

1. INTRODUCTION

1.1. Purpose of the Report

The purpose of the report is to document the environmental consequences likely to arise from the proposed project activities. A rapid environmental impact assessment was conducted to identify the key environmental issues needs to be considered at early stage of project preparation which will help to avoid/minimise adverse environmental impacts if any during different stages of the project cycle. This includes establishing the existing environmental baseline conditions, identify the significant environmental impacts, and provide requisite mitigation measures to mitigate them.

1.2. Nature, Size and Location of the Project.

The proposed project is of Municipal Solid Waste Management facility. The proposed plant is a 125 MTPD municipal solid waste processing plant in which composting (50MTPD) and landfilling operations (60MTPD) are proposed to process the Municipal solid waste of Aizawl City by SIPMIU at Tuirial which is approx 20 km away from Aizawl City. Approx 10%-15% (approx 15 MTPD) is will be lifted by rag pickers. The 10 hectare land for the proposed project is belongs to 5 different private owners and 5 hectare of UD&PA department which will be kept reserved for future expansion. The khasra details of the proposed site at tuirial which has been allotted for the project is as below:

Table 1.1: Khasra details of the site

S. No	Plot	Land (In Sqm)
1.	LSC No.103201/10/03 of 1993	11860.00
2.	103201/10/284 of 09	32470.00
3.	P.Patta No. 103101/10/77 of 2005	4990.00
4.	P Patta No. 103101/10/100 of 2005	15020.00
5.	P. Patta No. 103101/10/101 of 2005	13080.00
6.	P.Patta No. 103101/10/654 of 2007	22530.00
	TOTAL	99950 Sqm. = approx 10 hectare

The site for the proposed SWM facility was selected and approved by SIPMIU as well as by Asian Development Bank. A total land of 15.00 hectare has been identified for the project in which approx 33% of the total area will be reserved for green belt and open area.

1.3. Identification of Project and Project Proponent

Proposed project is of Municipal Solid Waste Management Facility in Aizawl City. The component includes Collection, Segregation, Composting and land filling. The technology used for its process is “accelerated aerobic composting under controlled condition”.

The Government of India (GoI) has made initiative to encourage economic development in the North Eastern Region (the Region). The GoI requested the Asian Development Bank (ADB) to provide assistance for a North Eastern Region Urban Development Project. In response, ADB provided an advisory technical assistance (ADTA) for the North Eastern Region Urban Sector Profile Study (the Sector Study) which was completed in December 2003. ADB then provided the Project Preparatory Technical Assistance (PPTA) assess the feasibility of and prepare an investment program North Eastern Region Capital Cities Development Investment Program (henceforth called as NERCCIP or the Investment Program) to upgrade urban infrastructure and services and improve urban management in the five capital cities of the five states in the North Eastern region, namely Agartala (Tripura), Aizawl (Mizoram), Shillong (Meghalaya), Kohima (Nagaland), and Gangtok (Sikkim).

The primary objective of NERCCDIP is to promote the economic development in 5-NER States as stated through expansion of basic services such as water supply, sewerage, sanitation, solid waste management of the Capital Cities. The NERCCDIP will also strengthen the service delivery capacity of the responsibilities of each State urban agencies and urban local bodies through management reform, capacity building and training.

The Executing agency (EA) for the project is SIPMIU. SIPMIU is basically an urban infrastructure investment programme with the obvious major thrust in improving basic urban services in the project city. The Govt. of India signed a loan agreement with the Asian Development Bank (Bank) to assist the State of Mizoram (The State) for implementation of NERCCDIP.

The major components of the infrastructure that have been considered are water supply, sewerage& sanitation and Municipal solid waste Management.

One of the important components under SIPMIU is Solid Waste Management (SWM). The consolidated amount allocated to SWM for Aizawl City is Rs. 32.35 crores.

1.4. Description of Site and Surrounding Environment

The project city Aizawl is located in North-Eastern part of India. The town is easily accessible from other North East states. Aizawl, the capital of Mizoram lies between 92°30'- 92°60' E - longitude and 21°58'- 24°85' N latitude. Aizawl city is located on one prominent north-south extending ridgeline, situated between 700 m to nearly 1288 m from the Mean Sea Level. Aizawl is linked with rest of India through the National Highway 54 (NH 54). The nearest air linkage is at Lengpui, 32 Km from the city.

The solid waste management facility is coming at different Khasra no/Plot no which is mention in table no 1.1The site is away from the habitation clusters, Reserve /protected forest areas, National parks, wetlands or other places of importance



Figure 1.1 Location Map of the Project

1.5. Importance of Project to the Country and Region

India's achievement in economic growth and poverty reduction in recent years has been remarkable. Contribution of reforms in Health and higen sector especially improvement in Municipal Solid waste management, Water Supply and Sewerage condition is considerably significant. However, regional imbalances and disparities in income and poverty persist. While the poverty incidence is less than 15% in some northwestern and southern states, in many central eastern states more than 40% of the population remains below the poverty line. The percentage of BPL population in Aizawl is 19.47 % compare to 26.10 % of national BPL population (Source: RHS Bulletin, March 2008, M/O Health & F.W., GOI). Socioeconomic indicators reveal that significant improvements are needed in terms of income, literacy, health, and access to basic amenities.

The poor quality of urban infrastructure is one factor constraining the urban development of major part of the state. The proposed project “development of landfill in Aizawl” is strategically proposed w.r.t to its accessibility through existing road (NH-54). In recent past major migration and development in housing, educational institution has been observed in Aizawl city . The improved Municipal Solid Waste Management Facility will contribute to development in Housing, commercial and educational Institution as well as economic opportunities and poverty reduction in the area that the proposed project serves, and in turn improve the overall health and hygiene condition and economic wellbeing of the city and Mizoram state. Since Mizoram is one of the least-developed states (as measured by social and economic indicators), this development is expected to contribute to the overall reduction of interstate disparities in India. The Project's immediate outcome will be improved health and hygienic and beautification in the project area resulting from reduction in health and hygienic problem in the project road.

1.6. Overall Scenario of Municipal Solid Waste in India

The quantity of municipal solid waste generated depends upon a number of factors such as food habits, standard of living, and degree of commercial and industrial activity. The quantity of urban solid wastes varies seasonably and also from place to place. Data on quantity variation and generation are useful in planning collection and disposal systems. There are no authentic reports available on the generation of solid waste in Indian cities except for a few metro cities. In the absence of house to house collection data, the quantity of waste generation is assessed by direct ways like typical areas study, truck load or using density and correction factor method. IM 1982, a study was conducted by WHO on Rapid Assessment of source of Air, Water and Land Pollution, the per capita of municipal solid waste generated in lower income areas in South East Asia is 0.4 kg/day. While NEERI, through its surveys has reported that in metro cities like

Bombay, Calcutta and Hyderabad, the generation of solid waste varies from 0.33 kg/capita/day to 0.50 kg /capita/day. In other cities the capital contribution ranges from 0.15 kg/capita/day to 0.35 kg/capita/day. As per a study conducted for 3 towns in Andhra Pradesh the per capital range is between 0.17 kg/day to 0.2 kg/day. Based on the above, an approximate assessment of solid waste generation potential from 345 Class II towns is worked out to be between 230000 MT/day to 35500 MT/day. 56 numbers of cities out of 345 are I having per capital of 0.15 kg/capital day.

In Indian Municipal waste there is a small percentage of recyclable material and more of compost able and inert materials like ash and road dust. There is very large informal sector of rag pickers which collects recyclable waste from the streets, bins and disposal sites. They take away paper, plastic, metal, glass, rubber etc. for their livelihood, but small quantity of recyclable material is still left behind.

As per NEERI Strategy Paper on Solid Waste Management in India 1995), Chemical analysis of Indian waste has shown that nitrogen varies from 0.5% to 0.7%. Phosphorus from 0.52% to 0.82%. Potassium from 0.52% to 0.83% and carbon- nitrogen ratio between 21 & 31. Calorific values have been found to range between 800 to 1010 Kcal/kg and the Bulk Density of waste between 330 to 560 kg/m³.

One of the main factors for failure of implementation of proper Municipal Waste Management facility in class B cities is the financial obligation by the state government and local bodies. Looking at the potential development of class B cities, government of India has taken a step to incorporate proper municipal waste management in a scientific and effective way. Considering this the government of India has come up with a scheme of Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT). This scheme pertains to enable class B cities to develop basic infrastructure facilities like, water supply, sewerage, solid waste management, transport and development of internal areas.

1.7. Existing Solid Waste Management in Aizawl

General

Solid Waste Management in Aizawl is looked after by sanitation wing of UD & PA department Aizawl. 80 Local Councils are active in Aizawl who take responsible actions towards maintaining public health, law and order. They organize sanitation works through hnatlang (public participation). The VCs, as revealed during the consultations and discussions, maintain a close watch on the SWM activities carried out by UD&PAD within their respective villages, and

provide inputs to the sanitation officer on a regular basis for the improvements required or deficiencies, if any.

Available infrastructure in form of equipment, manpower and disposal site is not sufficient to meet the overall requirement of the Solid Waste Management of the city. Also, awareness in the citizens about importance of the subject is very low. As a result garbage hips, scattered waste in the valley, and other type of wastes can be seen in the city at several locations. Poor arrangement of solid waste collection, its transportation to land fill site is resulting in unhygienic conditions and spoiling aesthetics of the city. Improvement in infrastructure and changes in institutional setup are thus urgent requirements. Solid waste generation in city, existing infrastructure and institutional arrangement are discussed in subsequent sections of this report

1.8. Present Status of Solid waste Management

1.9. Total Solid Waste Generation

At present, the quality of the solid waste generation is 125MT/D. The percentage bifurcation of solid waste characteristics is given below in the table no. 1.2.

Table No. 1.2 Percentage bifurcation of solid waste

SL.NO	Physical Parameters	Amount (%)
1	Paper & Cardboard	19.060
2	Plastic	14.020
3	Metals	0.830
4	Glass & Ceramics	3.280
5	Organic Compound	29.500
6	Cloth	2.300
7	Leather & Rubber	0.820
8	Bricks	4.150
9	Fine below 20 mm.	23.200
10	Wood	2.640
11	Others	0.220

Sources of the solid waste are residential, commercial, Hospital, Industries, Hotel and Restaurant, construction and demolition.

Solid waste of commercial value like plastics, glass bottles, metals, leather, cloths. paper & card board, etc., which are normally segregated at users end also forms part of city's solid wastes. However because of its commercial value this is removed from the system without any intervention on part of local body Administration.

1.10. Classification of solid Waste

Solid waste in the Aizawl City can be categorized as:

1.11. Biodegradable Solid Waste

Vegetable wastes are mainly generated from the vegetable market, residential areas, hotels and restaurants. Most of the biodegradable wastes in Aizawl are used for pigree farming. About 30% of the total wastes are bio- degradable.

1.12. Non-Biodegradable Solid Waste

The main source of generation of non-biodegradable solid waste are from the public places like bus terminus and taxi stand, etc. (mainly plastic pouches, empty cigarette packets etc) In addition to this a huge amount of non-biodegradable solid wastes in form of glass, plastics, metals etc. are generated from the residential areas.

1.13. Bio-Medical Waste

Bio-medical waste is generated from hospitals nursing homes and clinics. The majority of the medical waste falls in the general category (85%), whereas infectious waste constitute of 10% and hazardous waste is about 5%.

1.14. Industrial Wastes

7 to 10% out of total quantity of waste generated are industrial wastes.

1.15. Silt from Open Drain

Silt and Some part of the debris are carried in open drains. This wet and contaminated Silt is removed from drains and transported to land fill site along with other MSW.

1.16. Recyclable Waste

Recyclable waste which is taken out from the solid waste system because of its commercial value comprises of Metal, plastic, paper/cardboard, glass etc. Approximate quantity of such waste works out to approximately 49 per day. Fraction of Wastes of this category are collected and sent for reprocessing.

Contribution from different sources is given below in table No. 1.3

Table No. 1.3: Waste Generating Sources

S.No.	Waste generating sources	Proportion of waste (%)	T/Day
1	Residential	55	68.75
2	Commercial	20	25
3	Hospital	1.5	1.875
4	Industries	7	8.75

5	Hotels and Restaurants	3.5	4.375
6	Construction & Demolition activities	2.5	3.125
7	Silt from Open Drains	10.5	13.125
8	Total	100	125

1.17. Method of Collection

The general methods for collection of solid wastes as practiced in Aizawl are given bellow

1.18. Road Sweepings

The total road length in the city is 412 km. Roads are swept by the respective house owners residing along the roads side or respective shop owners. Road are also swept by the sweeper engaged by the church and also by the sweeper deployed by the sanitation wing of UD & PA. The sweeping operation takes place between 6 and 12 O’ clock. Sweepers accumulate waste along roadside collection points, the accumulated waste is then manually loaded to refuse vehicle. Allocation of sweeping and refuse vehicles is usually done by sanitary inspector.

1.19. Garbage from House Holds

No waste storage facilities or storage bins are in existence within GAPA. The fixed masonry bins, previously used for storage of wastes, being in a very bad condition, have been demolished. House holds and small shopkeepers are accumulating the waste at their home in polythene bags, plastic container, tin container and card board container. The accumulated waste is then manually loaded to refuse vehicle which is depicted in the picture below. However due to lake of awareness very few house hold are accumulating the wastes in their houses. Instead waste is thrown haphazardly on the road or in the valley or in any area which is convenient. Waste thrown on the road is subsequently collected along with road sweepings. Wastes thrown at other locations remain lying. Segregation is practiced only to the extent of removing revenue items like glass bottles, metals, paper etc from the house hold wastes.



Household waste brought at collection point after hearing bell of the collection vehicle.

1.20. Garbage from Market Areas

The collection and disposal of market wastes are handled by the Trade and Commerce Department (TCD). The TCD collecting the waste and dumping to the present dumping site situated in Tural.

1.21. Garbage from Hospitals & Nursing Homes

From the data of SPCB/PCC who is collecting waste from 11 premises, it has been estimated that the total amount of biomedical waste generated by 11 member unit is approximately 481.53 kg/d (average of ten days collection data). Based on this solid waste quantity from all the 11 establishments works out to 481.53 kg/d

1.22. Recyclable Solid Wastes

Recyclable solid wastes of commercial values like paper, card boards, plastics, leather, glass bottles, metals etc are collected from household by scrap dealers and from garbage hips by rag pickers. Collection and transportation of such waste to reprocessing points is functioning without local body Intervention. A functioning chain of rag pickers, small scrap dealers, whole sellers and transporters are carrying out the work out of their commercial interest.

1.23. Storage of Solid Wastes

Presently solid waste generated in Aizawl city is being stored in their respective houses in polythene bag, plastic container, etc. which is shown below in the picture.



House hold waste storage

Community bin system does not exist in Aizawl due to space constrain and narrow road. Earlier bins have been placed but due to overflowing of waste and getting spread in the nearby area which spoil the aesthetic beauty of the city all the bins have been removed. Moreover, there is generally public resentment against the provision of community bins due to inherent

environment and vermin problem. They are not considered environment friendly and lead to double handling of waste. Overflowing of solid waste from community bins is a common sight.

Collection and transportation of solid wastes from different localities in Aizawl is carried out by bell ringing vehicle maximum once in 3 days or even less frequently. However waste generation is continuous. House to house collection is not in practice hence common practice is to bring the waste at some designated locations after hearing the bell. Waste collected by sweeper by way of sweeping, de-silting of drains, etc. is also collected at these locations prior to transportation to disposal site. For this intermediate collection following arrangement is being practiced at present.

- 1) Waste stored in houses by the respective dwellers in polythene bags, plastic container etc.
- 2) Waste stored in Open hips at certain locations.
- 3) Small shop keeper stored waste in their shop.
- 4) De-silted wastes stored along the drain collected by the sweeper and bring to one location.

Solid Wastes from all above locations is picked up at some interval for transporting to dumping site.

Short Comings in existing storage system are listed below.

- Since bins are not available waste is being thrown haphazardly in valley or in open area.
- This system of storage is unhygienic; involve multiple handling as also manual handling health hazards.
- No waste segregation (biodegradable parts from nonbiodegradable at the source of collection) is practiced
- Being thrown in the valley, waste is often blown away by the wind and get scattered over large area. It also gets wet during the rainy season and percolates underground.
- The waste from inaccessible areas are either burnt or dumped on open areas, roadsides, valleys and streams.

1.24. Method of Transportation

The main objective of transportation is to clear waste from the City and dispose it off at the disposal site. It is the responsibility of the sanitation wing of UD & PA department to ensure that the City is clean by transporting the wastes from various localities to the dumping site situated at Tural with the help of transportation vehicle. During the field studies and the primary surveys it has been found that 60 Nos. of vehicles of capacity ranging from 1.5 to 3 cum deployed by the UD & PA department on PPP mode basis. The movement of wastes from the households, street sweepings, etc. to the specific points where the vehicle arrive is the collective responsibility of the Sanitary Workers and the citizens of the City. Transportation of waste involves the following activities:

- ❑ Movement of vehicles to the various points,
- ❑ Manual loading of wastes in to the vehicle,
- ❑ Manual lifting of wastes from the open yards on the way to the disposal site and
- ❑ Transportation to the disposal site

It is very essential to synchronize the whole operation of collection of waste with the transportation for effective management of the waste and for achieving cost efficiency in the process.

Frequency of waste collection is not uniform throughout the city. The service is more frequent in accessible and densely populated core areas compared to other inaccessible areas. Regular waste collection service has been observed at central and eastern part of the city, while north of Aizawl is attended on weekly or bi-weekly basis. Only 40-45% of waste generated is collected.



Arrival of the collecting vehicle and manual loading of the waste into the vehicle

Existing waste collection and transportation is limited to primary routes. In secondary routes waste collection is on a weekly or biweekly basis. Table No. 1.4 below indicate the expenditure incurred monthly on the vehicle deployed for waste collection and transportation to disposal site.

Table No. 1.4 Monthly Expenditure and Nos. of Vehicle deployed

Sl. No	Name of Village Council	Type of Vehicle	No. of Trip in a Month	Rs/Month
1	Dawrpui	TATA 407	68	170000
2	Tuikual South	TATA 407	44	110000
3	Electric Veng	TATA 407	40	100000
4	Khatla	TATA 407	40	80000

Sl. No	Name of Village Council	Type of Vehicle	No. of Trip in a Month	Rs/Month
5	Zarkawt	TATA 407	32	70000
6	Chanmari	TATA 407	28	60000
7	Mission Veng	TATA 407		60000
8	Dawrpui Vengthar	TATA 407	24	50000
9	Chhinga Veng	TATA 407	24	48000
10	Mission Vengthlang	TATA 407 & 207	20	40000
11	Tuikual North	TATA 407	24	40000
12	Republic	TATA 407	16	40000
13	Ramhlun South	TATA 407	16	40000
14	Chawnpui	TATA 407	16	40000
15	Chanmari West	TATA 407	16	40000
16	Bungkawn	TATA 407	16	40000
17	Bethlehem Vengthlang	TATA 407	16	40000
18	Bethlehem	TATA 407	16	40000
19	Venghlui	TATA 407	16	40000
20	Zotlang	TATA 407	12	30000
21	Vaivakawn	TATA 407	12	30000
22	Upper Republic	TATA 407	12	30000
23	Tlangnuam	TATA 407	12	30000
24	Saron Veng	TATA 407	12	30000
25	Ramthar North	TATA 407	12	30000
26	Ramthar	TATA 407	12	30000
27	Nursery Veng	TATA 407	12	30000
28	Kulikawn	TATA 407	12	30000
29	Khatla South	TATA 407	12	30000
30	Kanan	TATA 407	12	30000
31	Dinthar	TATA 407	12	30000
32	College Veng	TATA 407	12	30000
33	Armed Veng	TATA 407	12	30000
34	Aizawl Venglai	TATA 407	12	30000
35	Zonuam	TATA 407	8	20000
36	Tuithiang	TATA 407	8	20000

Sl. No	Name of Village Council	Type of Vehicle	No. of Trip in a Month	Rs/Month
37	Thakthing	TATA 407	8	20000
38	Tanhril	TATA 407	8	20000
39	Salem Veng	TATA 407	8	20000
40	Sakawrtuichhun	TATA 407	8	20000
41	Republic Vengthlang	TATA 407	8	20000
42	Maubawk	TATA 407	8	20000
43	Luangmual	TATA 407	8	20000
44	Lawipu	TATA 407	8	20000
45	I.T.I	TATA 407	8	20000
46	Hunthar	TATA 407	8	20000
47	Govt. Complex	TATA 407	8	20000
48	Edenthar	TATA 407	8	20000
49	Dam Veng	TATA 407	8	20000
50	Chawlhmun	TATA 407	8	20000
51	Bungkawn Vengthar	TATA 407	8	20000
52	Armed Veng South	TATA 407	8	20000
53	Venghnuai	TATA 407	12	18000
54	Saikhamakawn	TATA 407	8	12000
55	Melthum	TATA 407	8	12000
56	Hlimen	TATA 407	8	12000
57	Chite	TATA 407	8	12000
58	Tuivamit	TATA 407	4	10000
59	Rangvamual	TATA 407	4	10000
60	Phunchawng (Chaltlang)	TATA 407	4	10000
Total			852	2054000

From the above table in can be seen that

- Total No. of vehicle deployed = 61
- Total Nos. of trip in a month to disposal site from various veng = 852
- Total expenditure incurred in a month = 205400/-

In addition to above, for the manual loading, the manpower engaged to each vehicle is about 3 Sanitary Workers including Driver.

1.25. Method of Disposal

Wastes collected from the GAPA are dumped at Tuirial disposal site, 20 km away from city and adjacent to NH-54. The site is in use from last 8 years. The site is isolated, away from habitation. In absence of a treatment facility all the waste are dumped openly. The disposal process does not follow any sanitary land filling method. This leads to garbage littering and waste burning, which poses threat to public health and environment. Burning of waste generates harmful toxic gases like dioxin, which is carcinogenic in nature, and it should be stopped immediately. (see-photograph).



Tuirial Disposal site

Other associated ill effects from open disposal at Tuirial are

- (i) Contamination of nearby stream (joining Tuirial River) due to leachate formation.
- (ii) Health hazard to workers involved in manual handling of wastes.
- (iii) In the absence of a weighbridge at the disposal site, the quantity of wastes transported to the site is not known.

1.26. Resources

1.27. Equipment & Vehicles

List of vehicles and equipment used for loading-unloading and transportation of solid wastes is given below

Table:1.6 List of Equipment

SR. NO	EQUIPMENT DETAILS	QUANTITY
1	Brooms	250
2	Wheel Barrows	0
3	Bins	0
4	JCB	0

Table: 1.7 List of Vehicles

TYPE OF VEHICLES	NO	TRIPS PER VEHICLE PER TWO DAYS	CARRYING CAPACITY OF VEHICLE
Tata-407	60	1	1.5T
Tata-207	1	1	1T
TOTAL	61		

1.28. Man Power

List of man power engaged in SWM work is given below

CHIEF SANITARY INSPECTOR (CSI)	SANITARY INSPECTOR (SI)	DRIVER ON CONTRACT	HELPER ON CONTRACT
1	1	61	120

1.29. Institutional Arrangement

Over all management of Solid wastes in Aizawl is looked after by Sanitation wing of UD & PA department headed by the Sr. Sanitation Officer who is assisted by town supervisors, town sanitary inspectors, sanitary supervisors and sweepers. The work of the sweeping operation, collection, transportation and disposal of solid waste are actually being done by PPP mode basis and are being supervised by sanitary inspectors. 80 Local councils are active in Aizawl, they organize sanitation works through hnatlang (public participation). The VCs, as revealed during the consultations and discussions, maintain a close watch on the SWM activities carried out by UD&PAD within their respective villages, and provide inputs to the sanitation officer on a regular basis for the improvements required or deficiencies, if any.

1.30. Health and Safety Aspects of SWM Workers

The health and safety aspects of solid waste workers like the sweeper and workers at disposal site is not given due care in the present setup. It has been seen during the survey that they generally does not use any hand gloves, mask, shoes and other safety gadgets. These may lead to occupational health hazards like short breathing, loss of appetite, itching problem and respiratory disease.

1.31. Community Participation in Solid Waste Management

Community participation in Solid Waste Management at Aizawl is very low or non-existent. People feel it is the sole responsibility of the GAPA to keep the town free from garbage accumulation. Segregation at the household level is being practiced but not to that extent. Discipline of depositing waste at the collection point is not practiced but every dweller keeps the waste in his house in a polythene container, tin container, cardboard etc. Domestic animal waste is thrown into the valley at several locations.

1.32. Users' opinion about Existing Solid Waste Management System

A. House Hold Users

Opinion of a cross-section of people about the present status of solid waste management in Aizawl is collected in verbal interviews. The outcome is summarized below;

- 56% of households are not satisfied with the present status
- 32% of households are partially satisfied
- 12% of households are satisfied.

When asked if they will be willing to contribute money for better collection and removal of solid waste from the city, the opinion available is as follows:

- 60% of households are not willing to pay any extra fees / charges for improved services
- 26% of households have shown willingness for payment of monthly fees up to Rs. 20
- 14% shown willingness for payment of monthly fees up to Rs. 30/-

B. Hotels & Restaurants

Opinion collected from representatives of the hotel and restaurant sector is as given below:

- 55% of hotels and restaurant owners have said that the present solid waste management services are not satisfactory.
- 30% of hotels and restaurant owners are willing to pay up to Rs30/- to Rs 50/- per month as additional charges for improved services.
- 45% shown willingness to pay between Rs20/- to Rs30/- per month.

- 25% shown willingness to pay monthly charges up to Rs 10/- for improved services

1.33. Scope of EIA Study

The scope of EIA study is derivative of project terms of reference as well as per generic structure of Environmental document (appendix-III of EIA notification 2006) approved by MoEF. Compliance to Additional Terms of Reference issued by MoEF , New Delhi has been appended as Appendix 1.

For the purpose of the environmental assessment, areas within 10 km radius of the project have been studied. The broad scope of the study is:

- Generation and collection of baseline data for valued environmental components.
- Identification and quantification of significant environmental impacts due to the project and associated activities.
- Evaluation of impacts due to proposed activities and preparation of an environmental impact statement.
- Preparation of appropriate Environmental Management Plan (EMP) encompassing strategies for minimizing identified adverse impacts along with budgetary provisions to be made by the project authorities for implementation of mitigation measures.
- Delineation of post Environmental Quality Monitoring Programme along with organizational setup required for monitoring the effectiveness of mitigation measures.

1.34. Extent of EIA Study

EIA was conducted based on feasibility report and project details provided by the design team during the preparation of this report. Certain changes may occur in the project structural components but these changes are unlikely to cause significant environmental impacts. The extent of EIA has been decided considering all likely Impacts and risks analyzed in the context of the project’s area of influence. The area of influence encompasses (i) the primary project site(s) and related facilities (ii) associated facilities whose viability and existence depend exclusively on the project (iii) areas and communities potentially affected by cumulative impacts from further planned development of any existing project or condition, and other project-related developments that are realistically defined at the time the assessment is undertaken; and (iv)

areas and communities potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location.

The core zone of impact is taken as the outer boundary of proposed municipal land fill facility and its immediate vicinity. The assessment also considers the areas and activities related to associate facilities viz construction of worker camp, Construction yard, transportation routes etc. The study area is considered up to 10 km radius of proposed project site for larger analysis of landuse and other environmental features. Assessment is carried out for all components of environment covering terrestrial and aquatic ecology, soil, water, noise and socio economic aspects.

1.35. Structure of the Report

EIA report is largely structured in line with the generic structure mentioned in Appendix III of the EIA notification, 2006 with last amended up to date and proposed Terms of Reference. The report includes 12 Chapters as follows:

- **Chapter 1:** Introduction
- **Chapter 2:** Project Description
- **Chapter 3:** Policy, legal and administrative framework
- **Chapter 4:** Methodology
- **Chapter 5:** Description of Existing Environment
- **Chapter 6:** Anticipated Environmental Impacts and its Mitigation Measures
- **Chapter 7:** Environmental Management Plan and Monitoring Plan
- **Chapter 8:** Environmental Monitoring Plan
- **Chapter 9:** Additional Studies- RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN
- **Chapter 10:** Resettlement Plan
- **Chapter 11:** Project Benefits
- **Chapter 12:** Disclosure of consultant engaged
- **Chapter 12** Disclosure of Consultants Engaged