



ENVIRONMENTAL PLANNING OF BUSTEE AREAS IN CALCUTTA METROPOLITAN DISTRICT

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INTRODUCTION

The effective environmental planning of a bustee area is a thoughtful task. The term environmental planning refers to both the identification of the system structure and the design of the individual systems so that the desired objectives can be fulfilled. Although the primary goal may be the supply of drinking water and the removal of waste water, decisions regarding garbage collection and disposal, improvement of pathways & street lightings can have significant impacts on total environmental planning.

In the preliminary phase the designer needs to efficiently evaluate the existing facilities and conditions in a bustee area. This requires a thorough survey over the area and detail studies to know the surface drainage pattern of the area. This paper describes a study made on a particular bustee area in Kamarhati Municipality within the Calcutta Metropolitan District where underground sewerage system is not in existence. Water supply is in adequate and drainage system is defunct.

EXISTING FACILITIES

The bustee area is located at Kamarhati Municipality as shown in Figure 1. The area is approximately 12 acres and the total population is found to be 2260. There is in existence a pretty old water supply systems with a few number of street taps but practically there is no flow in the system and is very much inadequate to the existing population. Out of 151 holdings in the area 76 have sanitary latrine facilities, 39 have service privies with a bad state of repair and 36 holdings have no latrines.

Though there is in existence about 710 metres of pucca surface drains for want of maintenance they are not functioning properly. Most of the surface drains are kuchha in nature and are silted up. As a result there is severe waterlogging during the rainy season. The main outfall drain of the area is passing through the area of the Baranagar Kamarhati waterworks and ultimately discharging into the Bagjola canal. The outfall drain as mentioned has inadequate capacity for taking the entire run off of the area. Another outfall drain which caters southern part of the area is passing by the side of Dr.R.N. Tagore Road and presently discharges into the nearby low lying open fields.

PROPOSED FACILITIES

Water Supply

It is proposed to provide new water pipelines along the approach roads to the bustee so as to make water available to the people residing in the area. There is in existence water main of dia. 100 mm. in D.D. Mondal Ghat Road and 150 mm. dia. in Dr. R.N. Tagore Road. From these water pipelines 100 mm. pipes are to be taken off to serve the consumers. Masonry platform is to be provided for each standpost. The existing pressure and flow in the pipelines are found to be adequate to serve the community.

Sanitary Latrines

The existing service privies which are in a bad state of repair are proposed to be converted into sanitary latrines with septic tanks. The effluents of the septic tank will be discharged into surface drains after

chlorination. It has been found that soakpits of the septic tank do not function properly particularly during the rainy season.

Drainage

A main surface drain is proposed to be constructed on the northern boundary of the area which will ultimately drain into the existing outfall kuchha drain of the area. Other existing kuchha drains are proposed to be made of masonry rectangular section to improve the hydraulic condition and to remove waterlogging in the area. A two-month frequency storm with 70% roofs and pavements are considered for the design of the surface drainage systems. It is to be mentioned that the outfall drain which is passing through Baranagar-Kamarhati waterworks area need resectioning and lining upto a point where it discharges into a low lying area and ultimately to Bagjola Canal.

Pathways, Street Lighting and Garbage Collection

All the passages and pathways are proposed to be paved with bricks to make it convenient to the use of the people. Street lightings are provided in suitable locations. For garbage collection it is proposed to provide masonry dustbin at the suitable place for proper removal of the same. Due to very narrow nature of the pathways and passages it is sometimes very difficult to find the place for the location of the garbage collection bins.

GENERAL NORMS AND CRITERIA

In order to make a comprehensive environmental planning in the area a few norms and criterias are considered for effective utilisation of the proposed facilities. They are summarised as follows :-

1. Arrangement of potable water supply has been made through one water tap per hutment or one tap per 100 persons whichever is found advantageous to the beneficiaries.
2. Water distribution pipelines are provided in all the passages or pathways maintained by the municipality. The diameter of these pipelines are kept at 100 mm.
3. Conversion of existing service latrines to/and or new constructions of sanitary latrines with septic tanks and chlorination Chamber (CMDA type pre-fabricated latrine) are provided because the area under consideration is unsewered.
4. The latrines are provided on the basis of one latrine for each holding or every 25 persons whichever is advantageous to the beneficiaries.
5. When space for installation of pre-fabricated standard latrine is not available, conventional type of latrine with septic tank may have to be utilised as per standard norm.
6. The septic tank is to be placed in such a position that the effluent pipe can discharge to the nearest surface drain under gravity flow.
7. In order to have appropriate drainage of the area, open surface drains are provided as far as practicable to all the pathways all of which will ultimately drain into the main surface drains provided along the boundary of the area. As far as possible a slope of .001 is to be maintained in the drains for proper functioning. If possible a slope of .0015 is to be provided for 300 mm. x 300 mm. surface drain.
8. All drains will be constructed of masonry with a minimum width of 300 mm. so that proper cleaning operations can be done.
9. Cover slabs are to be provided on all the surface drains to give proper and safe pathway to the people of the area.
10. Cross surface drains are to be provided wherever necessary and

have to be provided with cover slabs.

11. The area is located in the Bagjola Basin, as such the outfall drains will ultimately be connected to the Bagjola canal.
12. Construction of the outfall drain leading to Bagjola Canal may be considered as a separate project because this drain will have a bigger tributary area than the particular area under consideration.
13. Dustbins are to be provided for collection of garbage at suitable locations or on the basis of one for every 400 persons whichever is found advantageous to the people.
14. It is desirable that the insanitary ponds situated in the area is to be filled up for improving the environment of the area and to minimise health hazards of the community.
15. All the existing pathways in the area are considered to be properly paved with brick layers as far as practicable.
16. So far as the services previes, sanitary latrines and number of holdings are concerned a detail spot survey was made with the help of the staff of Kamarhati municipality and number of items were based on that survey.
17. The existing pucca pathways which are found to be in good condition should be relayed with proper specification.

COST OF THE PROJECT

TABLE 1 provides information regarding the per capita costs of the different facilities incorporated in the scheme.

TABLE - I

FACILITIES	COST per capita*
1. Water Supply	Rs.49.90
2. Sanitary Latrines	Rs.98.87
3. Drainage	Rs.76.34
4. Pathways	Rs.30.51
5. Miscellaneous (Garbage removal & piling works etc.)	Rs. 2.96
Total per capita cost Rs.258.67 (\$1 = Rs.8.00 approx.)	
*based on 1978-79 Schedules of rates. (West Bengal P.W.D.)	

CONCLUSION

The improvement schemes that are contemplated in this report will not be a permanent solution. But slum clearance and redevelopment schemes will take a very long time period and enough resources. And redevelopment schemes are possible only where land values are high. Hence as a short term measure improvement schemes as depicted in this paper for overall environmental improvement shall have to be continued at least to help these slum dwellers from their deplorable condition of living. This is, however, a curative measure but it is also very much necessary to take adequate measures so that further growth of slums in newly developed areas can be prevented by providing

adequate housing facilities for the people of the low income group and by effective land control.

Though the Socio-economists claim that slums are an inevitable part of a town or city by proper environmental planning this could be avoided and to make an end to the slums which have existed as a curse to the Society for centuries.

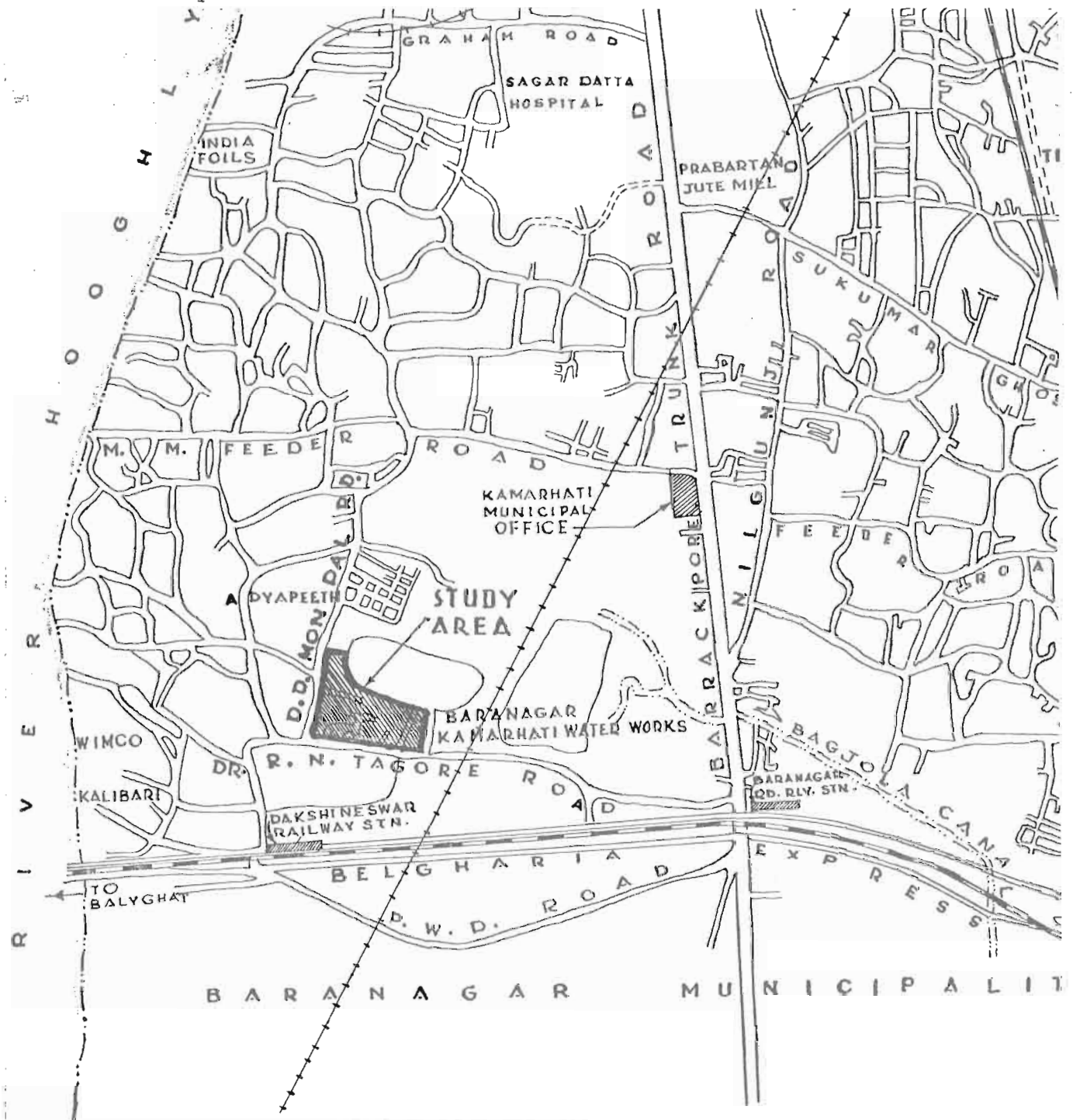


FIG: I. LOCATION OF THE STUDY AREA.