occurrence of various diseases in Balurghat town.

**About The Transportation of Waste**

The respondents also do not support the open transportation of the waste material. 95% respondents opine that municipality should take immediate steps to stop this open transport because during transportation waste material litter on the roads and makes the road untidy.

**About The Condition of Roads and Drains**

The roads of this municipality are not very clean. Only 4.76% respondent said that the roads in their wards are very clean but majority (71.43%) of the respondent are of the opinion that roads in their ward are not very clean and 23.81% said roads are very untidy. The drainage system also gets badly affected owing to the waste deposit on the roadside or thrown directly into the drain. 76.19% respondents reported that the drains in their wards choke due to the throwing of waste and as a result a little rain causes the flood like situation in their ward.

**Table No. 4**  
**People’s Perception Regarding Secondary Collection Of Waste**

DIFFERENT ISSUES	PEOPLE’S PERCEPTION	
	YES(%)	NO(%)
Location Of PCP Is Useful	20	80
Stray Animals Scattered Waste	90.48	19.05
Permeates Foul Smell	85.72	14.29
Causes Breeding Of Flies & Mosquitoes	90.48	9.52
Increases Occurance Of Diseases	90.48	9.52

Source: Field Survey

### **General Societal Habits**

However, it does not mean that municipality is solely responsible for this improper waste management. The unhygienic attitude of the city dwellers is also liable for the present situation. It is observed that most of the people want to keep their own house clean and tidy but are heedless about their surroundings. So, whenever municipality is unable to collect the waste, they immediately dump it to some other places. 47.62% respondents dump the waste in open spaces, 42.38% on roadside, 4.76% into the drain and only 4.76% respondents wait for the municipal collection and store the waste at their home until the safai workers come to collect the waste.

It is also noticed that while travelling, either on foot or by vehicle, people do not hesitate to throw the waste in open spaces. 42.86% respondent admitted that they throw the waste at any vacant space, 9.52% each throw either on roads or into the drain and only 38% people are of the habit of keeping the waste with them and store it in the dustbin.

People also have a tendency to hoard the articles of the worship in the vacant land (55%) or to throw them into the river Atrayee (25%). Besides, people immerse the images of the deities into the river as 80% respondents practice this ritual which severely pollutes the water of the Atrayee river.

### **Suggestion**

The government of West Bengal has launched a West Bengal Solid Waste Management Mission on 2005 with the objectives of modernizing the collection and transportation system of municipal solid waste and using cost-effective techniques for treatment and disposal of the same in the state. But, from the above discussion, it can be said that the existing solid waste management system of Balurghat municipality is not altogether satisfactory. To improve the situation, following steps should be taken:

- The biodegradable and non biodegradable wastes must be segregated at the source which allow the better management of the waste.
- Separate community bins have to be provided for the storage of the biodegradable and non biodegradable wastes.
- Street sweeping has to be done in all the residential (including slum areas) and commercial areas regularly. Strict monitoring should be done to maintain the regularity.
- Now, in Balurghat town, waste collection is scheduled for six days in a week. It should be done in all the days irrespective of Sunday and public holidays.
- From collection to dumping, adequate number of modern vehicles have to be used for the total waste management.
- Manual loading and open transport system have to be abandoned.
- In Balurghat town, many of the primary collection points are uncovered which should be prohibited and supply covered waste storage depots.

- Use covered vehicles both for collecting from different source areas and also for transporting them to dumping ground.
- Processing of solid waste such as composting, vermin composting, incineration, chemical processing must be done examining the nature of ingredients of the waste.
- People should be made aware of the different hazards caused by the improper and unscientific waste management.
- Finally, people should remember the significance of 3R i.e. reduce, reuse and recycle in solid waste management which will help to improve the existing solid waste management system in Balurghat town.

### **Conclusion**

In conclusion it can be said that though the Balurghat Municipality has been awarded with the title of 'Sera Nirmal Shahar' several times by the Department of Municipal Affairs for the cleanliness but the survey reveals different pictures. The existing solid waste management system is not able to make the city completely free from heaps of garbage. Besides, city dwellers are also not very satisfied with the service provided. The study pointed out a number of drawbacks of the existing solid waste management system and also reveals the people's perception towards the waste management system which shows a wide gap between the reality and the projected solid waste management system. So, immediate steps should be taken to improve the solid waste management system in Balurghat Municipality as well as protect the environment from the harmful effect of municipal solid waste.

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