No.

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
NATIONAL RIVER CONSERVATION DIRECTORATE (NRCD)
MINISTRY OF ENVIRONMENT AND FORESTS

THE STUDY
ON
WATER QUALITY MANAGEMENT PLAN
FOR
GANGA RIVER
IN
THE REPUBLIC OF INDIA

FINAL REPORT

VOLUME IV FEASIBILITY STUDY FOR PROJECT CITIES

VOLUME IV-1 FEASIBILITY STUDY FOR LUCKNOW CITY
PART II NON-SEWERAGE SCHEME
PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
PART V ECONOMIC AND FINANCIAL EVALUATION
PART VI STAKEHOLDER MEETING

JULY 2005

TOKYO ENGINEERING CONSULTANTS CO., LTD.
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GENERAL TABLE OF CONTENTS

VOLUME IV FEASIBILITY STUDY FOR PROJECT CITIES

VOLUME IV-1 FEASIBILITY STUDY FOR LUCKNOW CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME IV-2 FEASIBILITY STUDY FOR KANPUR CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME IV-3 FEASIBILITY STUDY FOR ALLAHABAD CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE V SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME IV-4 FEASIBILITY STUDY FOR VARANASI CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME V PILOT PROJECT FOR SANITARY IMPROVEMENT OF MANIKARNIKA GHAT

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FINAL REPORT
ON
WATER QUALITY MANAGEMENT PLAN FOR GANGA RIVER
JULY 2005

GENERAL TABLE OF CONTENTS

VOLUME IV FEASIBILITY STUDY FOR PROJECT CITIES

VOLUME IV-1 FEASIBILITY STUDY FOR LUCKNOW CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME IV-2 FEASIBILITY STUDY FOR KANPUR CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME IV-3 FEASIBILITY STUDY FOR ALLAHABAD CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME IV-4 FEASIBILITY STUDY FOR VARANASI CITY

- PART I SEWERAGE SCHEME
- PART II NON-SEWERAGE SCHEME
- PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME
- PART IV INSTITUTIONAL DEVELOPMENT PROGRAMME
- PART V ECONOMIC AND FINANCIAL EVALUATION
- PART VI STAKEHOLDER MEETING
- PART VII DRAWINGS

VOLUME V PILOT PROJECT FOR SANITARY IMPROVEMENT OF MANIKARNIKA GHAT

VOLUME IV-1

PART II NON-SEWERAGE SCHEME

Table of Contents
List of Tables
List of Figures
Appendix
Abbreviations

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX

ABBREVIATIONS

CDS	Community Development Society
CTC	Community Toilet Complex
DG	Dhobighat
DUDA	District Urban Development Authority
FGD	Focus Group Discussion
IHL	Individual household Latrine
JICA	Japan International Cooperation Agency
LCS	Low Cost Sanitation
NGO	Non Government Organisation
NHC	Neighbourhood Group
NRCP	National River Conservation Plan
PP/PA	Public Participation and Awareness
RCV	Resident Community Volunteer
SPC	Sanitation Promotion Committee
SUDA	State Urban Development Authority
ULB	Urban Local Body
UPJN	Uttar Pradesh Jal Nigam
VJS	Varanasi Jal Sansthan
VNN	Varanasi Nagar Nigam
WC	Water Closet
WLC	World Literacy of Canada
WWG	Women Watching Group

CHAPTER 1

INTRODUCTION

PART II NON-SEWERAGE SCHEME

CHAPTER 1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

River Ganga runs its course of over 2500 km from Gangotri in the Himalayas to Ganga Sagar in the Bay of Bengal through 29 cities with population over 1,50,000 ('class-I cities'), 23 cities with population between 75,000 and 1,25,000 ('class-II cities'), and about 48 towns. For ages, a belief that Ganga's magical powers that can cleanse any thing has remained strongly ingrained in the minds of people. This has resulted in indiscriminate discharge/dumping of all kinds of waste and effluents into the river. Added to this, there are pollutants carried by its tributaries including Yamuna and Gomti. According to the estimates of the National River Conservation Directorate (NRCD), the sewage and wastewater that gets added to River Ganga and its tributaries is in excess of 5000 MLD

To achieve the objective of pollution abatement, the Ganga Action Plan (GAP) took up core and non-core schemes in phases. The core sector schemes comprised interception and diversion schemes and sewage treatment plants designed to tackle pollution from point sources, i.e. pollution discharging into the river at specific points, or in other words, from measurable sources, such as drains, sewage pumping stations and sewage systems. Non-core schemes comprised Low Cost Sanitation (LCS) schemes, river front development schemes, relocating Dhobighats and construction of Electric or Improved Wood Crematoria directed towards tackling non-measurable pollution (from non-point sources), such as dumping of solid waste and open defecation, dumping of un-burnt / half-burnt dead bodies etc.

Under the JICA-sponsored Project titled **"Ganga River Water Quality Management Plan for the cities of Lucknow, Kanpur, Allahabad and Varanasi",** a consortium (the JICA Study Team) headed by Tokyo Engineering Consultants Company Limited, Japan (TEC), under the first phase of the project, carried out a detailed study involving identification and quantification of various pollution sources, mapping of the wastewater management infrastructure, water quality monitoring and modelling, impact of the existing river action plans in the first phase of this study. In the second phase, The JICA study team has prepared a Master Plan comprising sewerage and non-sewerage schemes, and evaluating the feasibility of implementing the master plan in one of the target cities. Whilst the sewerage scheme focuses on sewage transmission system (main trunk sewers), storm water drainage[1], and sewage treatment plants, the non-sewerage schemes are directed towards improving existing facilities and/or creating additional facilities. These include Community Toilet Complexes (CTCs) and Constructed Dhobighats, away from River. In order to optimise the utilisation of existing facilities, create further facilities and realise underlying objective of "abating pollution in the River Ganga", JICA Study Team has awarded the study **"Feasibility Study of Non-Sewerage Schemes on Pollution Abatement of the Rivers Ganga and Gomti in the three cities of Lucknow, Kanpur and Allahabad in Uttar Pradesh, India"** to the consortium led by Haskoning India Private Limited, a Royal Haskoning Company.

This report covers Lucknow city which is located on river Gomti, an important tributary of Ganga. The river Gomti originates from about 3 km east of Pilibhit town of the same district at an height of 200 meters. The river drains the area lying between river Ramganga andSharda in the upper reaches and Ganga and Ghaghra at the lower reaches. After flowing southwards through the districts of Lucknow, Barabhanki, Sultanpur, Faizabad and Jaunpur, it confluences with River Ganga.

[1] There is considerable disposal of waste water directly into storm water drains (or "nalas"), which reaches the river untreated. The JICA Study Team, in its Master Plan, envisage that the ultimate solution for pollution abatement would require to bring all the wastewater to treatment plant(s) prior to disposal into the river,

1.2 AIMS AND OBJECTIVES

Primary aim of the proposed study is to examine the feasibility of non-sewerage schemes in the three target cities. This is proposed to be met on the basis of the following broad objectives:

- Formulation of detailed programme(s) of development of LCS comprising community toilet complexes (CTCs) and Constructed Dhobighats; and
- Assessment of the technical, institutional, financial and economic viability, and environmental and social soundness of the programs and the facilities that will be proposed in the programme;

1.3 SCOPE OF THE STUDY

The work involves carrying out the following tasks:

- Literature survey, project appreciation and planning;
- Discussions with civic bodies and concerned Government agencies;
- Carrying out a brief baseline survey to determine the ground situation in slums and Dhobighats;
- Carrying out a Community Needs Assessment (CNA) through Focus Group Discussions (FGDs) directed towards awareness generation and motivation in the target areas;
- Planning and Design (Preliminary Design) for the various facilities including typical layouts, costs etc.;
- Preparation of appropriate O&M Plan for the facilities;
- Evolving viable cost-recovery models;
- Conducting Workshops to facilitate the participation of the various stakeholders to assess the Need and Demand, and elicit their views on the proposed schemes;
- Examining and incorporating acceptable suggestions;
- Final report Preparation

1.3.1 Limitations of the Study

The following limitations of the study have been identified:

- Lack of adequate information of existing/planned sewage collection systems in specific localities or areas hampered accurate planning;
- The standard framework suggested for LCS requires location specific modifications. It was difficult to assess the availability of land for all the CTCs. An assessment was done only for the pilot projects and several tens of slums for the rapid land availability survey;

1.4 METHODOLOGY ADOPTED

The approach adopted for the study was participatory in nature. The methodology included detailed consultations with the stakeholders in the city of Lucknow that included officials from the Urban Local Bodies (ULBs) - Lucknow Nagar Nigam; development authorities including State Urban Development Agency (SUDA), District Urban Development Agency (DUDA)- Lucknow, Lucknow Development Authority (LDA); Lucknow Jal Sansthan (LJS); Uttar Pradesh Jal Nigam (UPJN); and various Community Development Societies (CDSs). The processes in the study included detailed sample surveys in the target areas, focussed group discussions, individual interviews, workshops and review of available statistical/demographic information. This facilitated the Consultants to understand the needs and demand among slum dwellers for LCS, various socio-economic and environmental conditions, and the institutional aspects to develop an LCS based on appropriate technology, financial viability and sustainability. Similar exercise was carried out for the Dhobighats with the objective to understand the needs and demand of the Dhobis, the problems faced by them in their day-to-day activities of washing clothes, and willingness of the Dhobis to move from traditional to constructed Dhobighats. The techniques were selected and suitably modified based on the local conditions, nature of topic, financial resources and availability of time.
The phases in the study are described below in brief:

Phase I: Problem Identification and Process Formulation

Identification of different stakeholders

The major objective of this task was to identify different stakeholders involved and to make an assessment of nature of involvement of each in order to have a holistic approach.

Stakeholders involved in LCS Programme

Mobilizing stakeholders, or bringing together all the key actors in the community, who have an interest in the outcome of the LCS programme was an important component of current assignment. Consultants began this process by first identifying all those groups who have a stake in the welfare of the city. These included the users, organized grassroots community organizations, non-government institutions, non-governmental organizations (NGOs) and the relevant government departments and civic body. The spectrum of the users and the community included Community Leaders, and/or persons actively involved in promoting good sanitary practices, Neighbourhood Groups, Community Based Organizations (CBOs), and the user groups, who were the main respondents in the primary survey.

Phase II: Data Collection and Analysis

Relevant primary and secondary information was collected using various study tools as described in Table 1.1.

Table 1.1 Tools Used for Study

Data Collected	Data Collection Tools
Need Assessment	"Chapati" Diagram
Socio-economic data	Interview Schedule method Participatory Research Approach (PRA) tool - Social mapping
Facilities	Interviews with slum dwellers Interview with CDSs PRA tool - Social and resource mapping
Health and Awareness of Sanitation	Interview with slum dwellers, FGD

Data Collected	Data Collection Tools
	Primary surveys, PRA
Housing and land	Interview Schedule Transect
Water supply and sanitation situation	Interviews FGDs with target groups comprising men, women and children.
Resource and assets	Resource mapping
Gender bias	Interviews with women FGDs
Institutions and programmes	Interviews with slum dwellers; DUDA and Nagar Nigam officials
Issues and concerns	FGDs Workshop

The secondary and primary data collected along with the sources of information are provided in Table 1.2

Table 1.2 List of Secondary Information collected and the corresponding sources

Information Collected	Source	Purpose
City level details Demography (population, population growth, density, settlement pattern, socio-economic structure of the town, Development plan	2001 Census Lucknow Nagar Nigam Available literature review SUDA DUDA, Lucknow	City Profile, comparison with primary survey and supplementation of data/ details
Slum Details Slums in the city, slum population, slum location and other related details	Through discussion with DUDA and Lucknow Nagar Nigam officials and obtaining data from their records	Selection of representative survey areas for baseline surveys and collection
Water supply scenario in slums O&M of CTCs	UPJN DUDA	Baseline scenario and need assessment Existing O&M
Detail of Public toilets Sewerage system Sewered and Non Sewered areas Institutional Structures Other sanitation Issues	Nagar Nigams DUDA LJS UPJN	Existing Scenario and Pilot Project formulation Existing institutional framework and plans for extension of new STPs
Prevailing norms for planning and delivery of services	Municipal Act The U.P. Water Supply and Sewerage Act, 1975 The U.P. Slum Areas (Improvement and Clearance), 1962 Centre and State Government Policies Discussions with officials of DUDA, Nagar Nigams, LJS, and UPJN	Legal provisions for facilitating creation of facilities and sanitation/ drainage facilities

Information Collected	Source	Purpose
Sewage disposal options	Research Designs and Standards Organization (RDSO)	Work being done by Railways to improve disposal systems for night soils
Case studies	Literature review JICA Study Report	

Phase III: Development of Standard Framework for Planning and Design

This phase involved preparation of design alternatives based on various socio economic, financial, technical and institutional factors, and making recommendations on the most suitable option(s) keeping in mind the technical soundness and sustainability. The Framework developed tried to identify the alternative strategies for arranging the project capital cost, evaluate the strategies best responsive to community demand, and mechanism to ensure accountability, affordability and willingness to pay for the services, vital for a sustainable O&M model. It also stressed on promotion of gender equity, community participation and institutional structure to strengthen the local and community level institution.

1.4.1 Primary Survey

The selection of area was done on random basis (Stratified Random Sampling). Efforts have been made to select those areas, which have heterogeneous and representative samples, i.e. people belonging to different economic and social strata in the slums of Lucknow city. This was done in consultation with officials of DUDA and CDSs. Lucknow was divided into six different zones for the purpose.
For the CTCs, the zoning was carried out on the basis of the following parameters:

- Density of population;
- Proximity to river;
- Socio-economic characteristics;
- Demographic structure of population;

The six zones identified in Lucknow (for studies related to CTCs):

Zone One (Sarojni nagar) consisting of the following major areas

- Sarojni nagar (Recently developed slum far from city, open defecation rampant, sparsely populated)
- Alambagh (Moderately populated, away from river, occupational structure mainly industrial type)
- Lucknow Cantonment (Old slums normally referred to as urban village)

Zone Two (Alamnagar) consisting of the following areas:

- Alamnagar (Thickly populated, centre of city, occupational mainly industrial type, river at approximately 2-3 km)
- Saadatganj (Thickly populated, centre of city, occupational mainly industrial type, river at approximately 2-3 km)

Zone Three (Daulatganj) consisting of the following areas

- River, newly populated, old villages converted to urban villages, mixed occupational structure)

- Chowk (Highly congested area with high population density, occupation structure –petty business, artisans mainly zari/chikan workers)

Zone Four (Daliganj) consisting of the following areas

- Daliganj (Moderately populated, old habitation, close to river)
- Hasanganj (Moderately populated, old habitation, close to river)
- Mahanagar (Moderately populated, old habitation, close to river)
- Mayadasnagar (Moderately populated, old habitation, close to river)

Zone Five (Aishbagh) consisting of the following areas

- Aishbagh (Thickly populated, centre of city, occupational mainly industrial type, river at approximately 2-3 km)

Zone Six (Butler Colony) consisting of the following areas

- Butler Colony (Mainly domestic workers and casual labourers, close to river)
- Civil Lines (Mainly domestic workers and casual labourers, close to river)

Dhobighats

- Dhobighats for Lucknow were divided into two categories
- Constructed Dhobighats
- Billauchpura
- Hata Surat Singh

Traditional or River Side Dhobighats

- Gulala ghat
- Kudia ghat
- Pakka pull
- Ghat 2
- Ghat 3
- Ghat 4

Study Tools' Design

Necessary Study Tools were designed based on the inputs received from different stakeholders. Study tools used in the project include:
Questionnaire Primary Survey (QPS): Questionnaires for primary data collection was prepared in consultation with different stakeholders including the direct user groups (slum dwellers), Nagar Nigams and district/city development authorities/agencies;

- Participatory Methodologies
- Transect
- Mapping
- Primary Surveys
- FGDs
- Workshop

After collection of the relevant primary and secondary data, data analysis was carried out that included:

- Socio-economic and demographic profile of the residents
- Resources
- Sanitation profile of the community
- Availability of the other related facilities particularly sewerage, coverage of the area under existing/planned sewerage system etc.
- Satisfaction level of the community

- Area for development of facility and the type of facility to be developed for the community
- Community preferences and choices
- Awareness level

The objective of the Primary Survey was to obtain information on baseline conditions covering various aspects related to LCS and Dhobighats. The number of respondents for LCS and Dhobighats in Lucknow were 312 and 201 respectively.

Table 1.3 Number of Respondents for LCS and Dhobighats

Number of respondents	
LCS	**Dhobighats**
312	201

The interview schedule using QPS (refer Appendix A and B) in the form of a questionnaire included details about socio-economic aspects such as:

- Household profile - number of members, monthly income, occupation details, type of house, expenditure pattern, and household amenities and assets;
- Source of domestic water, distance from the source and payment made for water;
- Sanitation - bathing area, presence of IHL, area of defecation, health problems, type of IHL, response to pit toilet, reasons for satisfaction/dissatisfaction, CTC usage, distance from CTC, willingness to construct IHL, availability of space for IHL, natures of contribution for IHL, presence or absence of sewerage connection;
- Awareness about hygiene and safer sanitation practices;
- The data collected through the QPS was supplemented by notes made by surveyors in their notebooks on issues, which could not be covered in the standard format.
- A Transect through the slum areas was done to gain an understanding of the habitat pattern spatially. Mapping involved spatial analysis of a wide range of issues culminating in the creation of Social Maps. These maps include details pertaining to houses, services, facilities, main roads, lanes and streets in the surveyed slum areas. The services and facilities identified on the maps reveal not only the location details, but also the issues that people perceive as important.

1.4.2 Focus Group Discussions (FGD)

FGDs were carried out with different sets of groups within the identified slums or target communities. Community issues, preferences and choices as well as the most suitable technological option for sanitation or management of waste water, and options for O&M were identified during the FGDs. The FGDs comprised, besides key members of the Consultants' project team, the following different sets of people:

- Traditional and informal organization(s) that existed within the community (existing groups);
- Women in the community(ies) - this allowed the women to freely express their opinion on sanitation related issues.;
- Local Community Leaders;
- Group representing the younger generation; and
- Representatives from different caste, class and income levels;
- Issues identified during various FGDs are provided in Appendix C.

1.4.3 Stakeholder Meeting

The Consultants (Project Team) held one workshop on 20th December, 2004 in Lucknow which included the Project Team, JICA Study Team Representatives, Stakeholders and concerned Government Officials. The workshop included an overview / presentation of the ongoing assessment/study to the various stakeholders, policy makers, officials of DUDA, Nagar Nigam and other relevant government authorities, NGOs alongwith various representatives of CDS, Dhobi Kalyan Samaj Samiti Mahamantri and Dhobi Kalyan Samaj Samiti.

The agenda was to discuss the findings of the study through discussions on various aspects covered in the study. Owing to their own involvement in sanitation and hygiene aspects in slums, the participants at the workshop provided further insights and nuances on the areas covered in the study. The outcome of the workshop provided a way forward and laid ground for future course of action and approach for implementation and preparation of guidelines for replication of the programme proposed to be implemented through pilot project in Lucknow.
Proceedings and details of the workshop are given in Appendix D alongwith attendance list (Appendix E) and attendance sheet (Appendix F).

CHAPTER 2

EXISTING SCENARIO

CHAPTER 2 EXISTING SCENARIO

Chapter 2 presents the baseline environmental and socio-economic information for the city of Lucknow, the condition of sanitation in the slums, the present status of Community Toilet Complexes (CTCs) and constructed/traditional Dhobighats. The chapter also examines the institutional and legal aspects including existing programmes and activities of various agencies involved in Low Cost Sanitation (LCS).

2.1 STUDY AREA PROFILE

2.1.1 City Profile

- State Capital situated on river Gomti;
- Geographical Location: Between 26^{o} 43' and 26^{o} 56' N latitude and 80^{o} 56' and 81^{o} 04' East longitude; bounded by district Sitapur in the north, Rae Bareilly on the south-east side, Barabanki on the north-east, and Hardoi on the north-west side;
- Area = 340 square kilometres;
- General Elevation ~ 93.57 m above mean sea level (MSL); The highest elevation is 123.5 m above MSL around Bara Birwa in Alambagh area and lowest being 108.5 m above MSL in the flood plains at Pragya Dham near Patang Park;
- Study Area - Municipal limits of the city with boundaries defined by village Amausi on the north, village Chinhat on Faizabad Road on the south, and Bakhshi ka Talab on the west;
- Total Urban Population = 2.3 million (2001 census); slum population in excess of one million; sex ratio = 888; literacy rate = 68.7%; SC/ST population ~ 21 %; (Detailed socio-economic profile is in Appendix G);
- Sub-tropical Climate with maximum mean temperature of 44.5°C during the month of May, and a minimum of 5°C during the month of January; average relative humidity varies from 22% in dry season to 81% in rainy season; annual normal rainfall is approximately 1000 mm.
- Located in the central Gangetic plain, and is part of Sai-Gomti sub-basin; almost flat lands with conspicuous natural depression around Bakhshi Ka Talab, Janaki Puram and Saleh Nagar; general slope of the area from NNW to SSE; Older alluvial fill in the area probably belongs to the older Ganga River system in which subsequently Gomti has carved out its own valley forming the lower terrace and the active flood plain in the area;
- Flow of Gomti River is generally in the NW to SE direction with a prominent meander between La-Martiniere School and Shahid Smarak; usually characterized by sluggish flow with manifold increase in the monsoon season; 23 nalas drain into Gomti between Gaughat and Gomti barrage; 11 nalas (including Gaughat nala, Patanala, Sarkata nala and Wazirganj nala and Ghasiari Mandi nala) located on the right bank; 12 nalas (including Nadwa nala, Khadra nala, Mahanagar nala and Kukrail nala) located on the left bank; Sai River flows on the outer fringes to the south of the City from NW and NNW to SE and SSE direction;

According to the data available, the water supply of the city is catered to by both ground and surface water - 350 tube wells and water works at Aishbagh and Balaganj supply 450 MLD. Subject to a high level of awareness on the need to conserve water, availability of an efficient and consistent water supply with minimum transmission losses, the present water supply is considered to be adequate for the present population levels.

2.1.2 Slum Profile

The city has 647 slums having a total population of more than one million. The decadal increase in slum population is given in Table 2.1:

Table 2.1 Slum Population of Lucknow (1981-2001), in lakhs

Year	Total Population	Slum Population
1981	10.076	2.85
1991	16.692	2.778
2001	23.2	10.18

Source: Census of India, SUDA

Almost three-fold growth of slums in the last decade can be attributed to a combination of factors (refer box below).

- Lucknow being the capital and major urban centre attracts migratory working population for work;
- Lack of family planning measures lead to a disproportionate growth of population in slums;
- Poor economic conditions – slum dwellers can neither pay rent for proper housing nor can afford to buy a house;
- Desire to live close to one's own community;
- Involvement of religious or political groups who have vested interests in developing slums
- Inability on the part of the local administration to prevent encroachment of government-owned land;

The rapid growth and development of slums in the Lucknow city area has led to deterioration of its physical environment. Majority of slums have very poor water supply and sanitation facilities; most are either un-sewered or partially sewered, with disposal of household waste water and solid wastes taking place directly into open nalas, which adversely affects drainage in these areas, leading to water logging. The resultant poor environmental conditions within the slum areas have adversely affected the health of the residents. Financial constraints on the part of civic authorities and un-authorized nature of the slums have also contributed to non-delivery or partial delivery of basic amenities.

Social Stratification and Social and Cultural Features

- 79 per cent Hindus and 20 per cent muslims with the balance constituted by Sikhs, Christians and Buddhists;
- Hindus are further sub-divided into different castes their own strong identities - Brahmins, Thakurs (Kshatriyas), Bhumihars, Vaishyas, Scheduled Caste/Scheduled Tribes (SC/ST) and Other Backward Classes (OBCs);
- Muslims are divided into two sects: Sunnis and Shias, with the latter constituting a large population;

Brief Profiles of Some of the Major Slums Surveyed during the Study

Location	Population/ Number of Households	Infrastructure/ Accessibility	Jurisdiction	Drainage/ Sanitation Facilities	Socio-economic profile
Mohibulla Pur	1000/150	"Kharanja Road"; close to Sitapur Road; "Kutcha" Roads within the colony; telephone; electricity	NN	– Open drains; drainage to open low lying areas – No CTC – Preference for IHLs, but willing to opt for CTC due to space contraints	– Mixed population with no dominant caste group; – Generally working in offices/factories or as labourers – Some women involved in "Chikankari" and "Papad"-making
Badi Jugaoli	1000/200	Area located close to the city cantonment; telephone; electricity; good accessibility to road transport	NN	– One CTC with a septic tank – Inadequate for the population it is expected to serve – Deficient water supply	– Mixed population (Brahmins, Thakurs and Muslims form the larger caste groups – Office workers and labourers
Aishbagh Water Works	250/50	Good accessibility; telephone; electricity	NN	– Sewer line present with disposes the waste water into a nala – One CTC but inadequate for the number of users – Improper maintenance; open defecation prevalent	– Mixed population comprising all religious and caste groups – Part of old area of the city with high population density
Rakab Ganj Kadeem	1500/300	Well-connected with accessibility to road transport; telephone; electricity	NN	– Sewer line present with disposes the waste water into a nala – One CTC disposing its wastewater into the sewer line – Well-maintained; predominantly used by labourers and local vendors – Inadequate capacity of the CTC – Preference for IHLs as space not a constraint	– Area dominated by Muslims – Small scale businesses – Chikankari, Zardozi, small factories, shops – Comprises both the urban rich and poor
Gau Ghat	1300/250	Located on the river bank; no	NN	– One CTC disposing its wastewater into the sewer line	– Dominated by Yadavs; other large caste groups include Lodhies and Kayasthas

Location	Population/ Number of Households	Infrastructure/ Accessibility	Jurisdiction	Drainage/ Sanitation Facilities	Socio-economic profile
		direct accessibility by road; electricity		– Open drains also present – Deficient water supply – Only 20-30 families using the CTC despite no user charges being levied – Open defecation prevalent on river bank	– Maintain cattle
Amausi	7500/1500	Accessibility from NH 98 (Lucknow-Kanpur Highway); good accessibility to road and rail transport; electricity; small market within the village	NN	– Main drainage comprises open drains with final disposal into the village pond – Sewer line present with the existing CTC connected to it – Improper drainage leading to water logging – CTC present but located at an inconvenient distance; open defecation prevalent – Also capacity of CTC inadequate and improper maintenance – Desire for a new CTC located close to the dwelling units expressed mainly by women primarily for reasons of privacy and safety	– data collected with the assistance of local CDS – dominant caste groups include Lodhies, Pasies (Raidas), Thakurs and Brahmins; Muslim population also present – Main occupation is agriculture; the working class comprises both skilled and unskilled workers; also run small shops
Pasi Tola	350/70	WBM and "Kharanja" roads; village located near Aashiana Residential Colony developed by LDA	NN	– Sewer line and open drains; discharge into a nala – No CTC; open defecation prevalent – Poor drainage resulting in water logging and problem of water-borne diseases	

Health Condition and Risk, and Environmental Sanitation Situation

Due to lack or inadequacy of sanitation facilities coupled with poor drainage conditions, there is a high degree of prevalence of water-borne diseases and skin infections. The common diseases include Encephalitis, Tuberculosis, Gastroenteritis, Typhoid, Malaria and Dengue Fever. The practice of open defecation is a significant contributor to the poor hygienic conditions in the slums and urban villages.

2.1.3 Dhobighats

Lucknow has 3 constructed (that are operational) and 13 traditional riverside Dhobighats. The location of Dhobighats are presented in Table 2.2

Table 2.2 Location of Dhobighats (at/near)

Constructed Dhobighats	Traditional Riverside Dhobighats
• Billoachpura • Hata Surat Singh • Panni Wali Gali (Chowk)	• Barrage • New Hyderabad • Hanuman Setu Ghat • Kudia Ghat • Antip ghat (Gulala ghat) • Baloo Wala Ghat (Chowk) • Raj Ghat • Gau Ghat • Pakaria Ghat • Pucca Pul • Patora Ghat • Hathi park • Rauza Ghat

During the study, primary surveys were carried out covering in total 9 Dhobighats, 2 constructed and 7 traditional. The Dhobighats covered during the survey are presented in Table 2.3 along with their profile including source of water, number of Dhobis operating etc.

Table 2.3 Profile of Surveyed Dhobighats

Name of the Dhobighat	Traditional/ Constructed	Source of water supply for washing	Availability of Drying Space	Accessibility by Road	Number and Type of clothes washed	Number of Dhobis	Management of Dhobis Association
Kudia Ghat	Traditional	River, Hand-Pump	Ample	Good	35000/Commercial - Fabrics with "Chikan" work	250	Dhobi Samaj Kalyan Samiti (President: Haji Maqsood Ahamad; Secretary: Inder Lal Kannujiya
Gulala Ghat	Traditional	River, Hand-Pump	Ample	Good	35000/ Commercial - Fabrics with "Chikan" work	300	Dhobi Samaj Kalyan Samiti (President: Haji Maqsood Ahamad; Secretary: Inder Lal Kannujiya
Pucca Pull	Traditional	River, Hand-Pump	Ample	Good	14000/ Commercial - Fabrics with "Chikan" work	200	Dhobi Samaj Kalyan Samiti (President: Haji Maqsood Ahamad; Secretary: Inder Lal Kannujiya
Hanuman Setu Ghat	Traditional	River	Ample	Good	3500/Domestic as well as commercial	80	Satbhavna Rajak Sudhar Samiti
Billoachpura	Constructed with 130 cubicles; disposal of wastewater into a open drains	Bore-well	Insufficient	Poor	21000/ Commercial - Fabrics with "Chikan" work	300	Dhobi Vikas Kalyan Samiti (President: Rais Ahmed; Secretary: M.Saleem)
Hata Surat Singh	Constructed with 8 cubicles; disposal of wastewater into open drains	Bore-well	Insufficient	Poor	1400/ Commercial - Fabrics with "Chikan" work	20	Dhobi Vikas Kalyan Samiti (President: Rais Ahmed; Secretary: M.Saleem)

Health Conditions and Risk, and Environmental Sanitation Situation

There are very limited or almost no proactive measures taken either by Government or by NGOs to provide health safeguards to Dhobis when compared to scavengers. The Dhobis collect soiled clothes from households, hotels, hospitals and other establishments for cleaning, and therefore, are exposed to health hazards. In addition to this, handling of chemicals primarily comprising cheap detergents, bleaching agents, washing soda, mild acids etc. by bare hands, and washing clothes while standing in water containing a combination of these chemicals has also lead to a high degree of skin diseases and infections among the Dhobis.

The waste water from the Dhobighats goes directly into the open drains without any treatment. The near absence or inadequate sanitation facilities (and thereby leading to open defecation) also contribute to poor environmental conditions in and around the Dhobighats. The working conditions for the Dhobis are also made difficult by the absence of shelter from adverse weather conditions, and inadequate drying space. Although NN is responsible for the overall management of these ghats, the day to day maintenance is taken care of by different Dhobi associations. The factors mentioned herein have overall contributed to poor maintenance of the Dhobighats.

2.2 INSTITUTIONAL AND LEGAL ASPECTS (SANITATION AND DHOBIGHATS)

This section presents a review of the existing institutional and legal framework that exists at the National and State levels. In order to meet the ultimate objective of "Pollution Abatement in River Ganga", the institutional and legal framework at the two levels essentially require close co-operation. For example, whilst the support from the National River Conservation Directorate (NRCD) under the Ministry of Environment and Forests (MoEF) to the Uttar Pradesh Government focuses on improving the collection and transmission of waste water through trunk sewers to waste water treatment plant(s), the various state level agencies have the mandate to develop/augment/strengthen sewerage networks (the "branches") in different localities, directly influencing the water quality in the rivers, and their connection to the trunk sewers. For overall abatement of pollution in the rivers the two development processes should work in a coordinated manner.

2.2.1 Relevant National and State Level Laws and Regulations

The relevant laws and regulations at National and State Levels are as follows:

- **National Level**
  - Water (Prevention and Control of Pollution Act) 1974 (amended in 1988);
  - Solid Waste Management: The Municipal Solid Wastes (Management and Handling) Rules, 2000;
  - 74th Amendment to the Indian Constitution, 1992;
  - The Employment Of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993
  - Water Quality Standards notified by CPCB.
- **State Level**
  - The U.P Slum Areas (Improvement and Clearance) Act, 1962 (amended in 1986);
  - The U.P. Water Supply and Sewerage Act, 1975;
  - Uttar Pradesh Municipal Corporation Act 1959 (amended in 1994)

National Level Laws and Regulations

Water (Prevention and Control of Pollution Act) 1974 (amended in 1988) : *The Water (Prevention and Control of Pollution) Act 1974 resulted in the establishment of the Central and State level Pollution Control Boards whose responsibilities include managing water quality and effluent standards, monitoring water quality, prosecuting offenders and issuing licenses for construction and operation of certain facilities. Under this Act, the sewage must be treated before being discharged into the river. Hence for both CTCs and dhobighats, treatment is obligatory before being discharged into river/land.*

Solid Waste Management: The Municipal Solid Wastes (Management and Handling) Rules, 2000: *The Solid Waste Management and Handling Rules were notified by the Central Government by exercising its powers conferred under the sections 3, 6 and 25 of EPA. These rules are applicable to all municipal authorities responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes. According to these rules, every municipal authority, within its area of jurisdiction, shall be responsible for any infrastructure development for collection, storage, segregation, transportation, processing and disposal of municipal solid wastes. The rule stress upon the need for decentralization of solid waste management and hence more pro-active role of community based organizations (CBOs).*

74th Amendment to the Indian Constitution, 1992: *The Constitution of India was amended (74th Amendment Act) in 1992 to incorporate a separate Chapter on "Urban Local Bodies" (ULBs). Some of the salient features of this amendment are presented hereunder:*

- ULBs, to be known as Municipal Corporations, Municipal Councils or Nagar "Panchayats", depending on the population of the urban area, shall be constituted through universal adult franchise in each notified urban area of the country;
- The Legislature of a State may, by law, entrust these bodies such powers and authority as may be necessary to enable them to carry out "functions", including those listed in the Twelfth Schedule, as an Institution of Local Self Government; Slum improvement and upgradation is one of the important aspects listed in the Twelfth Schedule of the Constitution;

The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993: The Act was enacted by the Parliament on the authority of State Legislatures of Andhra Pradesh, Goa, Karnataka, Maharashtra, Tripura and West Bengal. Subsequently it was adopted by other States. The Act prohibits the construction and maintenance of dry latrines and employment of person for manual scavenging of human excreta.

Violation of the Act shall be a cognizable offence, with imprisonment for a term which may extend to one year.

Water Quality Standards: Central Pollution Control Board (CPCB) has categorised surface water into the following categories as follows:

Class A: drinking water source without conventional treatment but after disinfection;
Class B: outdoors bathing (organized);
Class C: drinking water source with conventional treatment followed by disinfection;
Class D: propagation of wildlife and fisheries;
Class E: irrigation, industrial cooling and controlled waste disposal;
There should be no visible discharge of domestic and industrial wastes into Class A waters. In case of Class B and C waters, the discharge shall be regulated/treated to ensure maintenance of the stream standards.

Ground water quality is required to meet the standards for drinking water specified in IS: 10500: Specifications for drinking water.

State Level Laws and Regulations

The U.P. Slum Areas (Improvement And Clearance) Act, 1962 [U.P. Act No. 18 of 1962 as amended up to U.P. Act 23 of 1986] : This Act provides for the improvement and clearance of slum areas, rehabilitation of their residents and protection from eviction of tenants of such areas. The Act also makes encroachment of government lands a cognizable offence.

The U.P. Water Supply and Sewerage Act, 1975 [U.P. Act 43 of 1975] : This act provides for the establishment of a corporation, authorities and/or organization for the development and regulation of water supply and sewerage services, and for all matters therewith. It also relates to establishment, conduct of business, functions and powers of the Nagar Nigams and Jal Sansthans, all of which have a definite role in providing sanitation in the cities.

***Uttar Pradesh Municipal Corporation Act* [*UP Act no.11 of 1959*] :** The UP Municipal Corporation Act governs the Municipal Corporation (MC) of the city and the Water Supply and Sewerage Act governs the Jal Sansthan. These two bodies perform their respective functions as defined in the Acts but recently the 74th Constitutional Amendment has been put in place which makes it necessary for some changes to be made in existing structures that govern Lucknow. The Act was amended by UP Act No. 12 of 1994.

2.2.2 Institutional Framework

The water and sanitation services at city level are provided by LJS, UPJN and Lucknow Nagar Nigam. Of these Nagar Nigam has the direct responsibility for all services and construction activities related to water and sanitation. State Urban Development Authority (SUDA) is the apex, policy making and monitoring agency for the urban areas of the UP State. The field work is done by District Urban Development Authority (DUDA) in their respective districts, which includes development of slum communities, construction of CTCs, assistance in construction of IHLs, creation of awareness etc. Figure 2.1, depicts the relationship of these organizations in connection with water and sanitation in the realm of community-based programmes.

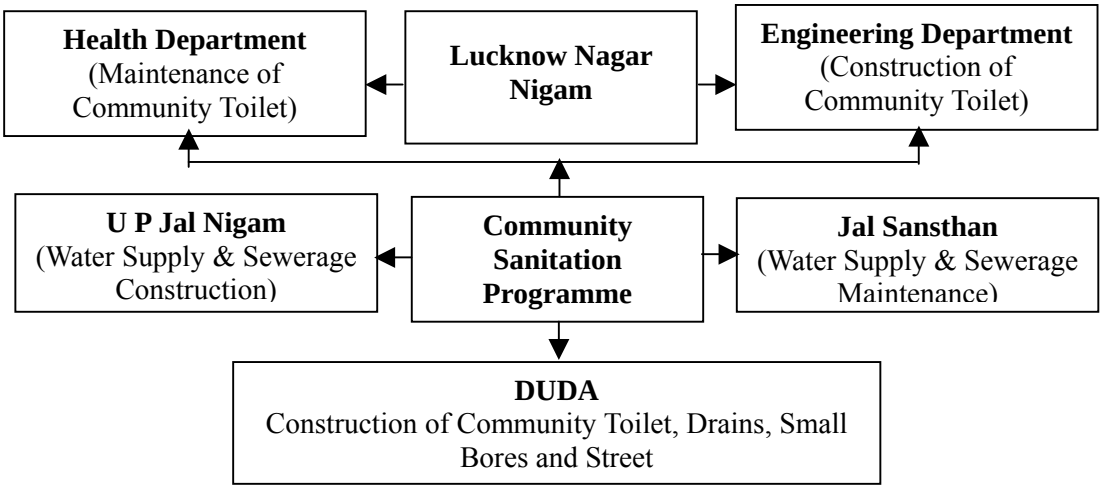


Figure 2.1 Role of Various Agencies in relation to Water and Sanitation Services

State Urban Development Authority (SUDA)

SUDA is responsible for providing overall guidance to DUDA for implementation of community development programmes related to water and sanitation. State Urban Development Authority (SUDA) is the apex, policy making and monitoring agency for the urban areas of the UP State. SUDA provides overall guidance to DUDA for implementation of community development programmes

related to water and sanitation. The implementation work in the field is done by District Urban Development Authority (DUDA) in their respective districts.

District Urban Development Authority (DUDA)

The responsibilities of DUDA in terms of slum development activities include

- Development of slum communities
- Construction of community toilets in slums;
- Assistance in construction of IHLs.
- Construction of drains and small bore sewers in slums;
- Upgradation of streets and roads; and
- Coordination with Community Development Societies (CDSs) for awareness building and community participation.

Although there is overlap in the nature of works carried out by DUDA and Lucknow Nagar Nigam, the activities of the Nagar Nigam are limited to the areas over which their jurisdiction extends. DUDA takes a district level viewpoint, which includes new areas of development.

Lucknow Nagar Nigam

Figure 2.2 depicts the organizational structure of Lucknow Nagar Nigam. In Table 2.4, the responsibilities in relation to water and sanitation services are listed of the relevant departments within the Nagar Nigam.

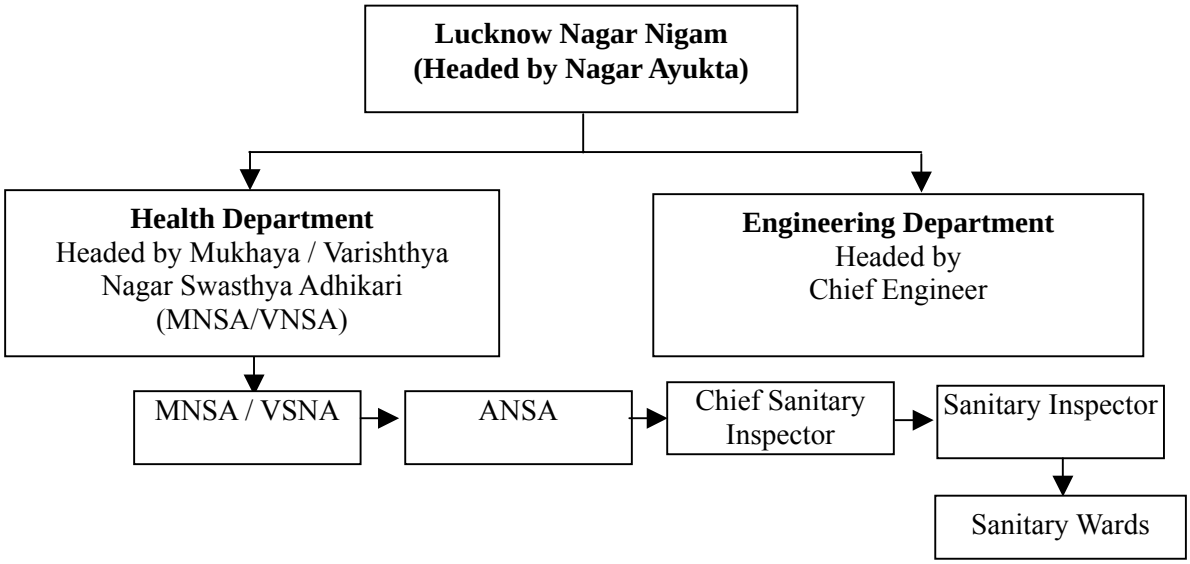


Figure 2.2 Organisational Structure of Nagar Nigam

Table 2.4 Responsibilities of Different Departments within the Lucknow Nagar Nigam

Activity	Responsibility
Construction of community toilet facilities in the slum areas	Engineering Department
Operations and Maintenance of community toilets	Health Department
PP/PA programmes related to public health	Health Department
Women and Child Development	Welfare Department

The other agencies/departments/authorities that are directly related to urban development activities at State/district/city levels are presented in Table 2.5.

Table 2.5 Other Key Organizations related to Urban Development and their Responsibilities

Organization	Responsibility(ies)
Uttar Pradesh Jal Nigam (UPJN)	Construction of water supply and sewerage network for the cities and rural areas
Lucknow Jal Sansthan (LJS)	▪ Provision of supply of potable water ▪ O&M of water supply and sewerage networks
Lucknow Development Authority (LDA)	Development of new areas, provision for housing for Lucknow city alongwith necessary infrastructure.
Non-Conventional Energy Development Agency (NEDA)	▪ Nodal agency for promotion and development of non-conventional energy sources in Uttar Pradesh ▪ Development of a new set of energy alternatives to supplement the growing energy needs

2.2.3 Relevant CBOs, NGOs and Local Associations

Community-Based Organizations

The various community-based organizations form the last, but probably the most critical link between the authorities and programme implementing agencies. These organizations are involved in community development activities and therefore, play the role of "catalyst". Their position is vital to the success of future low cost sanitation programmes in the target cities. These organizations typically have a three-tiered structure:

- Community Development Societies (CDSs)
- Neighbourhood Committees (NHCs)
- Neighbourhood Groups (NHGs)

Community Development Societies

CDSs or Samudai Vikas Samitis comprise 10 or more NHCs representing about 2500 families. These societies or samitis are created among communities to empower women in the decision-making process and enable them to put forward their needs and demands. Typically, each "samiti" has 20 members, all women, and is headed also by a woman. Meetings are held every month and proposals for funding are presented to the "Nagar Ayukta" for possible financial support. These "samitis" also network with the Health Department of the Nagar Nigams and other urban development organizations. The duties attributable to the "samitis" include:

- Identification of beneficiaries;
- Preparation of community plans and mobilizing resources;
- Monitoring of repayment and recovery;
- Liaise with Governmental and non- governmental agencies; and
- Creation of community assets and maintenance of the same.

Neighbourhood Committees

NHCs comprise 10-12 Resident Community Volunteers (RCVs) representing about 250. They are responsible for identifying the local "problems", motivating the NHGs and developing community-based credit thrift societies. They also facilitate the process of identifying the training needs and capacity building programmes.

Neighbourhood Groups

NHGs comprises women from 10-40 households with a RCV as its head. They facilitate the processes

related to:

- Planning, implementation and monitoring of activities at the cluster level;
- Formation of credit and thrift society; and
- Collection of household data

2.3 EXISTING PROGRAMMES / PLAN AND ACTIVITIES (DUDA, NN, HUDCO)

2.3.1 Low Cost Sanitation Programmes and Plan, and the Constraints thereof

National Slum Development Programme (NSDP)

This is central government sponsored scheme where 70% of funds are given by the central government. Under National Slum Development Programme, Additional Central Assistance (ACA) is being released to the States/UTs for the development of urban slums. The objectives of this programme is upgradation of urban slums by providing physical amenities like water supply, storm water drains, community bath, widening and paving of existing lanes, sewers, community latrines, street lights etc. Besides the funds under NSDP can be used for provision of community infrastructure and social amenities like pre school education, non formal education, adult education, maternity, child health and primary health care including immunization etc. The programme also has a component of shelter upgradation or construction of new houses. An amount of almost 400 million INR was released under this program for the state of Uttar Pradesh.

Major Constraints

Field survey identified a number of constraints for the project. Constraints were technical, institutional, community related constraints, constrains of facilities etc. For successful implementation of the project following constraints need to be dealt with effectively.

Pre-Construction and Construction Stage Constraints

Technical constraints: Non-availability of sewerage in affected areas, and where available, inadequacy of capacity because of which designs could not be integrated with the most preferred option of final disposal.

Availability of Space: Availability of space is major constraint despite large open spaces lying unused in several parts. Series of discussions with Nagar Nigam, Government departments and Developmental Authorities would be necessary to finalise sites for project especially if it include resumption or acquisition of land. This will however involve resettlement of evicted residents

Support Services: For sanitation programme to be successful sufficient and uninterrupted water supply is a must, without which well-designed CTCs would be ineffective very soon. Irregular electric supply is another constraint which hinders people from using the constructed facility at night, specially the women and children. It also hinders pumping of water for cleaning purpose.

Operation and Maintenance Constraints

Operation and maintenance of CTCs existing in slum areas causes serious problems. The amounts collected through user-charges are not sufficient to sustain the operation.

Apart from these constraints, there is no proper institutional mechanism for supervising day to day maintenance and also absence of periodical monitoring by concerned agencies. The related institutional and community constraints are discussed below:

Institutional Constraints

Multiple agencies like Nagar Nigam, DUDA, UPJN and LJS has created lot of confusion with many of their functions overlapping, and responsibilities divided.

No effective interaction between two government agencies working for slums i.e., DUDA and Nagar Nigam.

No coordination between government and community. There is no mechanism by which either DUDA or Nagar Nigam gets feedback relating to satisfaction of community

Community Constraints
Communities have less belief in organisation like Nagar Nigam despite of the fact that its Council is an elected body, as they have failed to provide adequate sanitation facilities.
Difficult to change social habits like open defecation

Mobilising community is a tedious process which becomes complicated due to heterogeneous mix of city slums.

2.3.2 Dhobighats

O&M Constraints
The followings are summary of existing situation of constructed Dhobighats.

Sl. No.	Name of Dhobi Ghat	No. of unit	No. of Users /day	User fee	No. of cloths / person	Water Supply	Waste water Disposal	O&M Organization
1	Billoch Pura	130	300	No	70	DUDA Boring	Drain to Gomti River	Samiti
2	Panni Wali Gali (Chowk)	65	60-65	No	NA	DUDA Boring	Drain to Gomti River	Samiti
3	Hata Surat Singh	8	20	No	70	DUDA Boring	Open drain	Samiti

Dhobis are responsible for O&M through their associations for which each member makes a contribution. One of the major constraints is the lack of funds and availability of water. No assistance or guidance is provided by the Nagar Nigam. Wastewater generated is directly discharged into the nearby open drain. The prominent associations of Dhobis in Lucknow are Dhobi Samaj Kalyan Samiti, Satbhavna Rajak Sudhar Samiti, and Dhobi Vikas Kalyan Samiti.

CHAPTER 3

SITUATION ANALYSIS

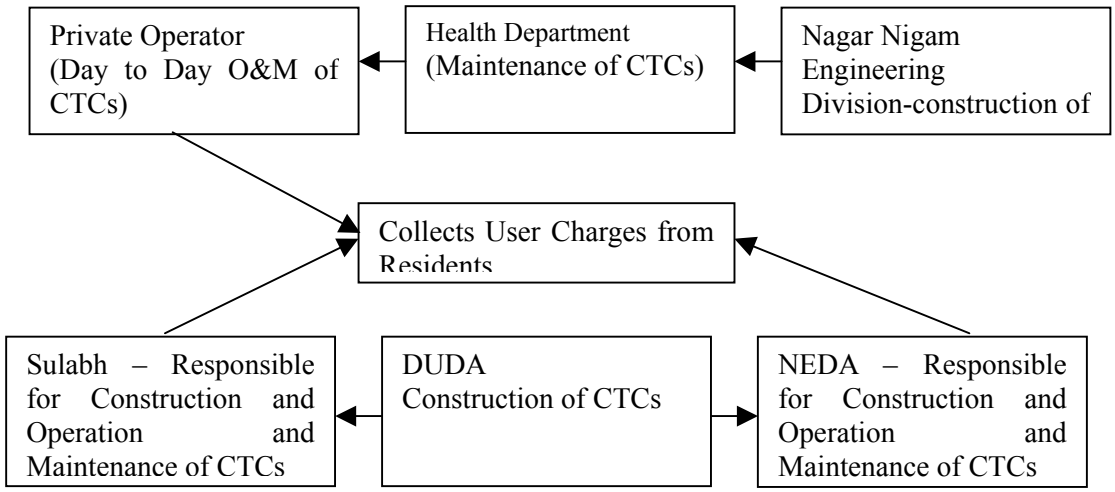
CHAPTER 3 SITUATION ANALYSIS

3.1 SANITATION STATUS IN SLUMS IN LUCKNOW

There are 647 slums in the city of Lucknow that accounts for almost 40 per cent of total population of Lucknow. There are a total of 143 Community Toilet Complexes out of which 135 are operational. Of the total 143 CTCs, 39 have been constructed by Nagar Nigam, 23 by Development Authority, 39 by DUDA, 28 by DRDA and 14 by other agencies.

3.1.1 Existing Institutional Mechanism for CTCs

The existing institutional mechanism for construction and O&M of CTCs is graphically presented in Figure 3.1.



Note: O&M of CTCs entrusted to Sulabh/ NEDA are managed by local contractors

Figure 3.1 Existing Institutional Mechanism for Community Toilet Complexes (CTC)

The constraints or difficulties pertaining to CTCs are outlined in the box below.

- Limited disposal options for the waste water as majority of areas are not covered by the existing sewerage system;
- Lack of sense of ownership among the residents - facilities are looked upon as something that has been provided by the government, and it is the government's responsibility to run the CTCs;
- Almost no involvement of the residents in design, location or O&M of the CTCs;
- Difficulty in maintaining facilities that are affected by poor quality of construction resulting in frequent breakdowns, and eventual non-functioning of the CTCs;
- Erratic power supply leading to non-functioning of pumps and thereby inadequate water supply affecting the cleaning of CTCs;
- Resistance to payment of user charges in certain pockets leading to inadequate financial resources for O&M - "why pay for poor facilities?";
- Lack of cohesiveness or coordination between different agencies in implementation of the LCS programmes;
- No mechanism for obtaining feedback from the users for any improvements;

3.1.2 Survey Details and Findings – Community Toilet Complexes

Primary survey was carried out based on scientifically designed questionnaire covering 312 respondents. The slums for primary surveys were decided in close consultation with Nagar Nigam, Jal Sansthan, State Urban Development Authority, District Urban Development Authority and social organizations working in the related field. List of slums surveyed in Lucknow are given in Table 3.1 below.

Table 3.1 List of areas and slums surveyed in Lucknow

Fazullaganj	Madhiya
Jankipuram	Martin Purva
Ruchi khand	Mohandi Nagar
Aishbagh	Mohani Purva
Amausi gaon	Mohibulla pur
Aqilapur	Naka Hindola
Badi lal kurti	New Basti Sadar
Bangla bazaar	Opposite Laxman Mela
Bijli pasi quila	Pandey ganj
Birhana Road	Purania
Bulaki Aada	Rahim Nagar
Chamori tolla	Rakabganj
Charbagh	Rani Ganj
Dubgga	Rath khana
Fazullaganj	Ruchi khand
Gani Nagar	Rustam Nagar
Gau Ghat	Salori
Ghanta Ghar	Sikandar Nagar
Grash Nagar	Sitapur Road
Habib nagar	Tehseenganj
Hussianabad	Telibagh
Model Colony Chowk	Tikait Ganj
Khajua	Tope Khana

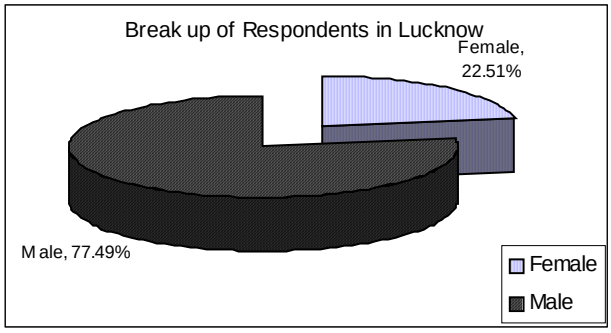
3.1.3 Analysis and Outcome of Sample Survey of LCS

In order to assess the need and demand for LCS facilities in the slums, and to identify various issues and concerns of the slum dwellers pertaining to LCS, a combination of quantitative and qualitative assessment techniques were used, which have been described in detail in Chapter 1 section 1.4.1.

While the Participatory methodologies were used to get a qualitative insight of the issues and concerns of the inhabitants, and their preferences and priorities for the LCS programme, the interview schedule was used to get in-depth quantitative information about the inhabitants, their socio economic profile, availability of infrastructure, sanitation details, and their capacity and willingness to pay for the preferred service. The results of the assessment were used to derive the most appropriate and sustainable solution for the community.

Respondent's Profile

The percentage of male and female respondents was 77.49 per cent and 22.51 per cent respectively as seen in the graph.



Source: Primary Survey, October 2004

Literacy Level

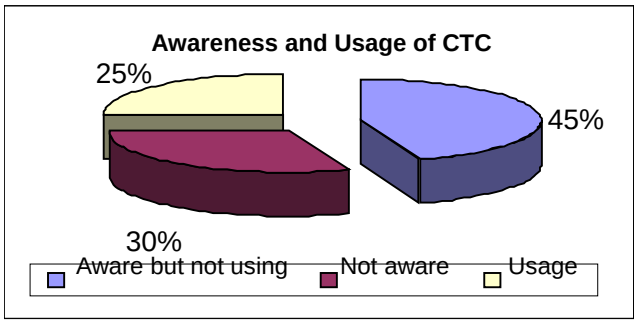
Survey indicates that the literacy level in slums in Lucknow is 64.17 per cent as compared to city's average of 68.7 per cent, the details of the same is given in Table 3.2

Table 3.2 Level of Education among the Respondents

Educational status	Percentage
10th pass	20.77
11th pass	0.00
12th pass	0.95
8th Pass	12.77
Below Primary Status	14.06
Graduate	7.34
Inter mediate	0.00
Literate	6.40
NA	0.95
Other	0.63
Post graduate	0.32
Literate	64.17
Illiterate	35.14

Source: Primary Survey, October 2004

Usage and Awareness Community Toilet Complexes



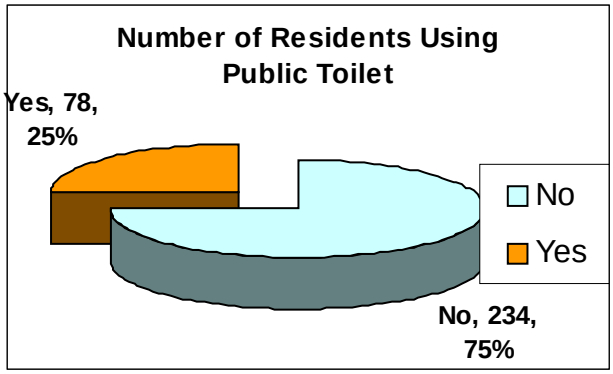
Awareness of CTCs in Lucknow is low i.e. 30 percent, about 45 percent population are using the CTCs and about 25 percent of the respondents are aware of the CTC but do not use the facility, as shown in the adjacent graph.

Source: Primary Survey, October 2004

Use of Community Toilet Complexes

Number of respondents using CTC is one of the indicators for determining the need for construction of CTCs. In case of Lucknow, ¾th of the respondents (75 per cent) do not use CTCs.

It has been observed that the maximum number of people (~90 per cent) use the CTCs for defecation purpose followed by urination (~8 per cent).

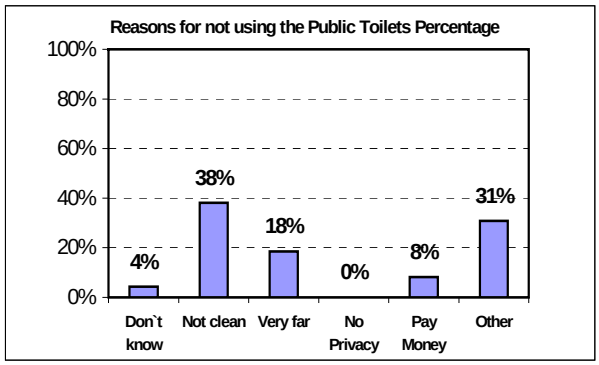


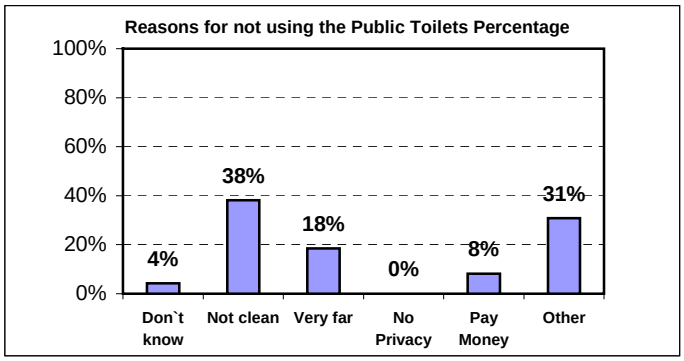
Source : Primary Survey –

Table 3.3 showing per cent use of Facility in CTC

Usage	Percentage
For Bath	2.61
For defecation	90.74
For Urination	7.79

As per the survey about 38 percent of respondents do not use the CTC due to lack of cleanliness as shown in the following graph.





Source: Primary Survey, October 2004

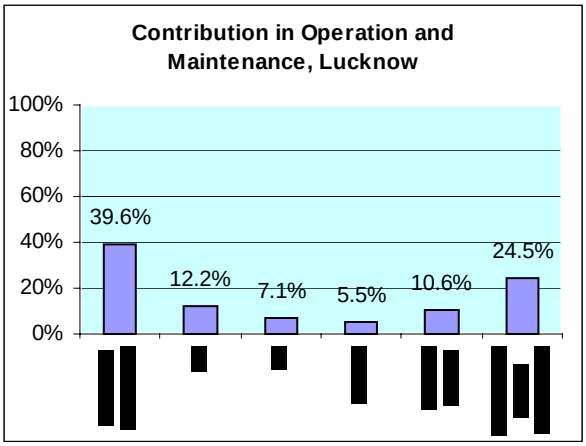
As per the primary survey findings about 26 percent (35 % x 75%) per cent of the population in slums carry out open defecation and 27 per cent have IHLs.

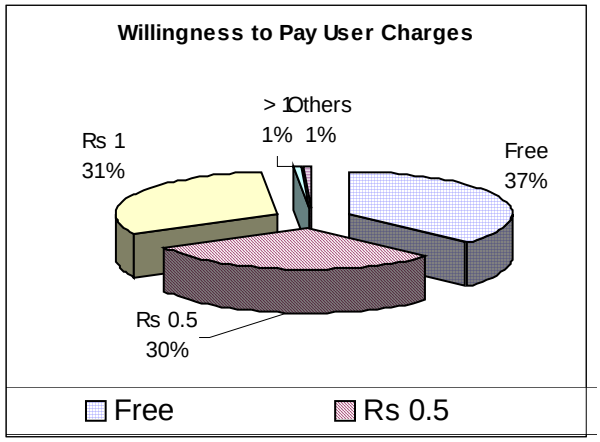
About 86 per cent of respondents are willing to participate in the Operation and Maintenance Activities of the CTCs as shown in Table 3.4.

Table 3.4 Willingness to Participate in Operation and Maintenance

City	Yes	No	No answer
Lucknow	86.2%	13.1%	0.7%

About 37 percent of users want the CTC facility to be free of cost, and about 32 per cent of the slum dwellers are ready to pay Rupee One or more. The break-up of willingness to pay user charges at different rates can be seen given in the graph.





3.1.4 Observations

- Out of the total 312 respondents, the split between male and female respondents is 3:1;
- The average literacy rate in the slums surveyed is only 64.17 as against the city average of 68.7 per cent. The main contributing factors are poor economic conditions and lack of access to educational facilities;
- Monthly income of a household is an indicator of ability to pay for the services. During the survey, majority of the respondents were unwilling to disclose correct information about their household income; the average monthly income is estimated at Rs. 2262 approximately;
- The present usage level of public toilets is one of the indicators for determining the need for construction of CTCs. In case of Lucknow, about 25 per cent of the respondents use public toilets and 38 per cent have their own toilet (IHL), and about 35 per cent use other means such as neighbour's toilets. When asked the reason for not using the existing public toilets, majority of the residents felt inhibited in giving a clear answer. In case of Chauphatka, Kalindi and Telia Ganj, lack of cleanliness was cited as the main reason for not using the existing facilities.
- Almost all residents in slums, when asked to choose between IHL and CTC preferred the former as, in their perception; the O&M of CTCs was difficult, a view point probably borne out of the existing situation in terms of lack of cleanliness. However, almost 37 per cent of the present non-users are want the CTCs free of cost and about 31 per cent are willing to pay Re. 1 per visit for use of public toilets provided the quality of service delivery (e.g. cleanliness) meets their expectations. 75 per cent of the respondents are willing to contribute in the O&M of CTCs. Besides the willingness to pay user charges, there are a variety of ways in which the respondents are willing to participate in O&M activities. This includes cleaning, mobilizing collection of funds and initiating public awareness.
- The primary survey revelled that most of people are aware about the pollution and open defecation is one of the major causes of the pollution. 60 per cent of the respondents said that open defecation is the main cause of the river pollution.100 per cent of the respondents at Ruchi Kand,Naka Hindala, & Mohinipurva think said open defecation is that main cause river pollution and at Salori Raniganj and Ghanta ghar more then 80 per cent of respondents think there other are causes of pollution which pollutes river more as compared to open defecation. Very few slum residents were aware of the direct linkage between the open defecation and health hazards.

3.1.5 Summary of Findings of CTCs

The need for toilets in slums can be calculated by assessing the number of households practicing open

defecation alongwith willingness to pay. The analysis of primary data revealed that the almost 35 per cent of respondents use open ground for defecation that must be prevented to improve slum sanitation and consequently control river pollution. About 32 per cent of the population is willing to pay Re 1 or more per visit. Rupee one per usage has been considered as benchmark for calculating the willingness to pay, in order to have viable Operation and Maintenance of CTC. On this basis requirement for the CTCs for Lucknow has been calculated

Need for Upgradation can be quantified by knowing the percentage of respondents who are not satisfied with the existing level of service and expressed a need for better operation and maintenance through various means. Almost 38 per cent cite cleanliness as one of the main reasons for not using the CTC. It can be concluded from the primary surveys and discussions with various stakeholders that proper operation and maintenance is a must for ensuring optimal utilisation and sustainability of assets.

Demand for the service is linked to individuals or households preference for the service. In order to sustain operation and carry out necessary maintenance, willingness to pay for the service or participate in some other way such as "shramdan" or community service is most crucial. It can be inferred from primary survey that more than 85 per cent of respondents are willing to participate in operation and maintenance. This is also in consonance with reported willingness to pay cash for operation and maintenance which is more than 70 per cent for Lucknow. But since the sustainability of operation can only be achieved if the user charge is Rs. 1.0 or more which is only 32 per cent.

The demand for CTCs is also substantiated as maximum percentage of respondents are willing to contribute in different ways like cleaning activities, raising money, creating public awareness for operation and maintenance.

Lack of availability of space in their houses for construction of IHLs is a major constraint for slum residents. This clearly shows the need for CTCs. Various participatory techniques need to be applied in further increasing willingness to pay for service. At present slum dwellers are paying Rs. 30 per month per household as users charges. About 37 per cent households do not want to pay any user charges. It has been observed that only about 30 users per seat is optimal number for proper O&M and sustainability of CTC in slum areas.

3.2 ANALYSIS OF DHOBIGHATS

3.2.1 Baseline Environmental Status

The baseline environmental condition of the Dhobighats in Lucknow is similar to the ones in the slums as described earlier in this chapter. The environmental considerations specific to Dhobighat are related to the use of water, consumption and discharge of chemicals contained in soap, detergent and other materials used in the process, and the impact of the activities on the health, especially the skin of the washer men.

In case of constructed Dhobighats the wastewater is discharged into an adjoining drain which discharges untreated water into Gomti River, whereas traditional riverside Dhobighats all the washing activities are carried out on the river bank.

3.2.2 Survey Details and Findings

Generally, the washer men carry out preliminary activities at their homes. The earlier practice was to add some reh (alkaline soil) and put the clothes in a Bhatti (steam vessel). This practice, although being still used, is giving way to the use of detergents for soaking the dirty linen. The cubicles of the existing constructed dhobi ghats are only partially utilized. Reasons stated for under-utilization of the cubicles range from inadequate or uncertain supply of water to availability of more convenient alternative of temporary ghats along the river.

Selection of Study Area
The approach adopted for the study was participatory in nature. The methodology included detailed consultation with the stakeholders including officials from various development authorities like developmental authorities, Nagar Nigam, etc. 9 out of total 16 Dhobighats have been surveyed covering 201 Dhobis. The respondents were selected on the basis of purposive random sampling. The selected Ghats for sample survey are stated below:

Constructed Dhobighats

- Billoachpura
- Hata Surat Singh

Traditional Riverside Dhobighats

- Chowk (Baloo Wala Ghat)
- Gualala Ghat (Antip ghat)
- Hanuman setu
- Hathi park
- Kudia Ghat
- Patora ghat
- Pucca pul

Tools of the Study
The data was collected from primary and secondary sources. The primary data was collected by interview schedule (format used is annexed in Appendix A and B), observation guidelines and 'focus group discussions' (one of PRA methods). This helped the team in the collection of qualitative and quantitative data. In 'focus group discussions' the stakeholders, opinion leaders and other formal elected members of their Panchayat had participated in the discussions to explain their perceptions on different issues for formulating and articulating the alternative strategies to solve their problems. Secondary data were collected from Nagar Nigam, Jal Nigam, census 2001, DUDA and Lucknow Development Authority.

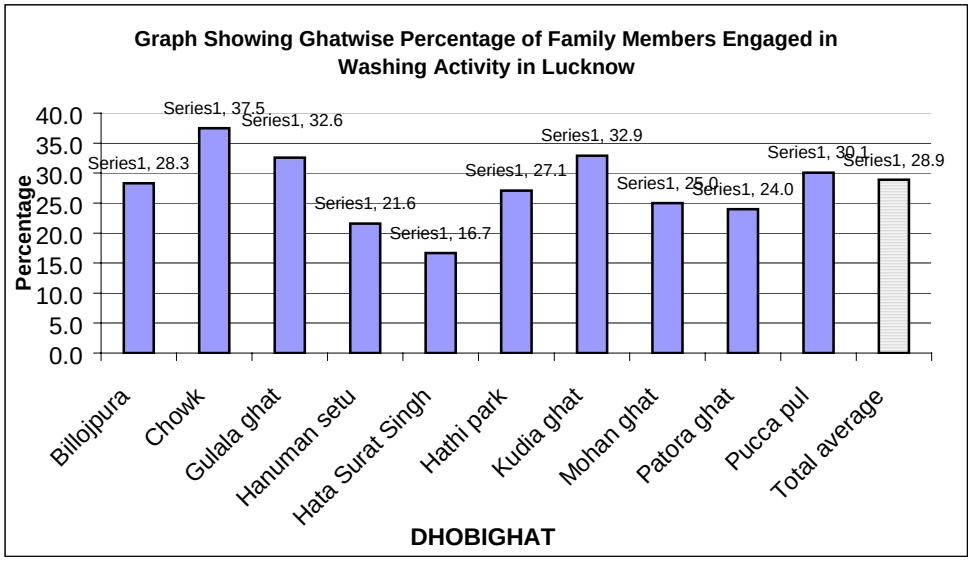
Analysis of Data in Qualitative Frame of Reference

The findings of the structured interview schedule have been substantiated with the information gathered through focused group discussions (FGDs) conducted with the members of local population in the target areas. During FGDs the people were encouraged to air their point of view about the requirement and use of Dhobighat. Almost all the FGDs had more than 50 respondents. It was observed during the discussions that most of them are not satisfied with existing condition of Dhobighats. They are willing to contribute towards the construction of dhobi ghats. Most of them are of opinion that ghats should be managed by their associations only. The details of FGDs are given in Appendix C. Majority of respondents were male who operated at Dhobighat with women participating in the activities like pressing the clothes at home. The literacy rate among the male (44.6per cent) is higher than that of female (36.1per cent). The literacy percentage in the study area is given in Table3.5:

Table 3.5 Literacy Rate among the respondents

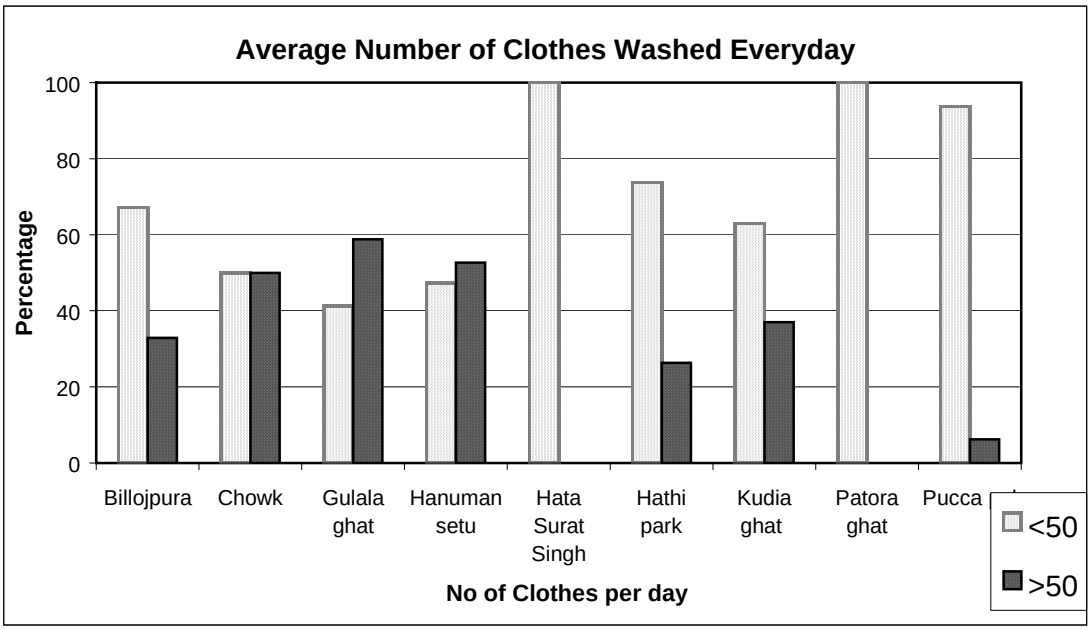
Sex	Percentage Literates
Male	44.6
Female	36.1

The following graph indicates that the almost 29 per cent of the total family members of the respondents are engaged in washing clothes. Field survey revealed that average number of family members engaged in washing activity is largest in the Chowk, followed by Guala Ghat and Kudia Ghat.



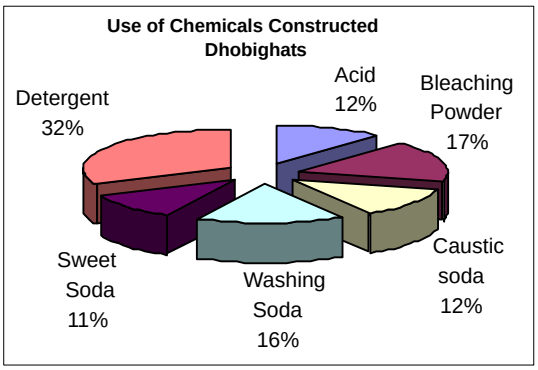
The average number of clothes washed per day by each dhobi is an important parameter for planning facilities while remodelling /relocating of ghats. An assessment was done of the number of clothes washed per day. The following graph summarizes the percentage split of clothes washed per day (greater than or less than 50 clothes per Dhobi) at various Dhobighats. This indicates that clothes washed per Dhobi per day are more in case of constructed Dhobighats.

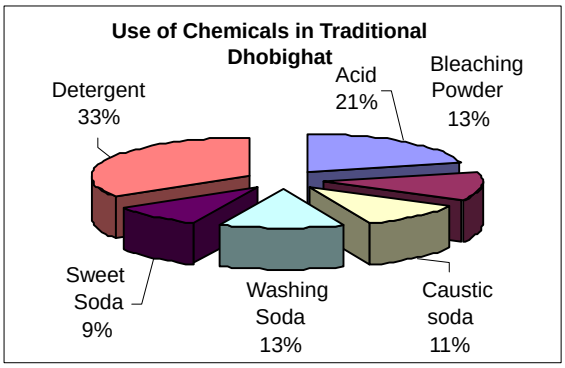
City	Constructed / Traditional	<50	>50
Lucknow	Constructed	68.5	31.5
	Traditional	63.3	36.7



Use of Detergents and other material in washing clothes

Washing material used by the Dhobis includes diluted acids, bleaching powder, caustic soda, soap, detergents and soda. The following table presents average quantity of material consumed per day for both traditional and constructed Dhobighats. The use of acids in Traditional was found to be higher than in Constructed Dhobighats. The usage of chemicals – acids etc is the highest in case of Lucknow city as compared to the other two cities, as the clothes washed in the city are the Chikan clothes which is also primarily commercial in nature.





Sources of water and Disposal

The source of water for all the ghats surveyed is either from a bore-well or through piped water supply by Jal Sansthan. The wastewater in case of constructed Dhobighats is disposed in open drains/nalas in the vicinity.

Membership of Association

The Dhobis are well organised in case of Lucknow - more than 75 per cent of the respondents in Lucknow are members of one association or the other. The Association plays a significant role in the integration of the community. An association is a forum for Dhobis to collectively address or raise their issues through dialogue with the concerned local body. It also plays a significant role in solving intra-community disputes.

Table 3.6 Membership of Association, Lucknow

Area	No	Yes
Billoachpura	7	63
Chowk	1	2
Gulala ghat	3	31
Hanuman setu	8	11
Hata Surat Singh		3
Hathi park	5	14
Kudia ghat	2	25
Patora ghat	10	
Pucca pul	7	9
Total	43	158

Amount Charged per Item of Clothing

There is no uniform pattern in the amount charged per item of clothing. It fluctuates from Rs. 2 to Rs. 25. The higher charges per item can be related to the clothes with chikan work. According to the Dhobis, they find it difficult to increase the charges per piece of clothe washed due to the resistance from their customers.

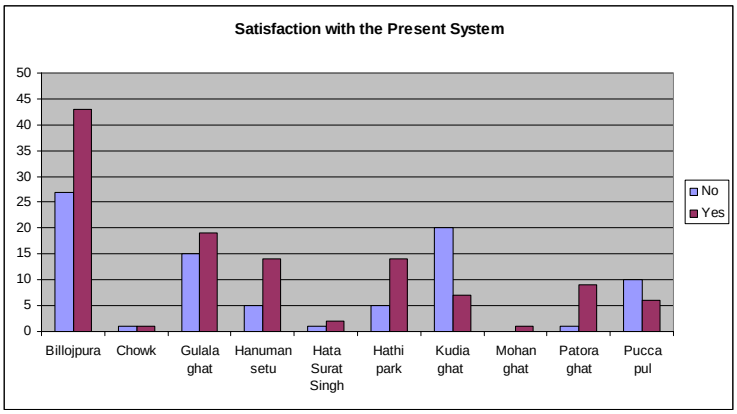
Satisfaction with the Present System

Satisfaction with the level of facilities at the Ghats is more in case of constructed Dhobighats (61.6 per cent) than the Traditional or Riverside Ghats (55.1 per cent).

Table 3.7 Satisfaction with Present System for Constructed and Traditional Dhobighats

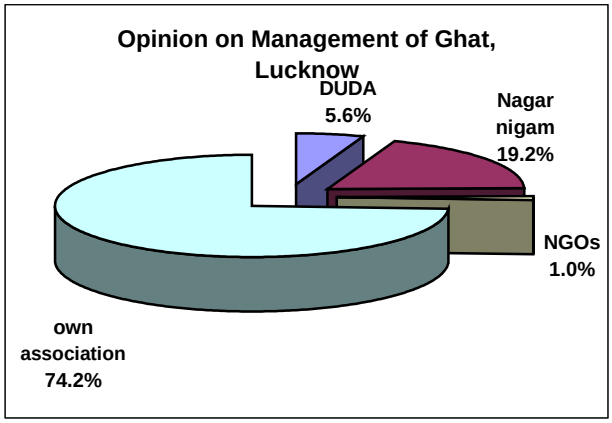
Ghat Type	Yes	No
Constructed	61.6	38.4
Traditional	55.1	44.9
Total	57.5	42.5

Majority of the respondents are satisfied with the present level of facilities provided at the ghats, except in Kudia Ghat and Pucca Pul.



Management of Ghats

Majority of Dhobis (74 per cent) want their own association to manage the Ghat, whereas only 1 per cent would prefer NGOs managing the Ghats in Lucknow.

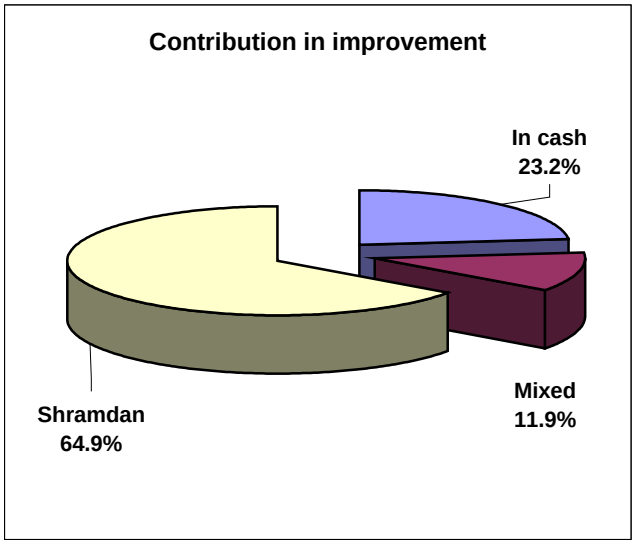


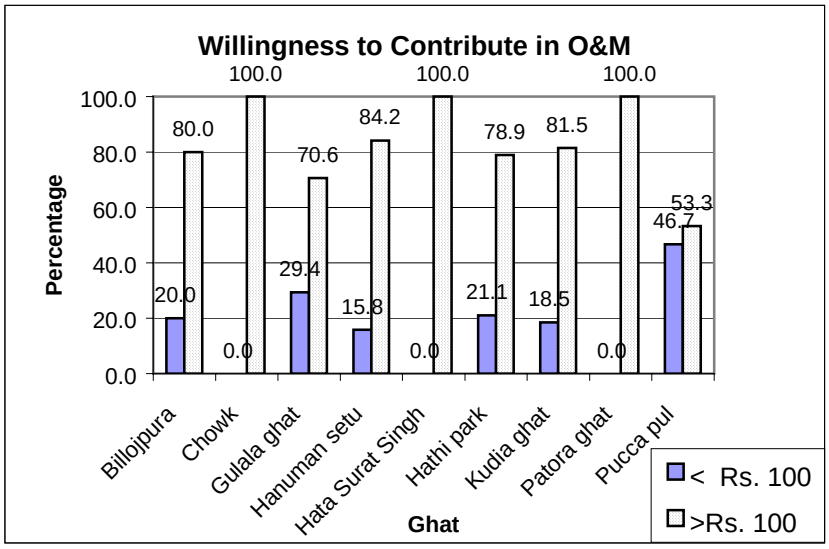
Willingness to Contribute in Improvement of Dhobighats

About 93 per cent of the respondents are ready to contribute in improvement of the Ghats, out of which about 65 per cent of Dhobis are willing to contribute by Shramdan and about 23 per cent in cash.

Willingness to Contribute in O&M

Majority of the Dhobis (92 per cent) agree to pay monthly charges for O&M. Overall about 79 per cent of Dhobis are agreeable to pay more than Rs 100 as monthly charge for O&M. The Ghat-wise breakup is provided in the following graph.





3.2.3 Lessons from Existing Facilities and O&M Issues

Nagar Nigam is responsible for the overall management of the Ghats but the Operation and Maintenance is actually taken care of by the respective associations. The maintenance of the Ghats was found to be poor. Majority (~73.1 per cent) of the respondents are of opinion that the Ghats should be managed by their own association i.e. continuation of the present practice.

In general, the existing constructed Dhobighat suffer from the lack or inadequacy of the following services or facilities:

- Insufficient water supply; near absence of potable drinking water
- Absence of any roof cover for protection during the hot summer months, or any other shelter to take rest or eat food
- No arrangement for drying clothes
- No toilet facilities; absence of sanitation has made the general working environment unhealthy
- Absence of any safety arrangement for their clothes
- Effect on water supply when either the tube-well fails or there is no electricity
- No arrangement for processing washed clothes with ultramarine and bleaching agents
- Direct disposal of waste water directly into open drains without any treatment
- The arrangement of washing area necessitates washing of clothes while standing in water

Observations
The O&M of the facility is done by the local Dhobi association. The number of user per Dhobighat varies from 8-25 per day. The amount of detergent used per Dhobi varies from 0.5 kg-2.0 kg per day.

The Dhobis do not take any specific health protection measures either while collecting soiled clothes from households, hotels, hospitals and other establishments, or in their use of detergents and/or other chemicals.

Generally, the Dhobis carry out preliminary activities at their homes. Although the traditional practice of washing clothes by adding "ret" (alkaline soil) and putting them in a Bhatti (steam vessel) has given way to use of detergents, the formal practice is still prevalent.

The cubicles of the existing constructed Dhobighats are only partially utilized. Reasons expressed for under-utilization of the cubicles range from inadequate or uncertain supply of water to availability of more convenient alternative temporary Ghats along the river. Also, the latter proves to be more convenient as in case of some Dhobis, the constructed Dhobighats are far way from their place of residence.

No attention is paid to the aspect of conservation of water is followed; as such, the Dhobis are unaware of the environmental impact of washing clothes in the river.

Majority of Dhobis are men; women are actively involved in ironing of clothes;.

Among the Dhobis surveyed, 40 per cent of their family members are engaged in washing clothes.

The Dhobis use low cost detergents or soda for washing clothes. The quantity of detergent used is 1.70 kg per 100 clothes. The use of cheap detergents and soda is the prime reason for associated skin diseases prevalent among the Dhobis.

More than 75 per cent of the respondents are members of their Dhobi Associations, which play a significant role in the integration of the community. It acts as the forum where Dhobis collectively

address issues through a process of dialogue with the concerned local government body. It also plays a significant role in solving intra-community disputes.

There is no uniform pattern in the amount charged by the Dhobis per item of clothing washed. It varies in the range of Rs. 2 to 10. The Dhobis contend that they are unable to increase the rates beyond the present level due to resistance faced from the customers and competition from washing machines - most middle class or upper class households either use domestic washing machines or hire an individual to wash clothes at their homes.

Majority of the Dhobis are willing pay user charges for the O&M of their facilities, and also willing to make contributions in one form or the other towards construction of new facilities, or improvement to existing constructed Dhobghats.

Availability of space for drying clothes is inadequate. Dhobis preferred the construction of Dhobighats on the basis of settlements of dhobis.

3.2.4 Summary of Findings

The need and demand assessment of dhobis relating to new construction/improvement to existing Dhobighats are summarized hereunder:

Constructed Dhobighats

- Sufficient quantity of water not available
- Lack of any shed
- Lack of arrangement for drying clothes
- Lack of shelter for taking rest and food
- Lack of toilet & urinals
- No facility of drinking water
- Lack of safety arrangement
- No water is available when tube well fails or electricity is not available
- Lack of arrangement for 'Bhatti'
- No arrangement for processing washed clothes with "Neel" & bleaching agents
- No arrangement for proper disposal and treatment of waste water
- Dhobies have to stand in water of cubicles, which affects adversely their health due to presence of chemicals.
- Insanitary conditions within campus

Traditional Dhobighats

- Washing of clothes not possible many times due to turbid and polluted river waters
- Washing platforms need to be shifted according to levels of water in rivers
- Lack of proper space for drying clothes
- Long distances from residences of Dhobis
- Lack of toilet facilities
- Unhygienic conditions around working place due to open defecation by other people, wallowing of cattle and solids waste being dumped in rivers
- Lack of suitable space for taking rest and eating
- Lack of safety for clothes
- Lack of safe drinking water

CHAPTER 4

LOW COST SANITATION PROGRAMME

CHAPTER 4 LOW COST SANITATION PROGRAMME

4.1 INTRODUCTION

4.1.1 Low Cost Sanitation (LCS)

A large population in the city is living in sub-minimal conditions in slums lacking basic amenities and services leading to the practice of open defecation on a fairly large scale. This aspect has been discussed in the earlier chapters. Houses in the slums are too small and often built on encroached lands. The highly congested localities leave no scope for construction of IHLs in most slums. Given the conditions and the poor financial status, it becomes imperative to provide LCS alternatives for the slums. In the absence of space, the only alternative left is the CTCs, which again should be cost effective and sustainable with available funds for serving the large population in the slums.

4.1.2 Constraints and Requirements

Based on findings of the preliminary survey and lessons learnt from the current scenario, many constraints have been identified in O&M of existing CTCs discussed in the previous chapter. These primarily include those pertaining to assessing the need for CTC, technical needs, O&M requirements and community aspects.

The following table presents the key factors that have to be considered and/or the necessary actions required to be taken to overcome the constraints and meet the needs of the community through the implementation of a LCS programme involving construction of CTCs, and should be considered at the planning and designing stage of the proposed programme.

Need and Location	• Demand and Need Assessment • Priority to locations/areas with greater demand for CTCs • Locating CTCs near or in a portion of the existing major open defecation ground • Average distance of the CTC from dwelling units (recommended to be ≤ 500 m)
Technical requirements	• Appropriate design in terms of number of water closets (seats) and wastewater disposal • Adequate and consistent water supply for flushing and cleaning a must • Regular electricity supply essential especially for night-time usage, and where the source of water supply is a tube-well • Feasible cost recovery of O&M costs partly or wholly through user charges – a key to long-term financial viability • Appropriate institutional framework • Balance between a financial viable larger CTC (say, a 2-seater) and multiple smaller CTCs depending on the number of residents to be served and the coverage area – single CTC located too far away will probably make the users unwilling to use the CTC.
O&M requirements	• Regular cleaning • Mobilization of required resources • Training to the caretaker(s) in managing, operating and maintaining a CTC
Community or user requirements	• Building a sense of ownership amongst the community members through an effective PP/PA programme • Participation of the community at all stages of programme implementation • Willingness to pay for using the facility • Education on use of toilets • Encouragement to women to participate in the O&M activities, which will also facilitate the PP/PA processes as women are generally responsible for managing their households

4.2 PLANNING AND DESIGNING

4.2.1 Facility Required

The design of a CTC should ensure comfortable access to all individuals in order to meet their personal needs irrespective of their background or physical condition in an easy and efficient manner. The design should maximize comfort and safety, and cleanliness, which in turn will encourage people to use them.

The essential requirements in a CTC are:

- Separate sections for male and female users
- A separate WC for physically-challenged persons and children
- Separate bathing cubicles in the male and female sections
- Arrangement for water, preferably independent tube-well with over head storage tank
- Urinals
- Basin for hand wash with mirror and towel stand.
- A caretaker room
- Store room for keeping cleaning materials
- Entrance lobby
- If space is not a constraint, then development of green areas around the CTC

4.2.2 Key Planning Factors

The key planning parameters for a typical CTC are:

- Proximity to a sewer line in case of sewered areas; in case of un-sewered areas, disposal of waste water would either be to a septic tank/soak pit or into an open drain after treatment;
- Adequate power supply;
- Sufficient space for the CTC with facilities of water closets in separate sections for male and female users; power back-up; provision for physically challenged persons and children; urinals and bathing cubicles;
- The design of the facility should be able to cater to peak usage levels (2-3 hours) in the morning and evening;
- Number of WCs (seats) on the basis of not more than 30 users per WC;
- Location of CTC in such a way that the maximum distance between the CTC and the farthest dwelling unit does not exceed 500 metres;
- Well designed brick and RCC Structure with adequate drainage system;
- Good ventilation and illumination of the premises.
- Presentable and pleasing reception and lobby area.
- Round the clock water supply system for cleaning and washing essential for offering hygienic toilets facilities with overhead storage tanks.
- Caretaker room to facilitate proper and round the clock cleaning and security of the premises.
- Use of high performance interiors and exterior material and fitments for regular and rugged use of modern public toilets on the streets corners and public places.

4.2.3 Number of Users

In slum areas or residential colonies, the CTCs should preferably not have more than 20 seats, which can cater to a population of 600 persons using the facility daily. According to the primary survey results, 35 per cent of the population in the slums surveyed are estimated to carry out open defecation. The 32 per cent of respondents are willing to pay Re. 1 or more. Based on these results, it can be estimated that actual population that will use the CTC would be 11.2 per cent. This would imply that a 20-seater CTC can be located in a slum area having a population of almost 5400. It is proposed that CTCs with 5, 10 and 20 seats with standard designs are provided in slum areas.

4.2.4 Location of CTC

Prior to site selection for construction of CTC, the following assessment should be carried out.

- Existing facilities - IHLs and CTCs
- Number of households, who do not have IHLs, and the floating population that may either be temporarily residing or visiting the area
- Population that would need the facility based on the estimated number carrying out open defecation and the percentage of persons willing to pay a user charge of at least Re. 1
- Number of water closets based 30 users per seat considered to be a practical parameter as usage levels are higher in the morning hours and in late evening

The number of CTCs, one or more in a particular slum area, would depend on the concentration of the households and the average distance from the dwelling units. A distance greater than 500 metres is considered to be impractical especially in the case of women, children and physically-challenged persons.

- Once number of seats and complexes are worked out, the selection of site(s) would have to consider the following factors:
- Availability of sufficient space
- Availability of water and electricity
- Availability of sewer line
- Hydrological conditions
- Acceptability of the community in consideration to different groups and the their social habits
- Environmental aspects

4.2.5 Design Criteria

Based on the above factors that need to be considered for designing a CTC, Design Criteria for CTCs with 5, 10 and 20 WCs is presented in Table 4.1.

Table 4.1 Design Criteria for a Community Toilet Complex (CTC)

Design Factor		**No. of Water Closets (WCs) in the CTC**		
		5 WCs	**10 WCs**	**20 WCs**
No. of users	No. of users per WC per day	30	30	30
	Total users per day	150	300	600
	Total families	25	50	100
No. of bath		1	2	4
No. of urinal		0	2	4
Water Supply Requirement	Total water supply per day (45 lpcd) in kilolitres incl. bathing use	9	18	36
	Capacity of Storage tanks on the basis of 50 per cent of daily requirement in kilolitres	4.5	9	18
Electricity	Pumps (KWH per day)	2.5	5	10
	General Lighting, fans etc. (KWH per day)	5	10	20
Area requirement for the CTC with septic tank and soak pit	Single-storied structure (sq.m)	120	250	470
	Double-storied structure (sq.m)	-	200	390
Distance criterion – location of the CTC from the furthest dwelling unit		≤500	≤500	≤500

Notes:
1. If sewer connection is available the area requirement will be reduced.
2. Average family size is assumed as 6.

4.2.6 Design Alternatives for Disposal

Following three alternatives for wastewater water disposal options are discussed in Table 4.2 in terms of advantage and disadvantage. The proposed layout for CTCs are attached at Appendix L.

- Disposal into a sewer line of the existing/proposed sewerage network
- Twin-pit system (see Appendix)
- Septic tank with a soak pit
- Mini-STP

Mini-STP Treatments Scheme

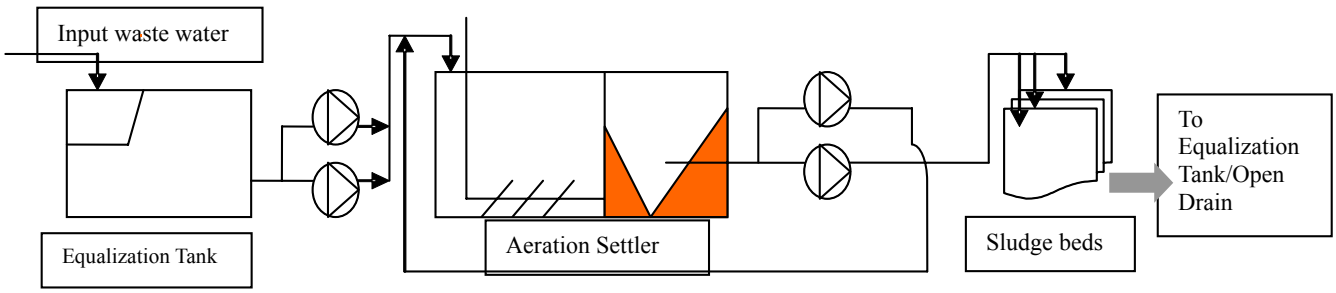


Table 4.2 Comparison of Alternative for Disposal

Option	Advantages	Disadvantages
Disposal into a sewer line of the existing/proposed sewerage network	– Off-site disposal with no necessity for any on-site treatment – Best option from the environmental aspect – Reduces the burden on O&M by obviating the need for on-site disposal – No additional land requirement at the CTC location – Almost no impact on ground water pollution – Best option if sewer is available	– Flow generated necessitates greater slopes than normally required to ensure self-cleansing velocity – Periodic de-siltation necessary to prevent blockages – Needs a well-developed sewerage network • Low coverage of present sewerage network, and long time period required for its expansion leads to delays in meeting the sanitation requirements of the local population • Locating CTCs to provide convenient access to slum-dwellers becomes difficult
Twin-pit system	– On-site disposal – Need for emptying the pits (one pit) in 1½-2 years only – Low requirement of water (1½-2 litres) for flushing out the excreta	– more suited for IHLs – not suitable in soil conditions where the maximum ground water level from the bottom of the pit is less than 2 metres in case of soils with effective size greater than 2 mm – preferable to have an impervious bottom in such a situation
Septic tank with a soak pit	– on-site disposal – can be conveniently used up to 300 users per day	– de-sludging necessary at least once a year (therefore, close monitoring by ULB necessary) – chances of over-septicization if de-sludging not carried out at the required time intervals – need for multiple septic tanks for 10-seater and 20-seater CTCs – BOD levels higher than permissible levels
Mini-STP	– Re-use of treated wastewater possible for non-human contact purposes – Reduces potable water consumption – Effluent characteristics meet discharge standards – Can be effectively applied in areas where the time horizon for implementation of new sewerage network is large	– Greater requirement of electricity and therefore, susceptible to failures due to the power cuts – Greater requirement of both capital and O&M costs – More suited for local area application wherein a group of CTCs can be connected to one STP – More skilled manpower required to carry out O&M; also, O&M costs higher

Table 4.3 shows the costs of disposal options. Significantly higher capital and O&M costs are required for mini-STP, which is financially not feasible. Anticipated environmental impact and proposed mitigation majors have been outlined in Appendix M. Besides, there is a requirement of skilled manpower for O&M and the electricity consumption is higher warranting the need for stable power supply although the environmental advantage is noteworthy as highlighted in table 4.2

Table 4.3 Costs for Disposal Options

	5 WCs	10 WCs	20 WCs
1. Capital Cost			
(1) Main building	325,250	553,500	1,011,000
(2) Disposal options			
a) Sewer line	25,000	25,000	25,000
b) Septic tank/soak pit	105,000	175,000	315,000
c) Mini-STP	360,000	530,000	785,000
2. O&M Cost			
(1) Main building	4,910	5,525	7,735
(2) Disposal options			
a) Sewer connection	nil	nil	nil
b) Septic tank/soak pit (de-sludging)	350	450	600
c) Mini-STP	6,800	7,400	9,100

4.2.7 Recommendations for Wastewater Disposal

The following wastewater disposal option is recommended based on the comparison for various alternatives outlined in the previous section.

(1) CTCs should be connected to existing/proposed sewer line if nearby sewer is available; and
(2) If not available, then Septic tank/soak pit system is recommended.

4.3 OPERATION AND MAINTENANCE

4.3.1 Alternative institutional arrangements for sustainable O &M

It is important to motivate the affected communities to use the CTCs on consistent and regular basis. For this, it is imperative that the project beneficiaries perceive as well as are convinced about the crucial link between the health of their families and their other problems with the practice of open defecation, and how it can be mitigated by using CTCs.
Since the ULBs are reluctant to undertake responsibilities of O&M of new/refurbished CTCs, the other institutional alternatives for O&M are through/by:

- Private contractors
- NGOs
- CBOs/SHGs

The various options available for O&M of CTCs have been presented in a matrix form in table 4.4 with an analysis of the pros and cons for each option.

Table 4.4 Evaluation of Alternatives for Institutional Mechanism

O&M by	Pros	Cons
Private contractors	• Services offered as a commercial venture; • Private contractors shall ensure that the facilities are well-maintained otherwise the prospective users will not be attracted; • Reduction of financial burden on the Nagar Nigam; • Private contractors have the drive to make profits, which shall result in maximum utilization of resources and harnessing of opportunities to generate higher revenue	• Providing sanitation facilities may not be a very attractive business proposition for private contractors; may not generate adequate profits in some cases; • May demand minimum usage guarantees in terms of number of users; • May not be willing to take up the responsibility of O&M for long-time horizons (e.g. greater than 10 years); • If venture fails, the CTC will suffer, and the situation will return to "square one"
NGOs	• Dedicated to focused community development activities; with profit not being their motive, the NGOs are likely to be more committed than private contractors in situations where there is huge deficit in O & M of CTCs; • Can also be responsible for IEC Programmeme for increasing awareness on the direct link between open defecation and personal health and hygiene	• NGOS may not be able to carry on O & M in case there is a consistent and growing deficit in operation of CTC since most of NGOs do not have surplus income and unfunded activities; • NGOs may see O & M of CTC as commercial activities, though some NGOs, specially Friends of Vrindavan, Vrindavan see this activity as furthering their environmental interventions.
CBOs or SHGs	• Sense of ownership; will ensure optimal utilization; • Self- drive for surplus/ income generation by SHGs shall result in well maintained and working CTCs encouraging maximum usage • Willingness of residents to contribute towards various activities as part of O&M can help build the ownership spirit. • The availability of such ready infrastructure for revenue generation against usages shall attract several SHGs involved in income –generating urban services activities.	• Acceptance level low; Resistance to being associated with cleaning activities in some pockets • Need "hand-holding" over initial year in respect of technical matters such as repair and maintenance works • Lack of homogeneity among the slum dwellers can lead to many members resisting payment of same user charges.

Each of the options has its pros and cons. The former two are already in place for the existing CTCs although in general, the performance is unsatisfactory. The option of creating a CBO or SHG has not been attempted before. However, with CDSs already involved in activities such as savings and loan societies, minor infrastructure works etc., this option can be successfully experimented provided that there is legal and institutional support from all angles - technical and financial. Also, NGOs can be involved in the training and PP/PA activities. The role of women will be vital as they are more susceptible to diseases caused by poor sanitation. Some noteworthy examples of this approach of management of basic urban services in the economically weaker sections of the society by the

community themselves are highlighted in the following paragraph.

In the rapidly-growing city of Pune in Maharashtra, the municipality's commitment to ensure that the poor have access to sanitation has produced a major example of community-driven provision of services. The municipality involved a number of NGOs in reconstructing dilapidated toilet blocks, and work contracts for maintenance of these toilets were given to members of the community. Women play a key role in these activities. This experience is being taken forward in the cities of Bangalore and Mumbai. In Mumbai, the community work of the National Slum Dwellers' Federation, and the Society for Promotion of Area Resource Centres (SPARC) has been recognised as path-breaking by the UN Centre for Housing and Services (Habitat). Working jointly, the two Mumbai organisations have been instrumental in designing and construction of low-cost housing, developing waste disposal systems capable of reducing waste output from slums by up to 70 per cent, designing, constructing and maintaining toilets at very low costs, and sharing their best practices with other countries.

Although no single model of O&M can be applicable to all areas, the above examples demonstrate that community-driven approaches led by women have a far more positive track record than top-down ones.

4.3.2 CBO/SHG setting up

A non-conventional institutional mechanism is sought to be used for realizing the objective of the proposed project. It is suggested that O&M is handled by women-centric SHGs, who also provide urban services as a partner of ULBs. SHGs can handle urban services as an income-generating activity in addition to the usual financial services activities (savings, loan and insurance). The SHGs handle O&M of these facilities and collect levies as mutually agreed by them. Institutional measures are to be assessed based upon their expected contribution to O&M activities.

The mission of the CBO/SHG earmarked for O&M of CTC should be clearly agreed by members. For example, one such suggested mission is “Improvement of quality of lives of Members of Specific area”. The goals and objectives of each such CBO/ SHG should be clearly delineated. These should include the following:-

- Regular and consistent use of CTCs by all its members
- Maintenance of the hygiene conditions and cleanliness in and around CTC.
- Maintenance of CTCs in good and usable condition all the time;
- Generation of Income from CTCs through user charges and other sources to exceed the projected O&M costs of CTCs; and
- Strive to generate surplus through use of CTC

For the finalization of the CBO structure and its institutional set-up, the byelaws shall be prepared along with consultation with stakeholders. The CBO/SHG should select a President, Secretary and a Treasurer. The role of each position should be defined so as to avoid ambiguity and achievement of its objectives.

4.3.3 Capacity Building and Training

The CBOs/SHGs face serious constraints, which are to be identified, and actions taken to overcome them. Careful analysis of constraints is becoming a hallmark of successful community development programmes. The categories of constraints are:

- Poor management skills
- Lack of technical skills related to O & M of CTCs.
- Lack of access to financial resources

The interventions are to be targeted to overcome these constraints. Following table is an indicative list of activities, which may be required for institutional strengthening of the CBOs/SHGs;

CAPACITY BUILDING ACTIVITY LIST

Definition: Capacity-building activities are undertaken to strengthen the institutional capacity of CBOs/SHGs

- Leadership training for board members e.g. conduct of meetings, conflict resolution etc.
- Develop business plans for profitable operation of economic activities like O & M of CTCs.
- Developing linkages with local, state and central government social welfare schemes
- Improving internal administrative and financial procedures (accounting, personnel etc.)
- Role definition and its monitoring
- Determination of user charges and periodic financial reviews
- Defining operating policies (i.e disbursement approvals, use of equipment, collection of user charges etc.)
- Technical capacity-building for O & M and its supervision
- Determination of benchmarks for O & M for periodic review
- Sharing /dissemination of best practices

The capacity building and training for CBOs/SHGs should be organized by NGOs/Consultants. It is recommended that a Training Centre under the auspices of Nagar Nigam in consultation with DUDA or SUDA is planned with the objective of capacity-building of members of CBOs/SHGs as well as all stakeholders. This training centre can also be equipped with a full-scale working model of a CTC (also for daily use at the proposed training centre) to facilitate hands-on training to key members of the CBO responsible for O&M.

4.3.4 Responsible Organization

Currently, several organizations, i.e., Nagar Nigam, SUDA, DUDA, NEDA etc. are implementing LCS schemes. Ideally, one single agency should be made responsible for all aspects of public sanitation to have proper control, integrated planning, implementation and monitoring.

4.3.5 Suggested Institutional Mechanism for Sustainable O & M of CTCs

The implementing agency transfers the responsibility and accountability for sustainable O & M of CTCs / Dhobighats to PMUs in each city. The PMU shall be responsible , inter alia, for the following:-

- Construction and completion of the pilot as well as the main components of the project;
- Involvement of and ownership by communities during implementation of the project;
- Create a community apex institution which shall be responsible for sustainable O & M as well as capacity building institution for the CBOs/SHGs during and after the project is completed;
- Perform necessary monitoring and evaluation functions for successful implementation of the project with full accountability to IAs and funding agencies.
- Responsible for funds allocation and management to Training/Capacity Building Centres/ Apex body for CBOs/SHGs
- Dissemination of information about the project
- Accountable for the specific and measurable project deliverables.

In each city, the PMU shall be headed by Project coordinator with accountability to the concerned Implementing Agency in the city, State department and donor agency. The PMU shall have representation from IA, elected representatives involving affected communities, a representative each from DUDA & SUDA, apex body of CBOs and prominent NGOs known for their contributions for promotion of health and hygiene and environmental work in affected communities.

Initially, A Training /Capacity-building Centre in each city shall be set up through concerted efforts, which shall be responsible for capacity building of CBOs/SHGs during implementation and after completion of the project on self-sustainable basis. This unit shall be headed by a competent and experienced Training Officer with capability to manage capacity-building initiatives. This unit shall also have a community mobilization specialist who shall guide and assist in creation and strengthening the CBOs/ SHGs. During implementation of the project as well as after the project is completed, this unit shall be responsible for continued awareness building, technical and managerial capacity-building as per attached institutional framework.

As the project proceeds towards completion, the management of the Training Centre shall be handed over to a newly created apex body representing CBOs / SHGs. The general body members of this Apex body should have representative from each CBO. The resources created under the project shall also be handed over to the Apex body of CBOs/ SHGs.

It is recommended that this apex body is registered under Society Registration Act. This representative body shall be undertaking the responsibility for sustainable O & M after the project is completed. This unit should be able to sustain itself through mutually agreed contributions from individual CBOs, IAs and other relevant departments responsible for health, hygiene, urban development and poverty alleviations.

4.4 OPERATION AND MAINTENANCE COST RECOVERY

A sustainable O&M cost recovery model is the key to the success of any LCS Programme as capital costs (refer next section) are proposed to be from grant funds in this project.

4.4.1 Cost Estimation

(1) Capital Cost

The capital cost for the Community Toilet Complex with 5, 10 and 20 water closets with alternative design options with regard to water supply and disposal of waste water are summarized in table 4.5.

Table 4.5 Summary of Capital Costs (Indian Rupees)

	5 WCs	10 WCs	20 WCs
Main building			
(I) Civil works	289,000	481,000	866,000
(II) Electrical works	18,250	36,500	73,000
(III) Storage tank	18,000	36,000	72,000
Total	325,250	553,500	1,011,000
Water supply options			
(a) Jal Sansthan	25,000	25,000	25,000
(b) Bore well with pump	60,000	60,000	60,000
Disposal options			
(a) Sewer line	25,000	25,000	25,000
(b) Septic tank/soak pit	105,000	175,000	315,000
Capital cost summary by disposal option			
(A) JS Water			
(I) Sewer connection	353,000	583,500	1,037,000
(II) Open drain with septic tank/soak pit	458,000	758,500	1,352,000
(B) Bore Well			
(I) Sewer connection	413,000	683,500	1,217,000
(II) Open drain with septic tank/soak pit	518,000	858,500	1,532,000
Average Capital Costs	445,250	708,500	1,236,000

(2) Operation and Maintenance Cost

The O&M costs for a CTC comprise costs related to electricity charges, cost of cleaning chemicals, salary and wages for the supervisors, attendants and sweepers, repairs/replacements due to normal wear-and-tear etc. Among all the cost heads, the main components are wages and electricity. The O&M cost for the Community Toilet Complex with 5, 10 and 20 water costs with septic tank and soak pit are summarized in table 4.7. In table 4.6, cost recovery from users is also estimated. Users of 5, 10, and 20-seater CTC have to pay Rs.276, Rs.161 and Rs.102 per family per month respectively. These amounts do not consider any subsidization such as exemption from paying electricity charges or de-sludging of septic tank.

Table 4.6 Operation & Maintenance Cost Estimate (INR per month)

Description	5 WCs	10 WCs	20 WCs
Manpower	5,000	5,000	5,000
Chemicals	300	500	900
General Maintenance	300	500	900
Electricity	945	1,575	2,835
Desludging for septic tank	350	450	600
Total	6,895	8,025	10,235
*Cost per family per month	276	161	102
*Cost per person per month	46	27	17
*Cost per person per day	1.53	0.89	0.57

*As can be observed from the above table that the cost per family/ person is on much higher side without any subsidization. The amount has been derived assuming utilization of CTCs at the rate of 30 persons per seat. The average household size has been taken as 6.

4.4.2 O & M Cost Recovery

(1) Affordability

According to the preliminary survey, the average family monthly income is estimated at around Rs.2210. Generally, 2 to 4 per cent of the income (5 per cent maximum) can be spent for sanitation. Assuming 3 per cent of income can be spent for sanitation, affordable monthly charge for CTC would be around Rs.70 per household.

(2) Number of users

While working out the design, it is assumed that one seat will not be able to serve more than 30 persons as most of the users in slum areas use CTCs during two to three hours in morning and/or late evening. It is needless to say that CTCs in slum areas can not be compared with those in public places where the users turn up during all hours of the day. The average household size has been taken as 6.

(3) Cost Recovery Measures

Sustainability of the project will depend on the cost recovery models. In this project, the facilities are provided by the government and O&M costs should be recovered by users and local bodies. To recover the costs the following alternatives are studied.

Alternative 1: All the costs are recovered through user fee
Alternative 2: Electricity charge and sludge disposal are covered by the Nagar Nigam
Alternative 3: Alternative 2 plus 50 per cent of the cost of caretakers is provided through community labour

The following cases of user fee are studied.
Case 1: Rs.30 per family (1 adult in a family pays Re. 1 per day and children are free)
Case 2: Rs.60 per family (2 adults in a family pay Re. 1 each per day and children are free)
Case 3: Rs.90 per family (3 adults in a family pay Re. 1 each per day or 2 adults in a family pay Rs.1.50 each per day and children are free)

The results of financial analysis are presented in Table 4.7.

Table 4.7 Cost Recovery Financial Analysis –CTCs

User Charge Cases		Alternative A			Alternative B			Alternative C		
	Number of WCs (seats)	5 Seater	10 Seater	20 Seater	5 Seater	10 Seater	20 Seater	5 Seater	10 Seater	20 Seater
	Monthly O & M Costs	6,895	8,025	10,235	5,600	6,000	6,800	3,100	3,500	4,300
Case 1	Cost Recovery @ **Rs. 30** per family per month	750	1,500	3,000	750	1,500	3,000	750	1,500	3,000
	Surplus/ (Deficit) required from other sources	(6,145)	(6,525)	(7,235)	(4,850)	(4,500)	(3,800)	(2,350)	(2,000)	(1,300)
	% Surplus/(Deficit)	(89)	(81)	(71)	(87)	(75)	(56)	(76)	(57)	(30)
Case 2	Cost Recovery @ **Rs. 60** per family per month	1,500	3,000	6,000	1,500	3,000	6,000	1,500	3,000	6,000
	Surplus/ (Deficit) required from other sources	(5,395)	(5,025)	(4,235)	(4,100)	(3,000)	(800)	(1,600)	(500)	1,700
	% Surplus/(Deficit)	(78)	(63)	(41)	(73)	(50)	(12)	(52)	(14)	40
Case 3	Cost Recovery @ **Rs.90** per family per month	2,250	4,500	9,000	2,250	4,500	9,000	2,250	4,500	9,000
	Surplus/ (Deficit) required from other sources	(4,645)	(3,525)	(1,235)	(3,350)	(1,500)	2,200	(850)	1,000	4,700
	% Surplus/(Deficit)	(67)	(44)	(12)	(60)	(25)	32	(27)	29	109

Notes:
1. Revenue alternatives
Alternative A: All the costs are recovered through user fees
Alternative B: Electricity charges and sludge disposal are covered by Nagar Nigam
Alternative C: Alternative 2 and 50 per cent of the cost of care takers is provided by community labour
2. User charge cases
Case 1: Rs. 30 per family (1 adult in a family pays Re. 1 per day and children are free)
Case 2: Rs. 60 per family (2 adults in a family pay Re. 1 each per day and children are free)
Case 3: Rs. 90 per family (3 adults in a family pay Re. 1 each per day or 2 adults in a family pay Rs.1.50 each per day and children are free)
3. : Financially feasible option

The following alternatives and cases are financially feasible.
20 WCs CTC
Cost Recovery @ **Rs. 60** per family per month;
Electricity charges and sludge disposal are covered by Nagar Nigam; and
50 per cent of manpower costs (caretaker) is covered through community labour.
Or
Cost Recovery @ **Rs. 90** per family per month; and
Electricity charges and sludge disposal are covered by Nagar Nigam.
10 WCs CTC
Cost Recovery @ Rs. 90 per family per month;
Electricity charges, and sludge disposal are covered by Nagar Nigam; and
50 per cent of manpower costs (caretaker) is covered through community labour.
5 WCs CTC
No alternatives and cases are feasible.

4.4.3 Conclusions and Recommendations

- Cost recovery at prevailing monthly rates of Rs. 30 per family are totally un-remunerative as they do not even cover subsidized costs for all types of CTCs.
- A minimum charge of Rs. 60 per household per household (20-seater CTC) is required to be levied for sustainability.
- 5-seater CTCs are not viable from the point of sustainability of O&M, and therefore not recommended.
- Part of the costs - electricity costs and sludge disposal costs should be borne by the Government considering the social and environmental importance of this project.
- Part of the manpower costs for caretakers should be shared through community involvement such as contribution in carrying out regular O&M works.
- Manpower costs should be minimized by sharing of O&M activities through allocation of duties amongst the members (of the CBO) on voluntary basis.

It is further recommended that full cost recovery of O&M can be facilitated through the following policy interventions:-

- Strict and disciplined enforcement of regulations by ULBs against defaulters in respect of defecation at places other than CTCs; and
- Imposition of market induced user charges and generation of income from other sources by the CBOs/ SHGs as part of their income-generation urban services activities such as

-User charges per visit from non-community members;
-Income form hoardings/ advertisements from private parties;
-Community mobilization charges from local, state and central development agencies

4.5 SOCIAL AND ECONOMIC BENEFITS

This section deals with the social and economic benefits of community toilet complexes.

According to the World Health Organisation (WHO) and the United Nations Children's Fund's (UNICEF) Global Water Supply and Sanitation Assessment 2000 Report, 2.4 billion people did not have access to any sanitary means of human waste disposal. The consequences are devastating. This is a major cause of diarrhea and disease, which claims 2.2 million deaths annually, many of them young children as per Gender and Water Development Report 2003.

Providing access to sanitation facilities, though relatively inexpensive, could halve the death toll among those who do not currently enjoy this fundamental human right. The incidence of infectious diseases is four times higher in India than in China, despite India's higher per capita expenditure on health. In India, millions of people live in slums and squatter settlements that are latticed by ditches clogged with faeces, rubbish and fetid water.

This project shall generate intangible benefits that are more difficult to express in monetary terms. These benefits can be conveniently classified in the following groups:

(1) Environmental benefits:

The construction of all CTCs envisaged under the project is expected to reduce the pollution indirectly caused by open defecation. The project shall generate important health benefits and positive environmental externalities. This project also targets poverty reduction through raising the living standards of the poor and environmental protection and improvement. The surrounding areas for the local communities are likely to improve with the absence of incidence of open defecation.

(2) Economic Benefits:

Economic benefits include productivity gains, secondary economic benefits and developmental impact due to improved health and lower incidence of water –borne diseases. This project shall ensure access to quality services for the urban poor and the affected communities at affordable prices. Besides, the project shall provide self-employment and income-generating opportunities to several community members especially women members of Self-help Groups.

(3) Health-related benefits:

Experience shows that inadequate water and poor sanitation aggravates poverty in urban areas, as the poor are forced into a vicious cycle where they have to spend their limited resources on health-care to treat water-borne diseases, a major cause of mortality and morbidity throughout India. This project is expected to reduce the incidence of diarrhoea resulting from poor sanitation and hygiene and responsible for the death of impoverished children each year in the communities;

(4) Social or equity benefits:

These include gender, regional and income-related equity. Where there are no toilets, girls commonly avoid school; without access to toilets women and girls must wait until it is dark to defecate, exposing themselves to harassment and sexual assault. In an era of increasingly competing demands for water and other resources and services, the key is de-centralized management, especially by women's groups. This project shall empower the women's groups and assist in improved earnings for the communities.

(5) Institutional benefits:

The project is expected to strengthen the CBOs/SHGs through capacity–building in areas like financial management and contract management, and lead to empowered community organizations;

4.6 IMPLEMENTATION OF PROPOSED PROGRAMME

4.6.1 CTC requirements

(1) Estimation of number of Community Toilets Complexes required

Need assessment for toilets in slums in Lucknow has been carried out on the basis of findings of the primary survey and data from JICA Study Reports, DUDA and Nagar Nigam. The requirement for CTC has been calculated for the population practicing open defecation combined with willingness to pay for the usage of CTC facility. As per the analysis of primary surveys, 26 per cent of the respondents practice open defecation in Lucknow, which is the target group for which CTCs have to be proposed for restricting open defecation.

One Rupee per usage has been considered as a benchmark for calculating the willingness to pay for a sustainable O&M model for CTCs. It has been found from the primary surveys that about 32 per cent of the target is willing to pay Re. 1 or more per usage. Total slum-wise population for Lucknow has been updated based on information from various secondary sources including Nagar Nigam and DUDA data. One seat for every thirty persons has been considered as norm for calculating the number of seats required for the target group. The proposed CTCs have been categorized into two categories - 10 seater and 20 seater, which for Lucknow has been calculated as 120 and 24 respectively adding up to a total of 144 CTCs for Lucknow city. The slum-wise CTC requirement for Lucknow city has been provided in Appendix K.

(2) Rapid Survey for Availability of Land and Utilities for CTCs

To confirm land availability and existing utilities (water supply, electricity and wastewater disposal) near the proposed site for CTC, a rapid sample survey to collect the following information was conducted. The questionnaire is attached in the annex.

- Approximate population
- Existence of CTC
- Proposed sites for CTC (250 Sq mtr in case of 10 seats)
- Current status of the land
- Current source of water supply in the slum
- Electricity supply
- Wastewater disposal
- Site map

Out of 46 slums selected for the preliminary survey for slum conditions, current usage of CTC, needs for CTC etc., 21 slums that expressed high demand for CTC were selected for the rapid survey. The results of the survey confirmed that adequate lands are available in 17 slums. The results of the survey are attached in the annex.

4.6.2 Programme Implementation Strategy

(1) Project Implementation Concepts

As highlighted earlier, the foremost constraint with regard to CTCs is O&M activities. The O&M by private contractors and NGOs are already in place for the existing CTCs although in general, the performance is unsatisfactory.

The proposed LCS programme to improve slum sanitation adopts a needs-driven and community-driven approach in planning, implementing, operating and maintaining CTCs and it is proposed that the O&M of CTCs is facilitated through local CBOs/SHGs. However, the creation of a CBO/SHG for O&M of CTCs has not been attempted before. Therefore, the JICA Study Team recommends that a pilot project to manage CTC through CBO be implemented and a good example or model for O&M of CTC be created before implementing full-scale project. This model project can then be extended to full-scale projects.

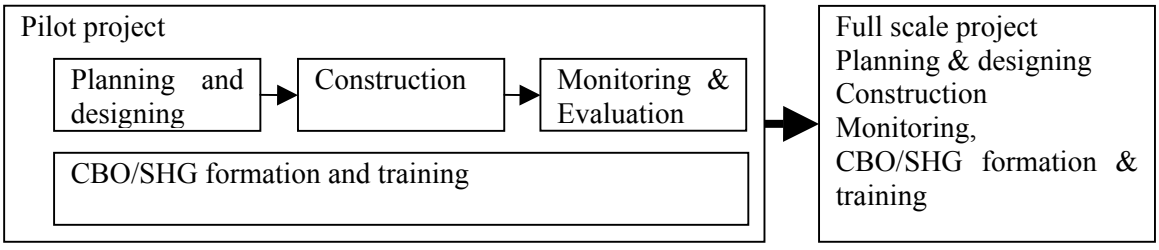


Figure 4.1 Programme Implementation Strategy

(2) Institutional Setting Up for Monitoring

The proposed institutional set-up is graphically presented in Figure 4.2. Nagar Nigam being the main body responsible for health and hygiene should regularly monitor the functioning of the CTCs within Municipal limits. It should interact with the coordination committee, which should consist of elected members of the community and representatives of the Health Officer of the Nagar Nigam. This committee will discuss the problems of the community in respect of the CTC(s) in an area and try to solve them. This will also provide an opportunity to the Nagar Nigam to obtain feedback on the experience of the community supervisors of the respective CTCs. Each CTC will be supervised by the community itself, while the O&M will be done by members/volunteers from the community. Supervision and monitoring can be also carried out through Women Watching Groups (WWGs). These monitoring activities will have to be carried out in coordination with the proposed activities of Public Participation and Awareness for non-sewerage schemes, which is discussed in the separate chapter of this report.

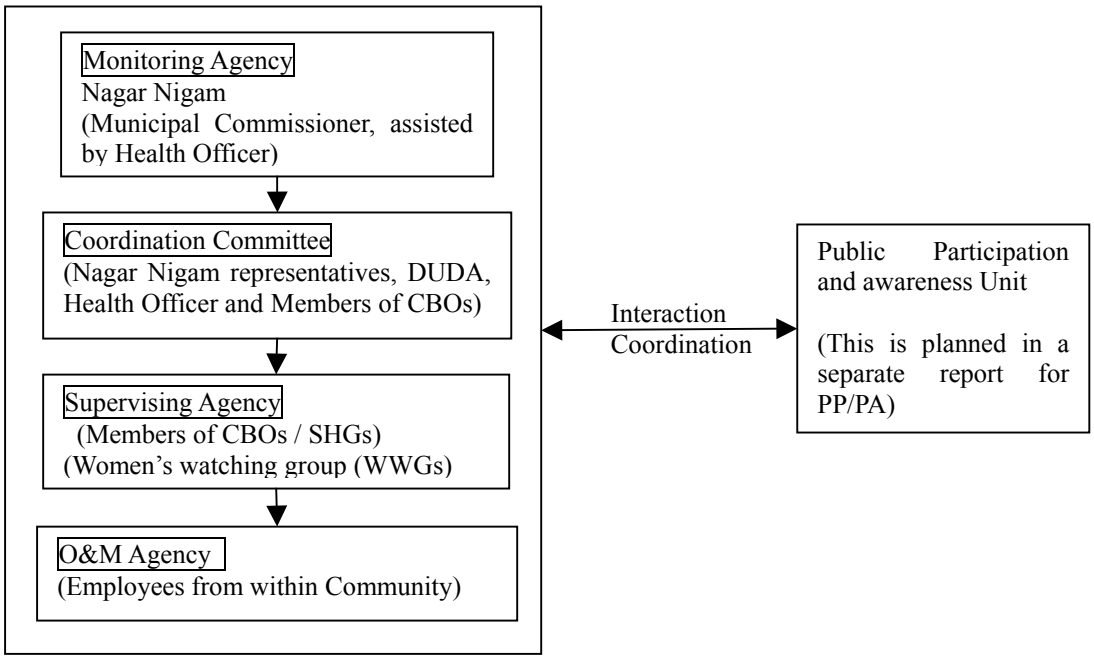


Figure 4.2 Proposed Institutional Set Up for CTC Monitoring

(3) Programme Monitoring

After completion of construction of the CTC and setting up the required institutional framework, the pilot has to be monitored regularly to test the efficacy of the proposed system, the community response etc. It must be allowed some time to enable the assessment of its full impact and PP/PA exercise must continue in full vigor. Any meaningful evaluation would be available only after a few months. The monitoring and evaluation of the pilots will provide the basis for judging the suitability for replication. The evaluation of performance should be done against a checklist and anticipated responses. The deviations will need to be carefully recorded and appraisal carried out. It is quite possible that the feedback received from the two pilots will be different. This will provide a sound basis for assessment. The common short comings noticed can be kept in view for corrective actions in full scale projects. Variations in the findings of the two pilots will need to be examined with reference to their specific locations, which in turn will provide insight into the kind of expectations the different communities might have. This would form the starting point for making changes for specific locations.

(4) Programme Implementation Procedure

The proposed Programme will be implemented through following steps.

- Step 1: Slum Survey
- Step 2: Creation of CBOs/SHGs
- Step 3: Planning and designing
- Step 4: Selection of location of CTC including land acquisition clearance
- Step 5: Construction
- Step 6: Training of CBOs/SHGs
- Step 7: Operation & Maintenance
- Step 8: Monitoring, Evaluation and Learning
- Step 9: Feed back

Following information in slums will be required for detailed planning of CTC facility and O&M:
Socio-economic situation (population, number of household, average wage, etc)

- Existing infrastructure
- Existing water supply mode and its status
- Existing sanitation mode and its status
- Need for CTC, willingness to pay, willingness to participate
- Health standards
- Housing and availability of land
- Characteristics of the community
- Awareness level

Following information collection tools are proposed for surveys:

- Secondary data collection
- Questionnaire survey
- Focus group discussion (FGD)
- Mapping
- Transect walk
- Workshops

(5) Operation and Maintenance Plan

Considering the O&M costs in light of the poor capacity of the users to pay for the services, the ULB and the CBO/SHG should jointly share the responsibility to "run" the CTC. The local body should subscribe to the deficit amount after accounting for the resources that can be generated through contributions from the beneficiaries.

The day to day O&M can be entrusted to CBO. In any case, the local community should be involved in O&M as a monitoring and evaluation body.

Guidelines for the following are annexed at A.15:

- Supervision of construction
- O&M
- Users of the CTC
- Monitoring and Evaluation of O&M by ULB

(6) Public Participation and Awareness for LCS Programme[2]

The Consultants recommend that the proposed IEC programme is carried out by CDSs/"Samudai Vikas Samitis" with the close assistance of Nagar Nigam in three phases as a process running parallel

[2] PP/PA programme for Non-sewerage scheme and its project cost estimation are also discussed in Part III, Public Participation and Awareness.

to the proposed pilot projects. The involvement of voluntary groups and school children will also be vital. The particulars mentioned in the following sections refer primarily to LCS programmes, although the basic structure of PP/PA framework can be used, with certain modifications for the constructed Dhobighats.

Inculcating the sense of ownership and ensuring proper operation and maintenance are key to meeting the stated objective of cleaning Ganga and her tributaries; The ultimate objective of the PP/PA programme should be to raise the consciousness to a level where inhabitants begin to demand their rights and carry out their duties without external impetus and move towards a regime of self-help.

With more and more migration of the rural poor expected to take place in the future in search of a livelihood, the habit of open defecation may continue even after adequate toilet facilities are created in different areas. Therefore, there is a need for propagating the hygiene virtues, making PP/PA a continuous process and it should begin with young children - best way to educate is to catch them young - and women.

Phase I – Awareness for needs and design (Pre-Construction Phase)

Inception Workshops should be organized at the community level to explain the objective and benefits of the LCS programme. Workshops should clarify roles and responsibilities of different stakeholders, and the key elements of the LCS programme such as the lay-outs, construction material, and importance of treatment of waste water before disposal, and O&M issues, akin to an "orientation" programme. Topics should be designed in a manner that they encourage participation of all sections of the stakeholders. The target group would include persons of all age groups, women and children; vulnerable sections must be given special attention. The programme should cover the following aspects:

- Problems of arising from "un-sanitary" conditions, such as adverse impact on health and the vicious cycle of poverty, pollution and ill-health.
- Initiatives that would help in improving the living conditions through improved sanitation i.e. long term benefits of health , better earnings and living standard;
- The need to keep one's environment clean.
- Rationale behind the proposed action plan must be explained and their objections and fears looked after. The inputs received from the community can form the basis of initiation and content of PP/PA programme.
- After the initiation, different groups may be formed to enable special job-oriented training being imparted to the persons selected for various tasks such as manager, operator and office bearers of the CBO.

Community-Based Organizations (CBOs) would need representation of both the elders/community leaders, who are looked up to as well as the youth for guiding them to the path of better living. CBOs are expected to not only function as managers of CTCs, but also as multipurpose societies. One of the major objectives may be to act as credit societies, which can help setting up small business as avenue for income generation. CBOs can involve some of the semi-trained/trained residents, and pay them service charges for routine management and maintenance work. Those at lower rung of ability and education can be appointed for cleaning, gardening and other simple activities and earn a reasonable income.

Phase II - Training - a participatory approach (Construction Phase)- 2 months

This phase runs parallel to the construction phase, and continues after the construction activities are completed, wherein people's participation in the entire process is further encouraged or strengthened by stressing on issues related to hygiene, "right" sanitation practices etc. This will focus on training of trainers -mostly community workers. They should be given special orientation in PR work and

behavioural aspects of communities and hands on training for use of various training tools. This training should ideally be imparted by experts in group psychology and organisational behaviour. It will involve:

- Formation and training of women's groups - recent success stories have shown that women play an important role in the creation of Self Help Groups (SHG);
- Audit of CTC construction;
- Developing CTC not merely a place for public "conveniences", but as a centre of community activities with various allied facilities such as a community centre with some basic recreation facilities, landscaping etc.;
- Environmental education for school children;
- Hygiene assessment and "collective" action.

This phase could also be utilised for selection of managers, operators from among the literate/educated members and formation of formal CBO.

Phase III - Final Phase (Operation and Maintenance)- 5 months

This phase should have a separate module for prospective managers, operators and supervisors etc. training would include lessons in running repairs, trouble shooting, efficient O&M practices, simple account keeping , handling of chemicals and cleaning agents and approach to improving ambience. They should also be given insight into topics like water /hydrological cycle and need to conserve water, water borne diseases, causes and their prevention, cost benefit aspects of sanitation, environmental issues and ambience of neighborhood.

It is expected that by the time the third phase begins, the construction process of CTCs would either be near competition or would have been completed in certain areas. For the community as a whole, Phase III should be treated as a continuation of PP/PA programme and cover, inter alia, formal and informal education, vocational training to help setting SMEs, or jobs in them; issues like housing and development, drainage, electricity, water, rights and duties leading to empowerment and welfare possibilities and gender bias. The emphasis of this phase would be on the following aspects:

- Maintaining cleanliness of CTC;
- Prudent usage and conservation of water;
- "Dos and Don'ts" of using the sanitation facilities;
- Need to assist O&M regime;
- Be role model for other communities.

This section relates to mechanisms in assessing the various components of the ongoing programme to ensure effectiveness and efficiency.

(7) Monitoring, Evaluation and Learning (MEL)

LCS Programme

Based on the guidelines suggested in this report, the implementing agency should develop a mechanism for MEL considering the following aspects:

- It has to be an ongoing process – assess the situation, analyze it, take corrective measures where necessary and record the same as part of the lessons learnt;
- Follow-up on the above to ensure that the members of the CBO are learning from successes and mistakes;
- Implementation plans should be prepared on an annual basis; the process should incorporate quarterly, half-yearly and annual assessments besides regular fortnightly visits to enable trouble-shooting; the intermediate assessments will also facilitate revisions to the implementation plan wherever necessary;
- The reports should be delivered to the responsible departments/agencies at city/district/state government/central government levels as well as the funding agency;

this process will facilitate any initiatives that may become necessary at legal or policy levels;

Table 4.8 Items to be Monitored

Data requirement	Frequency of data collection	Data collectors
Increase/decrease of number of households using CTCs	Quarterly report	CBO/SHG
Power supply	Monthly report	CBO/SHG
Water usage	Monthly report	CBO/SHG
Presence of caretaker any time of the day	Monthly Women's watch group report (WWG)	CBO/SHG
Regular presence of cleaner	Monthly Women's watch group report	CBO/SHG
Odor	Monthly Women's watch group report	CBO/SHG
Willingness to pay for use	Payment register	CBO/SHG
Recurring Monthly maintenance expense	Stock register	CBO/SHG
Maintenance of stock register for cleaning material	Random cross-checking	Implementation Agency (CBO/SHG)
Monthly internal review meetings to assess the situation of operation and maintenance		Implementation Agency (CBO/SHG)
Quarterly review meetings to assess the situation of operation and maintenance		Local body, Community representatives
Corrective actions taken	Monthly reporting internal and external as appropriate	CBO/SHG

Public Participation and Awareness

The implementing agency should develop a monitoring and review system in order to make an ongoing assessment of the programme and take action where necessary. Stepping back from time to time will allow the facilitators to ask questions and ensure that they are learning from successes and mistakes. In this context, annual planning, regular monitoring and reporting, assessment, annual and mid-term reviews, and programme revision, if appropriate, are important management tools.

The project activities – PP/PA which are for a fixed period of one year should be evaluated mid term and end term. The programme should be evaluation as per the objectives of the project. Table given below provides an indicative list of indicators for evaluation of PP/ PA programme :

Table 4.9 Items to be Monitored and Evaluated for PP/PA programme

Effect	Indicators
Improvement in general health	• Money spent on medications/ physicians for health problems related to vector and water borne disease.
Higher level of awareness on health and hygiene in comparison to the situation before the PP/PA	• Increased demand for CTCs • Increased demand of IHLs • Decrease in open defecation • Increase in water consumption for personal hygiene. • Demand for bathing facilities • Concern over general hygiene conditions among family members
Increased awareness, knowledge about environmental conservation.	• Decrease in littering • Decrease in burning leaves and garbage • Increase in burial of biodegradable waste • Decrease in wastage of water • Decrease in cutting of trees
Improvement in general cleanliness of habitat	• Decrease in disposal of garbage in drains • Alternate garbage disposal mechanisms. • Cleaner pavement • Decrease in use of open drains as urinals and toilets • Restricted movement of cattle (if any) • Decrease in littering of food waste
Higher demand of Municipal support	• Spraying of insect repellant • Regular lifting of garbage • Sweeping of lanes • Clean water supply • Cleaning of Septic tanks and sewer (if any) • Reporting municipal irregularities to higher authorities
Reflection of higher self esteem among women	• Increased demand for IHLs/CTCs • Demand for adequate bathing facilities resulting in privacy
School children as agents of change	• Averse to open defecation • Propagation of ill effects of the same at home • Developing of hygienic habits • Trying to inculcate the same among family members and peer group • Sensitive to apathy towards health and hygiene issues
Elderly as guardian of society	• Active participation in awareness campaign. • Act as opinion leaders during social functions • Influence children to develop hygienic habits

(8) Requirements for Feasibility of CTC Programme

The evaluation of feasibility of setting up a CTC at a particular location is proposed on the basis of a feasibility matrix that will consider the following factors:

- Availability of land
- Sewage (waste-water) disposal system
- Water supply
- Electricity supply

To identify and evaluate the above factors, and promote planning and training, consultants/ NGOs should be hired for the following purposes:

- To assist finding needs and demands
- To plan and design facility

- To assist forming CBO/SHG
- To train CBO/SHG
- To assist monitoring and evaluating CTC Programme

(9) Feasibility Matrix

The feasibility matrix evaluates the feasibility of setting up a community toilet complex (CTC) at a particular location on the basis of the factors mentioned hereinabove. By allotting a maximum feasibility score of 5 to each of four factors (as underlined), a scale from 0 to 20 evaluates the feasibility of the proposal to determine whether the project is immediately feasible (high priority), feasible after taking certain specific actions (medium/low priority depending on the length of time required to take the suggested actions), and un-feasible. The following examples illustrate this categorization:

- A clear space without any encumbrances and belonging to the project implementation agency satisfying the area and distance criteria (see table) is allotted a maximum feasibility evaluation score (FES) of 5. Waste water disposal into the existing underground sewerage or open storm water drainage system will respectively contribute 5 and 4 points to the FES. Provision of bore-well for water supply and back-up generator facility will contribute 3 points each to the maximum feasibility score. This leads to a total score of 16/15 points out of 20.
- If the land identified is in the realm of private ownership and is not free from encumbrances, then the practical difficulties involved in acquiring such a piece of land render the location un-feasible, and obviate the need to evaluate the other feasibility factors. In fact, the key factor is availability of land while the other hindrances can be tackled by making suitable investment decisions.

The immediate feasibility (high priority) of the proposed CTC can be considered if the minimum contribution of each feasibility factor to the FES is as follows subject to a total minimum score of 13:

- Availability of land = 4
- Sewage disposal system = 3
- Water supply = 3
- Electricity supply = 3

The medium/low priority projects will require a minimum score of 8 and can be considered as feasible if the minimum contribution of each feasibility factor to the FES is as follows:

- Availability of land = 1
- Sewage disposal system = 2
- Water supply = 3
- Electricity supply = 2

The matrix outlined in Appendix P is primarily a decision making tool, and is expected to be applied once the need-and-demand assessment has been completed. It is recommended that those areas, wherein residents demonstrate a greater desire to self-manage the CTCs, and willing to pay user charges should be accorded high priority.

4.6.3 Total Programme Cost of Proposed Community Toilets Complexes

The total capital costs for proposed CTC for Lucknow has been calculated as Rs. 114.7 million, the details of the same are given in the following table.

Table 4.10 Cost Details of CTCs Required for Lucknow City

Type of CTCs	Cost per CTC(In Rs)	No of Proposed CTCs	Total Cost(In Rs)
10 Seater	708,500	120	85,020,000
20 Seater	1,236,000	24	29,664,000
Total Capital Cost			114,684,000

4.6.4 Implementation Schedule for CTCs

The estimated total project duration, including planning/design and construction phases is six months. However, it is expected that the MEL activities will span a longer period of time. The details of the implementation schedule are given in the following table:

Table 4.11 Proposed Implementation Schedule

Activity	Month							
	1	2	3	4	5	6	7	8
1. Need survey								
2. Identification of location for CTC								
3. Detailed Design & Engg Studies								
4. Construction								
5. Evaluation								
6. CBO formation and PPPA activities								

Note: CBO formation and PPPA activities are planned in the different volume of the report.

4.6.5 Preliminary Implementation Cost for CTCs

Based on following assumption, the total project costs with a yearly break-up (2007-2011) is presented in table below. Total project implementation cost will be Rs.144 million.

- The project duration is 5 year staring in 2007;
- Physical contingency is 5 per cent of the capital cost;
- Consulting and engineering costs is 10 per cent of the capital cost;
- Project Administration costs is 10 per cent of the capital cost;

Table 4.12 Total Implementation Cost with Yearly Break-up

Lucknow	2007	2008	2009	2010	2011
	Pilot Project				
10 Seater	0	30	30	30	30
20 Seater	2	6	6	6	4
Capital Costs	2,472,000	28,671,000	28,671,000	28,671,000	26,199,000
Physical contingency (5%)	123,600	1,433,550	1,433,550	1,433,550	1,309,950
Consulting & Engg Costing (10%)	247,200	2,867,100	2,867,100	2,867,100	2,619,900
Project Administration Costs (10%)	247,200	2,867,100	2,867,100	2,867,100	2,619,900
Total	**3,090,000**	**35,838,750**	**35,838,750**	**35,838,750**	**32,748,750**
Grand Total					**143,355,000**

4.6.6 Pilot Project

Based on the baseline surveys and need assessment, Consultants have identified two possible locations where pilots can be considered. These locations are:
a. Bangla Bazaar
b. Khandari Bazaar

(1) Proposed Pilot Project Site : Bhadrukh in Bangla Bazaar in Saleh Nagar

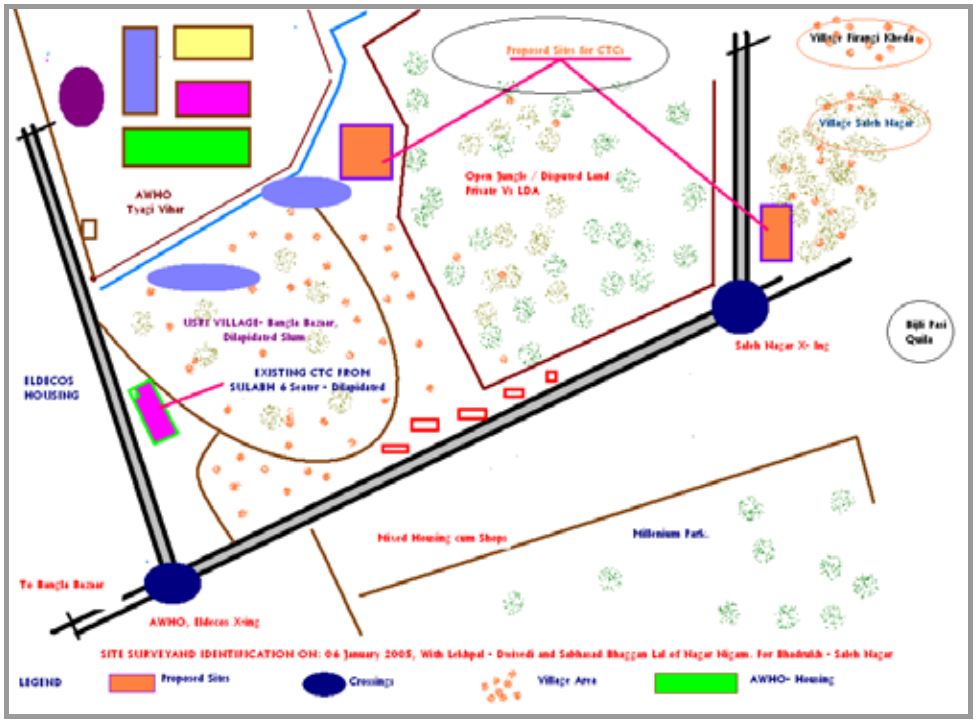


Table 4.13 Feasibility Matrix for Bangla Bazaar Pilot Project

Feasibility Factor	Maximum Feasibility Evaluation Score (FES)	Check List	Existing Status	Proposed Action
CTC Needs		• Population • Needs	• About 15000 • Needs was confirmed.	• Planning Basis
Availability of Land	5	• Ownership of the space or area identified • Land free from all encumbrances • Adequacy-of-area criterion – adequacy of space for the construction of a community toilet complex (CTC) comprising the number of toilet seats determined on the basis of demand-and-need analysis • Farthest-distance criterion – the distance between the farthest dwelling unit in the area covered by proposed CTC does not exceed 500 metres	• Land belongs to DUDA/Nagar Nigam • 5000 sq. feet is available • CTC proposed at the present open ground used for defecation or, at the location of the existing Community Centre; Build a two-storied structure with a CTC at the ground floor level and the community centre at the first floor level, • The two criteria of adequacy-of-area, and farthest-distance are satisfied	• Allot 5 points to the FES • Proceed to evaluate the next feasibility factor
Sewage (waste-water) disposal	5	• Location of the closest point on the existing sewerage system • Location of the closest point on the existing open storm water drainage system • Soil conditions and ground water status	• The cost of construction of an on-site waste-water disposal system is lower than the cost of laying a sewer line as no sewerage system exists within the area	• Evaluate the feasibility of setting-up an on-site waste-water treatment and disposal system considering the existing soil and ground water conditions
			• Existing soil and ground water conditions considered suitable for setting-up an on-site waste-water treatment and disposal system comprising a septic tank and a soak pit	• Choose the option of on-site waste-water treatment and disposal system comprising a septic tank and a soak pit • Allot 3 points to the FES • Proceed to evaluate the next feasibility factor
Water and Electricity Supply	5, 5	• Availability of water either through piped supply or through bore-well • Availability of electricity through normal city supply or diesel generator set	• Piped water supply or hand pump is available, but not adequate • Adequate electricity supply (full time) is available	• Provide for bore-well and pumping arrangements to supplement piped water supply; Allot 4 points to the FES • Allot 5 points to the FES • Allot 5 points to the FES

The feasibility evaluation shows a score of 18, which points to high priority and can therefore be taken up. According to the primary survey, the number of WCs (seats) required in the CTC is 20.

(2) Pilot Study Site: Khandari Bazaar

With the Help of Lekhpal Mr. RS Dwivedi and Sabhasad Mr. Bhaggan Lal of the area, two locations have been identified for the construction of CTC with respect to Saleh Nagar consisting of USRI Village the targeted area for intervention. One more site has been identified with respect to Bangla Bazaar in Bhadrukh Village where two EWS plots no: 248-249 in Ravi Khand, Eldecos Housing has been specially earmarked to construct a CTC and thus it will cater to the Population of whole of Bhadrukh Village and EWS housing of Ravi Khand. The above plots are not available then a Gram Samaj land consisting of pond is lying vacant adjacent to the above plots can be taken up for the construction of CTC for Pilot Project. The Khasra (cedestrial map) for the Bangla Bazaar site has been given below. (Date of Site Survey 06 – 01- 2005)

Khandari Bazaar has an existing CTC which is in dilapidated condition and the site can be used for reconstruction of CTC.

These locations have been short listed according to the need assessment and willingness to pay discussed in earlier Chapters of the report.

Table 4.14 Feasibility Matrix for Khandari Bazaar Pilot Project

Feasibility Factor	Maximum Feasibility Evaluation Score (FES)	Check List	Existing Status	Proposed Action
Availability of Land	5	• Ownership of the space or area identified • Land free from all encumbrances • Adequacy-of-area criterion – adequacy of space for the construction of a community toilet complex (CTC) comprising the number of toilet seats determined on the basis of demand-and-need analysis • Farthest-distance criterion – the distance between the farthest dwelling unit in the area covered by proposed CTC does not exceed 500 metres	• Land belongs to DUDA/Nagar Nigam • CTC proposed at the present open ground used for defecation • The two criteria of adequacy-of-area, and farthest-distance are satisfied	• Allot 5 points to the FES • Proceed to evaluate the next feasibility factor
Sewage (waste-water) disposal	5	• Location of the closest point on the existing sewerage system • Location of the closest point on the existing open storm water drainage system • Soil conditions and ground water status	• The sewerage system exists in the area	
			• Existing soil and ground water conditions considered suitable for setting-up an on-site waste-water treatment and disposal system comprising a septic tank and a soak pit	• Choose the option of on-site waste-water treatment and disposal system comprising a septic tank and a soak pit • Allot 5points to the FES • Proceed to evaluate the next feasibility factor
Water and Electricity Supply	5, 5	• Availability of water either through piped supply or through bore-well • Availability of electricity through normal city supply or diesel generator set	• Piped water supply is available, but not adequate • Adequate electricity supply is available	• Provide for bore-well and pumping arrangements to supplement piped water supply; Allot 4 points to the FES • Allot 5 points to the FES

The feasibility evaluation shows a score of 20, which points to high priority and can therefore be taken up. According to the primary survey, the number of WCs (seats) required in the CTC is 20.

CHAPTER 5

CONSTRUCTED DHOBIGHAT PROGRAMME

CHAPTER 5 CONSTRUCTED DHOBIGHAT PROGRAMME

5.1 PLANNING AND DESIGNING

5.1.1 Key Planning Factors

The findings of the primary survey and the lessons learnt thereof on the existing scenario of traditional/constructed Dhobighats in Lucknow identifies the shortcomings in the ongoing construction Dhobighat (DG) programme, the constraints faced with regard to design and O&M and the key factors that have to be considered for successfully implementing a constructed DG programme involving construction of new Dhobighats/rehabilitating the existing ones.

Key Factors
- The demand-and-need assessment for the facility(ies)
- Collective ownership for O&M with clear cut formulation of roles and responsibilities for the users and project implementation agency(ies)
- Formation/strengthening of Dhobi associations to build in conflict resolution mechanisms; for the development of an understanding on the importance of self-management of the facility for a sustainable livelihood within the group; for the participation of the users in planning, design and project implementation stages; for assisting the Dhobis in becoming financially independent; and for the development of leaders who can provide direction to the association

The key planning parameters are:

- Number of Dhobis estimated to use the proposed facility/are using the existing facility
- Average distance of the residence of Dhobis from the Ghats
- Number of existing traditional DGs, and possibility of providing of one or more constructed DGs as a common facility for the present users of the traditional DGs
- Existing relationship, if any, between the Dhobi associations at different DGs
- Availability of land
- Availability/requirement of water and electricity
- Disposal of used water

Technical appropriateness of the design would depend on factors listed below. Therefore, the implementing agency should take into account these factors in the best of their ability to design a technically appropriate option for DGs.

- Cultural acceptability
- Environmentally safe and user friendly (Design should match the method of working of the Dhobis to the extent possible. If changes are necessary, then the PP/PA programmes will require to mobilize the Dhobis to adapt themselves to the changes with particular emphasis on the benefits of these changes for environment protection in general, and their personal health and hygiene in particular)
- Adequate and consistent availability of water

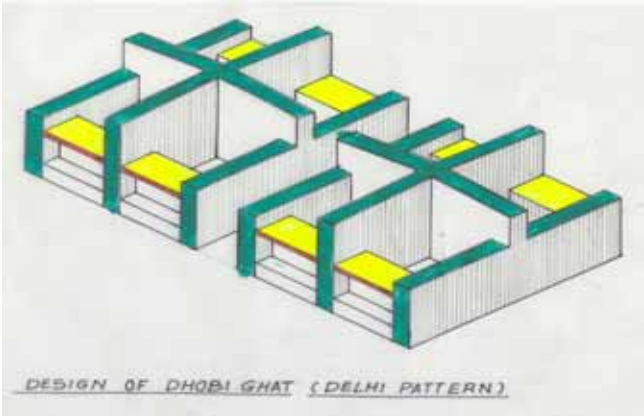
- Affordability
- Usage in a day
- Land availability
- Legal clearances
- Occupational hazards
- Space requirement for each Dhobi (while washing clothes)
- Type and permeability of soil, if on-site sanitation disposal is warranted.

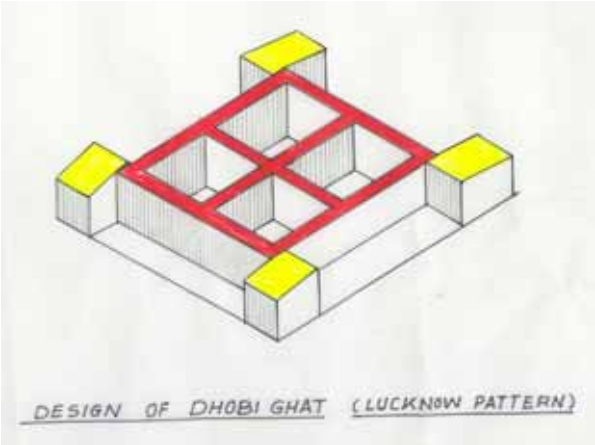
5.1.2 Design Alternatives

Based on single cubicle:

(a) Dhobi stands inside the cubicle:

Dhobis stands inside the cubicle while washing clothes.
While doing so, the Dhobi has to stand in polluted water for long periods, which not only is harmful to the skin but also may affect the general efficiency.
Also, the design in itself is inconvenient as the Dhobi has to jump over the platform to get into the cubicle.



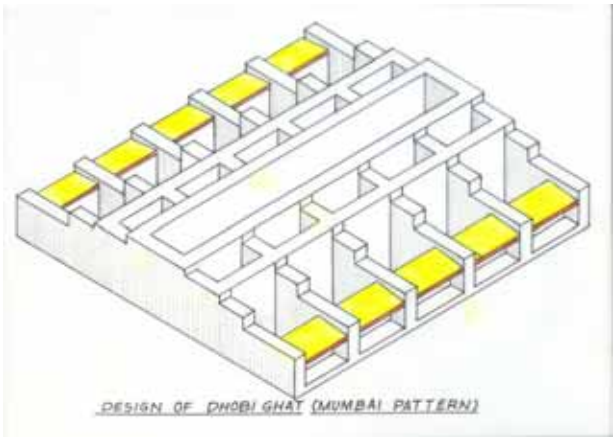


(b) Dhobi standing outside the cubicle: this option obviates the impact of having to stand in water containing washing chemicals

In both (a) and (b), the Dhobi first washes clothes by beating them on the platform and then empties the cubicle and fills it with clean water for final rinsing. This not only increases the time required to complete the washing operation but also leads to higher consumption of water.

Based on combined cubicle:

In this option, there are two cubicles for the Dhobi – step one of the operation of beating and rubbing of clothes is done using water filled in one of the cubicles and step two of rinsing in done in a second cubicle, which contains clean water. In this system, the time taken for complete operations is less and consumption of water is comparatively lesser than the single cubicle system.



5.1.3 Planning Parameters

The planning parameters for a DG are described in the following passages focusing on cubicles, water supply, wastewater disposal etc.

Cubicles
- One cubicle is required for 6 Dhobi on the basis that three shifts in a day with each Dhobi using the DG once in 2 days.
- The optimum size of cubicle is 1200 mm x 1200 mm x 600 mm. The number of cubicles at a DG depends on the number of Dhobis using or likely to use the DG. While firming up on the location of a new constructed DG, it is desirable that distance of travel for a Dhobi from his place of residence does not exceed 2 Km.

Water supply
- Undoubtedly, reliable water supply in sufficient quantity is a must for proper functioning of a DG. This can be either from a piped water supply system or an independent tube-well, or a combination of the two sources, which is recommended option.
- The provision of a standby pumping set for the tube-well is desirable to facilitate regular maintenance or in the eventuality of a break-down to ensure that the operations at the DG run smoothly.

Disposal waste water
- Method of disposal of wastewater should ensure that there is no adverse effect on soil, ground water and the general environment in around the DG.
- It is recommended that the disposal takes place into a sewer or a drain provided they are tapped for diversion to a wastewater treatment plant. In the absence of these options, a mini-ETP with the provision of re-using part of the wastewater after recycling will have to be considered despite additional capital and O&M costs, and susceptibility to failures in electricity supply.

Space for drying clothes

- Sufficient paved space with proper arrangement for spreading the clothes should be available. Normally a Dhobi washes 20-50 clothes per day depending on the size and type of clothes. The space for drying should be planned on the basis of number of Dhobis working in one shift.

Shed over cubicles
- A shed over the cubicles should be provided to facilitate continuous operations under all weather conditions.
- The roof area can be used for providing space for ironing and drying of clothes.

Store for soiled clothes
- Provision for a lockable store should be made to enable the Dhobis to keep the unwashed clothes.

Rest room
- Rest room for the Dhobis and their family members should also be provided to enable the Dhobis to take necessary breaks during their working time.

Bhattis (boiling arrangement)
- Soaking of clothes in hot/warm water becomes essential in case of some of the soiled clothes to remove "adamant" stains.

Toilets
- Separate toilet blocks both for men as well as women should be provided
- Stand-post should be provided for drinking water

Safety
- Boundary wall with a gate all along the periphery of the DG should be provided for safety of clothes and belongings of the Dhobis.

A plan showing the arrangements of various facilities is provided in Appendix L.

5.1.4 Wastewater Disposal Options

The effluent from the DG primarily comprises suspended solids from dirty clothes and phosphate from soaps, detergents, washing soda and other materials used in the washing process. The best option is to dispose the used water into the nearest sewer, or an open drain provided the latter is being tapped for diverting the wastewater to a treatment plant. In most urban cities, the domestic and industrial wastewater is getting mixed with the storm water, and direct disposal of the discharge into the river is causing significant pollution to the river although the share of Dhobighats can be considered to be insignificant. Disposal of the wastewater into stagnant water bodies can cause development of algae and other aquatic plants such as the water hyacinth.

The option of setting of a small effluent treatment plant, although offering the benefit of recycling part of the wastewater, does not appear to be financially feasible, and also has its own O&M difficulties in cities which witness long hours of no electricity supply.

Therefore, the ideal option is to connect the wastewater disposal to the nearest sewer. If not available, the facility has to be connected to a drain, which is finally tapped and diverted to a municipal sewage treatment plant.

5.2 OPERATION AND MAINTENANCE

5.2.1 Evaluation of the Proposed Institutional Mechanism

The following table brings out the pros and cons of handing over the responsibility of O&M to the Dhobi Association.

O&M by	Pros	Cons
Dhobi Association	Sense of ownership; will ensure optimal utilization; Willingness of users to contribute towards various activities as part of O&M can help build the ownership spirit. The availability of such ready infrastructure for commercial activities (e.g. Chicken clothing for domestic and export demand) can generate additional revenue for O&M	Need "hand-holding" over initial year in respect of technical matters such as repair and maintenance works.

5.2.2 Set-up for a Dhobi Association

All present and potential users should be encouraged to join and form a Dhobi Association identifiable by a specific name/location. Institutional capacity building measures are to be assessed based upon their expected contribution to O&M activities. Such Association may be informal or registered under Society Act.

The mission of the Dhobi Association earmarked for O&M of a DG should be clearly agreed by members. The goals and objectives for a Dhobi Association could include:

- Regular and consistent use by all its members;
- Maintenance of the hygienic conditions and cleanliness in and around the DG;
- Maintenance of Dhobighat in good and usable condition at times; and
- Generation of revenue for O&M through the levy of user charges and other sources to exceed the projected O&M costs.

For the finalization of the structure and its institutional set-up, the bye-laws should be prepared in consultation with the different stakeholders. The Dhobi Association should select/elect a President, a Secretary, a Treasurer and Members of the Management Committee either on a rotational basis or through an annual election process. The responsibilities and duties for each position should be defined so as to avoid ambiguity and achieve the underlying objectives.

5.2.3 Capacity Building and Training

All community-based organizations face constraints that need to be understood, analyzed and overcome to make a success of any community development programme, which also has a parallel programme for environment improvement.

The general constraints faced by a community-based organization can be categorized as follows:

- Poor management skills
- Lack of technical skills related to O&M (for example, carrying out civil or mechanical repairs)
- Limited financial resources and difficulties in accessing donor agencies

The capacity building and training measures have to target overcoming the aforesaid constraints. The following list is an indicative list of activities, which may be required for institutional strengthening of the Dhobi Associations:

- Leadership training for committee members; e.g. conducting meetings, conflict resolution etc.
- Developing business plans for O&M with the objective of generating revenue surplus necessary for the creation of a fund to be used for future capital works and provision of pension schemes
- Developing linkages with local, state and central government social welfare schemes
- Improving internal administrative and financial procedures (accounting, personnel etc.)
- Role definition and its monitoring
- Determination of user charges and periodic financial reviews
- Defining operating policies (i.e disbursement approvals, use of equipment, collection of user charges etc.)
- Training on technical aspects such as civil and mechanical repair works and capacity-building for supervision of these works
- Determination of benchmarks for O&M for periodic review
- Sharing/dissemination of best practices

5.2.4 Suggested Institutional Mechanism for Sustainable O & M of Dhobighats

The implementing agency transfers the responsibility and accountability for sustainable O & M of Dhobhighats to PMUs in each city. The PMU shall be responsible , inter alia, for the following:

- Construction and completion of the pilot as well as the main components of the project;
- Involvement of and ownership by communities during implementation of the project;
- Create a community apex institution which shall be responsible for sustainable O & M as well as capacity building institution for the Dhobi Associations
- during and after the project is completed;
- Perform necessary monitoring and evaluation functions for successful implementation of the project with full accountability to IAs and funding agencies.
- Responsible for funds allocation and management to Training/Capacity Building Centres/ Apex body for Dhobi Associations
- Dissemination of information about the project
- Accountable for the specific and measurable project deliverables.

In each city, the PMU shall be headed by Project coordinator with accountability to the concerned Implementing Agency in the city, State department and donor agency. The PMU shall have representation from IA, elected representatives involving affected communities, a representative each from DUDA & SUDA, apex body of CBOs and prominent NGOs known for their contributions for promotion of health and hygiene and environmental work in affected communities.

Initially, A Training /Capacity-building Centre in each city shall be set up through concerted efforts, which shall be responsible for capacity building of Dhobi Associations during implementation and after completion of the project on self-sustainable basis. This unit shall be headed by a competent and experienced Training Officer with capability to manage capacity-building initiatives. This unit shall also have a community mobilization specialist who shall guide and assist in creation and strengthening the Dhobi Associations. During implementation of the project as well as after the project is completed, this unit shall be responsible for continued awareness building, technical and managerial capacity-building as per attached institutional framework.

As the project proceeds towards completion, the management of the Training Centre shall be handed over to a newly created apex body representing Dhobi Associations. The general body members of this Apex body should have representative from each CBO/ Dhobi Associations. The resources created under the project shall also be handed over to the Apex body of CBOs/ Dhobi Associations.

It is recommended that this apex body is registered under Society Registration Act. This representative body shall be undertaking the responsibility for sustainable O & M after the project is completed. This unit should be able to sustain itself through mutually agreed contributions from individual CBOs, IAs and other relevant departments responsible for health, hygiene, urban development and poverty alleviations.

5.3 OPERATION AND MAINTENANCE COST RECOVERY

The objective of the financial evaluation is to propose cost recovery models aimed at sustainability of O&M considering that the capital costs (refer next section) are proposed to be provided through grant funds in this project.

(1) Capital Cost Estimation

The capital costs for Dhobighat comprising 25 and 50 washing cubicles are summarized below.

Table 5.1 Preliminary Capital Costs (INR) for Constructed DG

	10 cubicles	25 cubicles	50 cubicles
Constructed Dhobighat	1,600,000	3,000,000	5,000,000

Note:
The facility includes roof, rest room, bore well (2 nos. for 25- and 50-cubicle DGs; for 10-cubicle DG, 1 bore-well and additional piped water supply recommended) and toilets.

Table 5.2 Rehabilitation of Existing Dhobighats

Facility	Purpose	Cost
Average cost of civil works	New building to cover the existing cubicles with space and facilities for ironing, resting, toilets etc. and boundary wall with gate	240,000
Provision for submersible pump, bore-well	Inadequacy of water supply has been noted; it is desirable to provide additional water supply arrangement from a bore-well to the existing piped water supply	50,000
Generator	Back up power supply	50,000
Electrical works	General lighting, ironing of clothes etc.	9,000
Average cost of rehabilitation per Dhobighat		349,000
	Say	350,000

(2) Operation and Maintenance Costs

The O&M costs for a Constructed DG comprise expenses/costs/charges for electricity, salary and wages for the supervisor and security, repairs etc. Among all the cost heads, the main components are wages and electricity. The O&M cost for a Constructed DG with 10, 25 and 50 cubicles are summarized below:-

Table 5.3 Estimated Monthly Operation and Maintenance Costs in INR

Cost Head	10 cubicles	25 cubicles	50 cubicles
Care taker cum watchman	2,500	2,500	2,500
Electricity	1,575	3,150	5,250
General Maintenance per month (average) including the pumps	450	900	1,500
Total	4,525	6,550	9,250

(3) Willingness to pay for O&M

The preliminary survey shows that most of Dhobis expressed willingness to pay or to participate on a voluntary labour basis for O&M. Most of the Dhobis, who expressed willingness to pay, are ready pay more than Rs. 100 per month.

(4) Cost Recovery Measure

Sustainability of the project will depend on maximum usage of the DG. The criteria for cost recovery mechanism must have the following attributes:

- Simple to administer;
- Induce maximum usage (in the interest of project deliverables); and

- Ensure full recovery from the users.

To ensure full recovery, cost per family/Dhobi per month was estimated assuming DG usage levels of 100, 75 and 50 per cent as shown in Table below. A conservative usage level of 50 per cent may be assumed as a benchmark. However, the Dhobi Association should target to attain and achieve 100 per cent usage, i.e. operation and use of each of the cubicles in all the three shifts.

Table 5.4 O&M Cost per family/Dhobi per month in INR

	10 cubicles	**25 cubicles**	**50 cubicles**
Total operation & maintenance costs except electricity	2,940	3,400	4000
Electricity costs			
Full usage	1,575	3,150	5,250
75 % usage	1,181	2,363	3,938
50 % usage	788	1,575	2,625
Total costs by % of users			
Full usage	4,515	6,550	9,250
75 % usage	4,121	5,763	7,938
50 % usage	3,728	4,975	6,625
Cost per family/Dhobi per month per usage rate			
Assuming full usage	75	44	31
Assuming 75% usage	92	51	35
Assuming 50% usage	125	66	44

Note: One cubicle is assumed to be used by 6 Dhobis on the basis of three shifts/day and each Dhobi visits/uses the DG once in 2 days.

The above table clearly shows that the incidence of cost per family/person increases with decrease in usage level. Monthly user charges for 10-, 25- and 50 cubicle DG are Rs. 92, Rs. 51 and Rs. 35 per Dhobi for 75 per cent usage level. Based on the results of the primary survey, which indicated a willingness-to-pay user charges up to Rs. 100 per month, the project is expected to be financially sustainable and is therefore recommended. In case of the poor paying capacity of some of the users, these users should share the costs, especially of watchman through contribution of their labour.

5.4 SOCIAL AND ECONOMIC BENEFITS

This section deals with the benefits, both tangible and intangible, in respect of the construction/renovation of DGs. These benefits can be conveniently classified in the following groups:

(1) Environmental benefits:

Once all the constructed Dhobighats envisaged under this project become fully operational, the level of pollutants going into the rivers is expected to reduce. The construction of Dhobighats shall result in reduction of detergents flowing into the river every day. This shall, inter alia, result in improvement of quality of water in the rivers besides generating important health benefits and positive environmental externalities.

(2) Health-related benefits:

Improvement of water quality shall result in reduction in the incidence of water-borne diseases. Also, properly designed facility would also reduce the incidence of skin infections amongst the Dhobis.

(3) Institutional benefits:

The project is expected to strengthen the Dhobi Associations through capacity–building in areas like financial management and leadership, and will result in overall empowerment of community organizations.

(4) Economic Benefits:

Economic benefits include productivity gains, secondary economic benefits and developmental impact due to improved health and lower incidence of water-borne diseases. This project shall ensure access of convenient facilities to the Dhobis at affordable prices.

5.5 IMPLEMENTATION OF DG PROGRAMME

5.5.1 Requirement of DGs

(1) New Dhobighat Facility

Based on the results of the primary survey, review of the data available with the JICA study team, discussions with key officials of DUDA and Nagar Nigam, and leading Dhobi Associations in the city, the requirement for DG has been calculated on the basis of the number of Dhobis washing clothes at traditional riverside DGs and their willingness to contribute financially towards the O&M costs of a Constructed DG. The estimated number of Dhobis washing clothes at traditional riverside DGs is 960, which constitutes the target group. 92 per cent of the Dhobis currently working at these traditional ghats are willing to pay user charges. Adopting the planning criteria that 1 cubicle will be used by 6 Dhobis on the basis of three shifts per day and each Dhobi visits/uses the DG once in 2 days and assuming 75 % usage rate, the number of cubicles required for Lucknow is estimated as approximately 200. Therefore, four 50-cubicle DGs are recommended for Lucknow.

The following three sites have been identified for new Constructed Dhobighat by the local Dhobi Association in Lucknow and one more site also have been identified by the Study Team together with Lucknow Nagar Nigam and Dhobi Association, which are selected for a pilot project as stated later section in this Chapter. The letter for Dhobighats from the Dhobighat Association regarding the lands is given in Appendix. A location map for the sites is also provided.

1) Shiv Nagar Khadra Kunwar Gaddha, Lucknow approximately 8 Acres Land (Pond) owned by Nagar Nigam, Lucknow

2) The free land available in the middle of Bridge and Wall of Plant, in front of Moti Masjid Gullala Ghat to Sewage Treatment Plant, the Land is under State Government

3) Approximately 1.33 Acres of Govt. Free Land near Haidar Canal Nala (Drain) at Tiwari Ji ka Bhatta, Moti Nagar, Lucknow.

(2) Improvement of Existing Dhobighat

Following rehabilitation works for existing Constructed Dhobighats have been identified during preliminary survey and through discussions with DUDA.

Improvement works

- New building to cover the existing cubicles with space and facilities for ironing, resting and toilets etc.
- New submersible pump, generator and electricity works

- Boundary wall with gate

The estimated capital cost of improvement works per Dhobighat is Rs. 350,000.00. The following three existing Dhobighats have been identified in Lucknow for improvement works. Therefore, the total capital cost of improvement works for the existing facilities is estimated as Rs. 1,050,000.00.

Existing Constructed Dhobighats

- Billoachpura
- Hata Surat Singh
- Panni Wali Gali (Chowk)

5.5.2 Programme Implementation Strategy

(1) Project Implementation Concepts for Constructed DGs

The proposed Dhobighat programme to relocate the existing traditional DGs adopts a community-based approach in planning, implementing, operating and maintaining Constructed DGs. To manage the improved facilities in an appropriate manner, the functioning of the existing Dhobi Associations will require improvements through a process of capacity building.

(2) Institutional Setting Up for Monitoring

The proposed institutional set-up is graphically presented in Figure 5.1. Nagar Nigam, the main body responsible for health and hygiene, should regularly monitor the functioning of the DGs within Municipal limits. It should interact with the coordination committee comprising elected members of the Associations and representatives of DUDA and LDA besides their own representatives including the Health Officer. This committee will discuss the problems faced by the associations in the O&M of DGs and find solutions, elicit feedback from the associations and facilitate the monitoring, evaluation and learning process. These activities will have to be dovetailed with the proposed activities of Public Participation and Awareness for non-sewerage schemes.

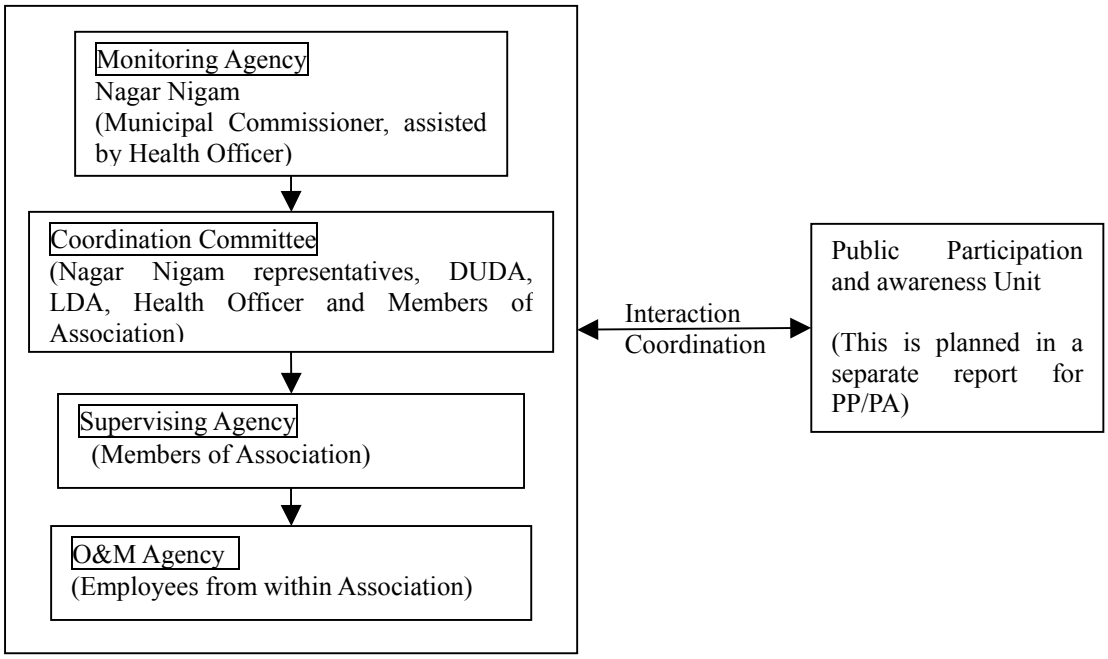


Figure 5.1 Proposed Institutional Set Up for Dhobighat Monitoring

(3) Program Implementation Procedure

The proposed program will be implemented through following steps.

Step 1: DG survey
Step 2: Creation of the Association
Step 3: Planning and designing of facility, and O&M plan
Step 4: Selection of location of DG including land acquisition clearance
Step 5: Construction
Step 6: Capacity building and training of the DG
Step 7: O&M
Step 8: Evaluation & monitoring
Step 9: Feed back

For detailed planning of the facility and its O&M, the following information will be required and collected through detailed surveys involving FGDs, workshops and questionnaire surveys coupled with secondary data already available:

- Socio-economic situation of the Dhobis
- Existing infrastructure
- Need assessment for the Constructed DG, assessment of willingness to pay user charges and willingness to participate in the process
- Status of water supply and sanitation
- Health issues
- Community characteristics
- Awareness level

(4) Relocation Plan

The relocation program design should take into account the socio-economic condition and the present associations. The preferences of the Dhobis, their priorities and affordability will have to be dovetailed in the plan to ensure acceptance and building their preparedness to accept the changes, the key factors for a sustainable solution.

(5) Site selection and land acquisition

- Identification of open non-agricultural municipal land preferably within a distance of 2 km the residential clusters of the Dhobis
- In case of non-availability of land owned by local body, second priority should be given to land belonging to any other government department from where land could be transferred to the local body.
- In the absence of the two, the local body should acquire private land at market rate.

(6) Relocation of Dhobis

- Listing of all the traditional ghats in the city
- Identification and listing of all the Dhobis operating at various ghats
- Mapping residential cluster of each Dhobi
- Calculation of distance
- Depending on the total number of Dhobis, time taken to wash clothes daily, distance covered; work out the minimum number of Dhobis required per ghat to make it sustainable.
- Based on above information decide on the total number of DGs required in the city
- Based on the priority of distance allocate Dhobis to the appropriate DG and solicit their acceptance.
- Hold public meeting in batches to inform Dhobis about the ghats allocated
- Issue them a membership card for a particular DG
- Organise ghat-wise meetings to facilitate and document, name and photographs of governing body members of the particular ghats
- Provide information on time of completion of construction of ghats
- Provide information to Dhobis about contribution requirement per Dhobi for smooth maintenance of the ghats
- Provide rationale on division of Dhobis on the basis of ghats
- Provide information on institutional framework for ghats
- Ghat-wise training on daily maintenance at location
- Crystallization of time schedule in consultation with the Dhobis themselves, and ensure documentation by the Dhobi Association

The time schedule given below is for the relocation of Dhobis to a single DG. Dhobis currently operating at existing DGs can be involved in the whole process. The facilitating agency should avoid mixing conflicting factions within the same ghat in order to avoid internal operational bottlenecks.

Figure 5.2 Time Schedule for Activities

	Weeks											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Construction of ghats												
Public meeting to inform about start date for operations of new Dhobi ghat; discuss and finalise Dhobi ghat allocation	▬	▬	▬									
Crystallising committee and governing body for each ghat				▬	▬							
Issue of membership cards						▬	▬					
Finalisation of time schedule for Dhobis								▬	▬			
Ghat-wise Orientation training on operation and maintenance.										▬	▬	▬

(7) Role of Facilitating Agency

The local body in consultation with donor (if any) should select an NGO/ Consultants with experience in grass root level relocation activities in resettlement projects for the following activities:

- Facilitate public meetings to inform Dhobis about the start date for new DG operation; discuss and finalize allocation of DG for each Dhobi
- Crystallizing committee and governing body for each DG
- Issue of membership cards to Dhobi
- Finalization of daily work schedule in consultation with Dhobis and ghat committees.
- Ghat-wise orientation and training on O&M

(8) Operation & Maintenance and Monitoring Plan

The day to day O&M is proposed under the aegis of respective Dhobi Associations. They will also be key players in the monitoring and evaluation process.

Based on the guidelines suggested in this report, the implementing agency should develop a mechanism for monitoring and evaluation considering the following aspects:

- It has to be an ongoing process – assess the situation, analyze it, take corrective measures where necessary and record the same as part of the lessons learnt;
- Follow-up on the above to ensure that the members of the Dhobi Association are learning from successes and mistakes;
- Implementation plans should be prepared on an annual basis; the process should incorporate quarterly, half-yearly and annual assessments besides regular fortnightly visits to enable trouble-shooting; the intermediate assessments will also facilitate revisions to the implementation plan wherever necessary;
- The reports should be delivered to the responsible departments/agencies at city/district/state government/central government levels as well as the funding agency; this process will facilitate any initiatives that may become necessary at legal or policy levels;

The "Constructed Dhobi Ghat" monitoring and evaluation cell constituted at Nagar Nigam will

monitor the programme in order to make an ongoing assessment of the program and take action where necessary. The Dhobi Association will monitor construction of ghats, and water and electricity supply required for their work.

The evaluation cell should comprise representatives of the Nagar Nigam, DUDA, SUDA, Jal Sansthan, State Electricity Board, Dhobi Association and other social groups whose leadership is valued and who are currently active in improving the working conditions of the Dhobis.

(9) Public Participation and Awareness for Constructed DG Programme

The role of PP/PA does not get diminished for Dhobighats by virtue of their relative simplicity of O&M. In addition to educating the members about the norms to be observed for use of ghat, use of chemicals and monitoring devices, they can also be assisted in preparing checklists and fixing periodicity for O&M. As in the case of CTCs, role of PP/PA can extend beyond O&M and supervision, and include extension programmes for family and community welfare.

The PP/PA programme in case of Dhobighats will have to address some of the following critical issues:

- Educating the Dhobis on the negative impact of washing clothes/fabrics on the river banks;
- Explaining the benefits of constructed Dhobighats;
- Developing a CBO wherein an environment to facilitate exchange of ideas on adopting new practices (e.g. better detergents instead of a harmful mix of acid and "soda") can be created;
- Involving the association(s) of Dhobis to build a sense of ownership, and transfer the responsibility of O&M to the users of the constructed Dhobighats; this can not only facilitate change in practices, but also encourage acceptance of "new" ideas, and facilitate suitable cost recovery model - "pay-as-you-use";

Capacity building and awareness campaign

Orientation workshop should be held so as to include representatives of dhobis associations and their sub-groups from all the ghats. The recommended agenda for these workshops is as follows:

- Presentation on institutional arrangement
- Overview on formation of CBO
- Overview on functioning, role and responsibility of CBO
- User charges and collection; accounting and book-keeping
- Role of urban local bodies
- Operation and maintenance
- Monitoring of Dhobighats
- Maintenance of water pump and other facilities at the constructed Dhobighats
- Reporting to the Nagar Nigam
- Mobilizing membership
- Setting ground rules for members User charge recovery accounting and bookkeeping
- Operation and maintenance log
- Monitoring of Dhobi ghats

(10) Programme Monitoring

The process of monitoring, evaluation and learning will serve the need for interventions where necessary and facilitate improvements on an ongoing basis. A checklist with the benchmarks is proposed to identify any deviations and initiate course-correction measures. Table 5.5 proposes a

schedule for different monitoring activities.

Table 5.5 Monitoring Items

Data requirement	Frequency of data collection	Data collectors
Training		
Number of workshop held	Monthly reports	Implementing agency (NGO/Consultants)
Number of participants in workshops	Monthly reports	Implementing agency (NGO/Consultants)
Program expense	Monthly reports	Implementing agency (NGO/Consultants)
Distribution of communication material	Monthly report	Implementing agency (NGO/Consultants)
Construction related		
Number of Dhobi ghats developed	Monthly report	Dhobi association and Local Body
Adherence to approved drawing and estimates	Periodically	Engineering div, Local Body
Progress of construction as per time chart	Periodically	Engineering div, Local Body
Quality of construction	Regular checking during construction	Engineering div, Local Body
Operation and maintenance		
Water consumption pattern	Monthly	Water Dept/Local body
Electricity consumption	Monthly	Electricity department
Quality of maintenance Of the ghat and the facilities	Random checking	Local Body
Evaluation		
Indicators		
Degree of abatement of pollution in the river	Quarterly	Pollution control board
Rate of acceptability of ghats	Quarterly	Dhobi association and local body
Improvement in general health of Dhobis	Six monthly	Health department

5.5.3 Total Program Cost of Proposed DGs

Table 5.6 Cost Details of DGs Required in Lucknow

Type of Works	Cost per Dhobighat (In Rs)	No of Proposed Dhobighat	Total Cost(In Rs)
New Constructed DGs	5,000,000	4	20,000,000
Improvement works	350,000	3	1,050,000
Total Capital Cost	**-**	**7**	**21,050,000**

5.5.4 Preliminary Implementation Cost for DGs

Based on following planning conditions, yearly total project costs have been worked as shown in Table below. Total project implementation cost will be Rs.26.3 million.

- One pilot project
- 3 new Constructed DGs
- Physical contingency is 5 per cent of the capital cost

- Consulting and engineering costs is 10 per cent of the capital cost
- Project Administration costs is 10 per cent of the capital cost

Lucknow	**Year**			
	2007	**2008**	**2009**	**Total**
New facility (No.)	1	0	3	4
Improvement works (No.)	0	3	0	3
Capital Costs	5,000,000	1,050,000	15,000,000	21,050,000
Physical contingency (5%)	250,000	52,500	750,000	1,052,500
Consulting and Engineering Costs (10%)	500,000	105,000	1,500,000	2,105,000
Project Administration Costs (10%)	500,000	105,000	1,500,000	2,105,000
Total	6,250,000	1,312,500	18,750,000	26,312,500

5.5.5 Implementation Schedule for Dhobighat Program

The estimated total project duration, including planning/design and construction phases is six months. However, it is expected that the monitoring and evaluation activities will span a longer period of time. The details of the implementation schedule are given in the following table:

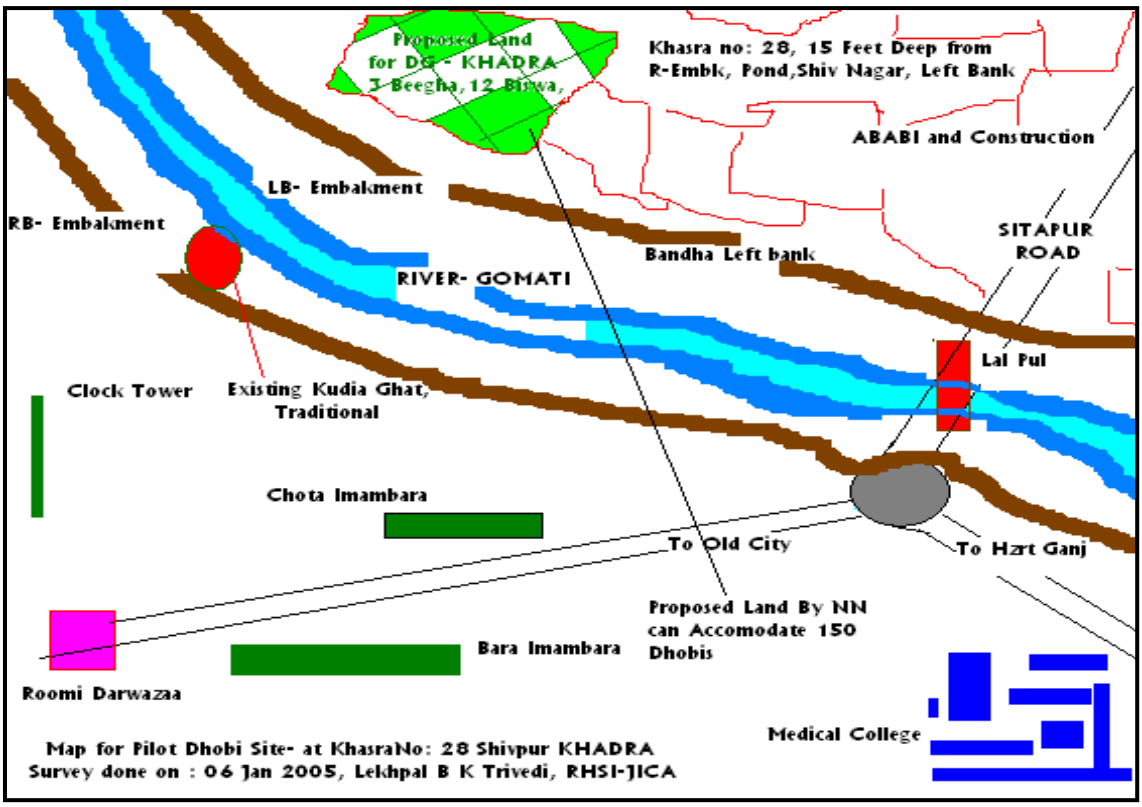
Activity	**Month**							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1. Need survey								
2. Identification of location for CDG								
3. Detailed Design & Engg Studies								
4. Construction								
5. Evaluation								
6.Association formation and PP/PA activities								

Note: PPPA activities are planned in the different volume of report.

5.5.6 Pilot Project

As indicated earlier, one pilot project for a new 50-cubicle Constructed Dhobighat is proposed in Lucknow. The proposed site is suitable for the construction of a 50-cubicle Dhobighat. This DG can accommodate the Dhobis working on the left bank of the River near Lal Pul and existing traditional ghats 1 to 3. The total area is adequate for the proposed pilot and is considered suitable for the Dhobis, who are primarily involved in washing clothes for the "chikan" industry and are probably staying in the near vicinity

Proposed Site for Dhobi Ghat at Shivpuri Khadra on Left Bank of River Gomti



CHAPTER 6

CONCLUSION AND RECOMMENDATION

CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

The objectives of this study are to formulate programs of development/ management of Community Toilet Complexes (CTCs) and Constructed Dhobighats (DG); to assess the technical, institutional, financial and economic viability; and to assess the environmental and social soundness of the proposed programs.

The objective of the proposed programmes is to improve slums and DGs' sanitary conditions, thus improving water quality of rivers.

The shortcomings in the operation and maintenance (O&M) of existing CTCs in slum areas and Dhobighats are causing serious problems in proper functioning and general sanitation in the surrounding areas. O&M aspect is one of the main factors to be considered in formulating sustainable programmes of CTC and Constructed DG. Keeping this in mind and on the basis of the assessment of existing conditions of the target areas and facilities as well as the needs and demand of slum dwellers / Dhobis, the proposed programmes are formulated.

The proposed programmes adopt a needs-driven and community-driven approach in planning, implementing, operating and maintaining the facilities and suggest that the O&M is facilitated through local CBOs/SHGs or local Dhobi Associations. Implementation by this approach will make the programmes technically, financially, socially and culturally viable.

For successful implementation of the programmes, the followings are required:

- Involvement and assistance of NGOs/Consultants for training and monitoring
- Regular monitoring, evaluation and feedback on the functioning of CTCs and Constructed DGs by Nagar Nigam in coordination with SUDA, DUDA and representatives of CBO/SHG.
- Appropriate implementation steps as follows to ensure involvement and training of CBOs/SHGs or Dhobi Associations:

Step 1: Needs survey of slum / Constructed DG
Step 2: Creation of CBOs/SHGs/ Dhobi Association
Step 3: Planning and designing
Step 4: Selection of location of CTC/Constructed DG including land acquisition clearance
Step 5: Construction
Step 6: Training of CBOs/SHGs/ Dhobi Association during construction
Step 7: Operation and maintenance
Step 8: Monitoring, evaluation and learning
Step 9: Feed back

Creation of a CBO/SHG for O&M of CTCs has not been attempted earlier. Therefore, it is proposed that a pilot project to manage CTC through CBO be implemented and a good model for O&M of CTC be created before implementing full-scale project. Similarly, to manage the improved or new facilities of Constructed DGs in an appropriate manner, the functioning of the existing Dhobi Associations will require improvements through a process of capacity building. This capacity building will be also tested through a pilot project. This model project can then be extended to other proposed facilities.

One of the important constraints relating to O&M is the lack of funds. To make the project financially feasible, a minimum monthly charge of Rs. 70 per household, is required to be levied alongwith subsidy for electricity and sludge disposal costs (where applicable) by the local bodies and part of manpower costs being provided by the community through voluntary activities. This level of user charge was assessed affordable and acceptable even for low-income communities as their willingness to participate in the project is very high. Besides, if the facilities are well maintained and kept clean

the willingness to pay will improve and the project will become financially more viable.

The estimated monthly user charge per member for O&M of a Constructed DG is Rs. 35 to Rs. 92. Based on the results of the primary survey, which indicated a willingness to pay user charges up to Rs. 100 per month, the project is expected to be financially feasible.

If followings are considered in the proposed facilities, the projects are expected to be technically feasible and would also ensure adequate O&M of the facilities.

CTCs

- Constant water supply for flushing and cleaning of water closets (seats)
- Sufficient capacity of storage tank for constant water supply
- Regular electricity for tube well and lighting

Constructed DGs

- Appropriate design and quality of construction to ensure no leakage
- Constant water supply
- Amenities (toilet, rest room, safety measure, shed, etc)

Land availability for both CTC and Constructed DG facilities is the most critical aspect for the feasibility of the study. The results of a rapid survey to assess the land availability in several slums indicated that the land for CTC can be made available in many of the slums. These lands are mostly owned by the various government bodies and efforts have been made to select lands without any disputes or encumbrance. However, more detailed surveys are required to decide the best location by matching the demand for CTC and the availability of lands. A detailed study should be done at the detailed design stage with the help of hired NGO/Consultants and communities.

Four new Constructed DGs are proposed in the programme for Lucknow. The land for Proposed DG as a pilot project has been selected in consultation with the officials of Lucknow Nagar Nigam. Local Dhobi Associations have identified three sites for the other three DGs. However, more time is required for assessment of different areas and to decide the best locations. Also it is noticed that the sites of two Constructed DGs currently under implementation are under dispute with neighbors. The sites of the proposed new Constructed DGs should be carefully assess and decided.

Environment and sanitation condition of slums and DG will improve by the implementation of these programmes by reducing pollution load caused by open defecation and improving the facilities. However, if wastewater of the facilities is not properly disposed off, it would create other problems for the environment. In the programme, on-site wastewater treatment plant is not proposed since it requires very high capital and operation and maintenance costs and is not financially feasible at present. Also it requires high skill and technical knowledge to operate and maintain. Therefore, it is recommended that CTCs and Constructed DGs be connected to existing/proposed sewer line if nearby sewer is available and if not available, then septic tank/soak pit system could be connected with CTCs. As for Dhobighat, if no sewer line is available, the facility has to be connected to a drain, which should be finally tapped and diverted to a municipal sewage treatment plant.

The project shall generate tangible and intangible benefits as follows:

- Environmental benefits are expressed through reduction of pollution load caused by open defecation
- Health-related benefits include reduction of the incidence of water-borne diseases resulting from poor sanitation.
- Economic benefits include productive gains, secondary economic benefits and developmental impact due to improved health and reduced health costs
- Social or equity benefits include gender, regional and income-related equity through

appropriate sanitation for women and girls who are most affected by poor sanitation. This project empowers the women's group and assists in improving earnings for the communities. Also, this project ensures access to quality services for affected communities.

- Institutional benefits are expressed to strengthen the CBO/SHGs through capacity-building.

Appendix A

SURVEY SHEET FOR ABATEMENT OF POLLUTION IN REGARD TO COMMUNITY IN LUCKNOW / KANPUR & ALLAHABAD CITY

Schdule no.		Name of investigator		date
1	Name			
1.2	Gender	Male		female
1.3	Educational status	a) Illiterate b) Literate c) Below primary status d) 8th pass e) 10th pass f) graduate g) Post graduate h) Other		
1.4	Average monthly income.	Rupees		
1.5	Are you belong to this city	Yes	No	
1.6	If not from where			
1.7	Since when are you living here			
2	**General questions**			
2-1	Do you take care of your health?	Yes		No
2-2	Are you aware of microorganismsand diseases caused by them?.	Yes		No
2-3	Are you aware of the garbage around your habitation	Yes		No
3	**Community toilet complexes**			
3-11-	Do you know about the existence of the public toilet in your area?	Yes	No	
3-2	If yes how do you know about them?	a) Poster b) Through Public awareness programmes c) Regional /community politician d) Health center e) other		
3-3	Do you utilise the public toilets?	yes	no	
	If the answer is no then see Q 3-20			

3-4	If yes how many times	Always / daily Often Very often	
3-5	What is the main concept of having public toilets (etc)	a) For defecation b) For urination c) For bath d) Other	
3-6	Do you pay for using public toilets	Yes	No
3-7	If yes than what amount.	Rupees (per person / daily) Rupees (family / monthly)	
3-8	What is your opinion about the cost ?	a) costly b) Resonable c) Low d) Can't say	
3-9	Why do you use public toilets?	e) No indiviual household toilet f) Privacy g) Near to house h) Prohibit diseases tospread i) Other	
3-10	Do you know the advantages of using public toilets?	Yes	No
3-11	If yes ,what is it ? .	a) To have a clean environment b) To stop spreading the diseases c) Privacy d) Other	
3-12	Where did you go for defecation before construction of the toilets in your area.	e) Public toilets in other areas f) Open area g) Neighbour's toilet h) Other	
3-13	Do you intend to utilise these public toilets always	a) Yes b) No c) Can't say d) Not aware of	
3-14	You the think the no. of seats of public toilets are enough .	Yes	No
3-15	Do you want bathing facility in the public toilets also	Yes	No
3-16	How is the maintanece of this public toilets?.	a) Very good b) Satisfactory c) Bad d) Very bad	

3-17	According to you what are the loopholes in the upkeepment of the public toilet.	a) Not clean/hygienic b) Water scracity c) Lack of Privacy d) Erratic power supply e) Others	
3-18	Do you have any improved idea to make these public toilets more effective.	Yes	No
3-19	If yes than what are these? Please inform	a) Increase public awareness programme b) Impart Training to the care takers. c) Lodge complain to Nagar Nigam from time to time about existing problems. d) Don't know / not aware. e) Other	
Responder who has given the answer of question no.3-3 in no :Qno.3-20 to 3-22			
3-20	Current poisition of public toilet.	a) Household toilet b) Nieghbour 's toilet c) Open ground d) Other	
3-21	What are the reasons for not using the public toilets.	a) Don't know b) Pay money c) Very far d) Not clean e) No privacy f) Other	
3-22	What are your suggesstions to make the public toilets more effective and better.	Specify:	
4	**River and related issues:-**		
4-1	What is your opinion about the quality of river water.	a) clean b) Polluted c) Don't know / can't say	
4-2	Do you think that there is need to improve the quality of river water.	Yes	No
4-3	In your opinion, What are the main sources of river pollution?	Household sewage water Live stock / sewerge Loundary /dhobi Bathing Disposal of dead bodies Open defecation Others	
4-4	Do you know that open defecation is harmful for health and environment .	Yes	No

4-5	Do you think that public toilet should be constructed to reduce river pollution.	Yes No Can't say /don't know	
4-6	Are you willing to pay for using public toilets.	Yes	No
		Can't say / don't know	
4-7	If yes what amount .	50p 1Rs Others	
5	**People 's Participation**		
5-1	Do you like to participate in community programmes for reducing river pollution.	Yes	No
5-2	If yes then how do you want to participate.	Cleaning activities Raising Money To initiate Public awareness programmes Others	
5-3	How do you like to participate in increasing optimal uitilisation of public toilets among common people?	By initiating public awareness programmes. By paritcipating in operationand maintenance of the facilities . Others	

Personal Observations

Focused Group Discussion

Appendix B

SURVEY SHEET FOR ABATEMENT OF POLLUTION IN REGARD TO DHOBIGHATS IN LUCKNOW / KANPUR & ALLAHABAD CITY

Name of Investigator: Mr. / Ms

Date of investigation: /October / 2004.

1	**Socio-economic Profile**								
1.1	Name of the Respondent								
1.2	Address								
1.3	Location								
1.4	Name of the head of the household								
1.5	Religion								
1.6	Type of the family	Joint		Nuclear		Extended			
1.7	Total no of family members								
1.8	Total no of adults in the household								
1.9	Total no of children in the household								
		Male		Age		Female		Age	
1.10	Total no of male/ female								
1.11	Literate/illiterate								
1.12	Children going to school & collages								
1.13	Total no. of family members engaged in washing								
1.14	Any other occupation undertaken by the family	Specify							
1.15	Are you suffering from any Chronic Disease	a) Eyes b) Breathing Problem c) Skin Infection d) Stomach e) Any Other							
1.16	Where do you go for your Treatment?	a) Private Clinic b) Govt. Hospital c) Vaid d) Homeopathic e) Self Treatment							
2	**Current Practices**								
2.1	Average no. of clothes washed everyday	> 50	< 50						
2.2	Material Used	Acid	Beaching Powder	Castic Soda	Washing soda	Sweet Soda	Low cost detergent	Other	All of them
2.3	Quantity used per day								
2.4	Source of water	River	Pond	Well	Bore Well	Other			
2.5	Water Disposal system								

3	**Current Status**			
3.1	Facilities currently available	a) Water b) Electricity c) Drying Space d) CTCs. e) Any other		
3.2	Are you a member of any association	Yes	No	
3.3	If yes, give details of Association			
3.4	Amount charged for washing per item of Clothing			
3.5	Are you satisfied with the present system for carrying out the washing practices	Yes	No	
3.6	If 'No' give reasons			
3.7	DO you want a comprehensive complex to be constructed	Yes	No	
3.8	Where to constructed			
3.9	What do you think are the requirements for a Dhobighat	a) Water b) Electricity c) Platform d) Drying Area e) Distance From Home f) Provision of Bhatti g) Space For Ironing h) Crèche Cum School i) Medical Room j) Rest Room (Male/Female) k) Canteen l) Approach road m) Mode of transport		
3.10	Do you think the rate of washing need to be enhanced to meet the extra burden	Yes	No	
3.11	If yes, indicate the revised rate of washing			
4	**Level of awareness**			
4.1	Do you think that the present system of washing clothes is polluting water of river	Yes	No	
4.2	If 'Yes' what are your suggestions to check the pollution			
5	**Operation & Maintenance**			

5.1	Are you willing to contribute for the construction of Dhobighats	Yes		No	
5.2	If yes, then How will you contribute	a) In cash b) Sharamdan c) Any other			
5.3	Would you like to pay charges for facilities to be provided for improving Dhobighats	YES		NO	
5.4	If yes, indicate the amount per month which you can pay	<100	>100		
5.5	How would you like to manage the ghats	Nagar Nigam	DUDA	NGOs	Own Association
5.6	Any other suggestion/comments				

Personal Observations

Focused Group Discussion

Appendix C

Appendix C FGD Minutes of Meeting

Date 23rd Nov 2004
Location: Residence of Haji Maqsood Ahamad
Near (Mohnipurva Chauraha) Daulatganj Lucknow

Participants:

Sl.no	Representative	Name	Remarks
1	Public Health Expert	Dr. U.D. Dubey	
2	Primary Survey Expert	Mr. U. Dubey	
3	Gender Issues Specialist	Ms. P. Dubey	
4	Social Expert	Mr. H. Abbas	
5	President DSKS	Mr. M. Ahamad	
6	Secretary DSKUS	Mr. I. Kannaujia	
7	Member of Dhobi Community		More than 100 Participants

Agenda of the Meeting:
Need assessment of the community
Development of Alternative Design for New Dhobi Ghat
Identification for relocation site
Assess the occupational Diseases and remedies

Major discussions
The above mentioned issues were discussed in detail with the members of the dhobi community after formal introduction the project team was informed that existing Kudiya ghat was harrowed by Nagar Nigam with out making alternate arrangements for them now they have no place to continue their work.
We have tried to develop some alternative design as per the need of the community requested to the members of the community to categories these needs into very important, important & less important the following table suggests the views expressed by the community member in relation to the above mentioned headings

Need	Facilities
Very Important	Enough water tank for washing
	Un interrupted supply of water
	Enough Drying Space
	Regular supply of water
Important	Canteen
	First Aid Room
	Toilet Facility
Less Important	Big Room store room
	Resting Place

We have also discussed the availability of land it was informed to the team that there are two locations for the construction of dhobi ghat where most of the people wanted to be relocated. First near Moti Masjid Mohinipurwa and second near Ghanta Ghar Private bus station adjacent to the nibu park sub station in this regard we have requested to them to give us the attested copies of revenue details of these land (Khasra number / katauni , Nazri naqsha & revenue map etc) they have promised us that they will be submitting the same with in 10 days.
In this meeting we have also discussed the occupational disease common to dhobis, here we were came to know that most of the people in dhobi community have skin disease; older people have T.B, eye infections and gastro intestinal diseases.
In this meeting efforts have been made to make them aware about the causes of these diseases and common ways to control these diseases.

Public consultation (FGD)

Combinations of quantitative and qualitative assessment techniques were used for the study. The techniques used include different participatory methodologies, Focus Group Discussion (FGD), Workshops and structured interview with different stakeholders. While the participatory methodologies were used to get qualitative insight about the issues and concerns of dhobis and their preferences and priorities about the relocation /remodelling of the ghat, the interview schedule was used to get in-depth quantitative information about the inhabitants, their socio economic profile, requirement of infrastructure, opinion about relocation/ remodelling of ghats, their preferences, affordability and willingness to pay for the preferred service. The results of the assessment techniques were used to derive appropriate and sustainable solution for the community.

In the discussions with the stakeholders there emerged a view that local Dhobi Associations would be willing to take up the operational responsibilities; the sites for the proposed constructed ghats would be located by them with the help of the municipal authorities, and that, given adequate facilities, the washer men would be willing to co-operate in the conservation of water and recycling of waste, adoption of modern technologies and proper upkeep of the installations and premises.

Public consultation meeting were organised by the consultant in to ascertain the group behaviour as well as their willingness to participate in the programmes related to sanitation.
In this regard we have meetings with the CDS worker, local residents, behificearies and local level leaders.

Lucknow

Amausi (Luckmow) { (group of 15-20 persons) along with 10 investigator& two social expert}
Location (Amausi village residence of CDS worker)
Aganda of meeting : to know the existing sanitary condition of the village .
Need & demand for the construction of CTC
Discussion:
In relation to the above agenda the meeting is was revelled that most of the people living in the village does not have asses to the toilet facility and most of the people prefer to defecate openly. Although there is one CTC but very less number of people us as it was located very far from the village. However women folks have demaded for the construction of CTC near to the village pond because to the reason that it is located near to the village which will be more safer for the women.

Kalbey Abid ward { (old Luckmow group of 15-20 persons) along with 10 investigator& two social expert}

Location : Residence CDS worker
Agenda of meeting: to know the existing sanitary condition of the village.
Need & demand for the construction of CTC
Discussion
In this dussion with community it was revelled that most of the people are using dry latrine as this are does not completely covered with sewerage system. Most of the people has demaded the having IHL instead of CTC because of the reason that area is predominated by muslims and women folks have to observe hijab(Parda System) so that why they are not allowed to move out side freely.
Through our preliminary survey it was revelled that area is very congested there is no enough space for construction of CTC. Abot 90% of the people here demanded for the construction of some sort of sewer system because most of the human excreta is drained in the open drain, due to this situation it vey diffcult ot even breathe in that locality, so neary all the residents wanted the construction of sweregage system so that they can convert their existing dry latrine to pour flush latrine.

Location: Residence of Haji Maqsood Ahamad
Near (Mohnipurva Chauraha) Daulatganj Lucknow

Participants:

Sl.no	Representative	Name	Remarks
1	Public Health Expert	Dr. U.D. Dubey	
2	Primary Survey Expert	Mr. U. Dubey	
3	Gender Issues Specialist	Ms. P. Dubey	
4	Social Expert	Mr. H. Abbas	
5	President DSKS	Mr. M. Ahamad	
6	Secretary DSKUS	Mr. I. Kannaujia	
7	Member of Dhobi Community		More than 100 Participants

Major discussions

The above mentioned issues were discussed in detail with the members of the dhobi community after formal introduction the project team was informed that existing Kudiya ghat was harrowed by Nagar Nigam with out making alternate arrangements for them now they have no place to continue their work.

We have tried to develop some alternative design as per the need of the community requested to the members of the community to categories these needs into very important, important & less important the following table suggests the views expressed by the community member in relation to the above mentioned headings

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	Enough Drying Space
	Regular supply of water
Important	**Canteen**
	First Aid Room
	Toilet Facility
Less Important	**Big Room store room**
	Resting Place

We have also discussed the availability of land it was informed to the team that there are two locations for the construction of dhobi ghat where most of the people wanted to be relocated. First near Moti Masjid Mohinipurwa and second near Ghanta Ghar Private bus station adjacent to the nibu park sub station in this regard we have requested to them to give us the attested copies of revenue details of these land (Khasra number / katauni , Nazri naqsha & revenue map etc) they have promised that they will be submitting the same with in 10 days.

In this meeting we have also discussed the occupational disease common to dhobis, here we were came to know that most of the people in dhobi community have skin disease; older people have T.B, eye infections and gastro intestinal diseases.

In this meeting efforts have been made to make them aware about the causes of these diseases and common ways to control these diseases

Appendix D

Appendix D : Minutes of Workshop

Place: 1st Lounge, The Hotel Sagar International, Gokhale Marg, Lucknow, U.P 226001
Date: 20th December 2004.
Time: 1500 Hours to 1900 Hours
Guest of Honour: Shri D C Lakha, Divisional Commissioner, Lucknow. (Absent),
Special Guest: Shri Anil Pathak, Chairman Sulabh International, New Delhi. Brig (Dr.) UP Bhatnagar, Consultant Tropical Medicine, Lucknow.
Client side: Mr. Hirotako Sato JICA, Mr. Ajai Singh, TEC.
Team Members: Shri Arun Kumar, Brig (Dr.) UD Dubey, Mr. S Vijaykrishnan, Mr Anuj Sharma, Mr Shishir Lal, Mr. Utparn Dubey, Mr. Ruchir Shukla, Ms. Archana Saini.
Other Participants: 54 participants List attached.
Medium Used for Presentation: Power point slides in English were used to explain the outcome of the feasibility study using LCD Projector and Class room Style arrangements with P A system.

Views and Comments aired during the Workshop at Lucknow

Shri Arun Kumar IAS: Team Leader of the study team opened the workshop and welcomed the JICA Team members, and distinguished participants thanked them for their extensive support and cooperation during the initial phase of study to reach a feasible outcome on the study for "**Non sewerage schemes for pollution abatement in river Gomati and Ganga Under water quality Management Plan**". He said the awareness program and education and training development has to be incorporated to make any program feasible and acceptable in long term with the community to make any plan successful. While presenting the facts and finding of the feasibility study to the audiences and participants he stressed on working from the grassroots level and also asked them to be aware about the do and don't of the sanitation program especially in context to slum development. He emphasised on bringing the Nagar Nigam and Community at the same platform and asked the Nagar Nigam officials to cooperate as far as possible. He asked the various stakeholders to define the structure of any development program to be carried out for the development in such a manner that it is viable and sustainable in long term and make sure that people are involved, keeping in mind the overall availability of infrastructure. He also said that lots need to be done at institutional and policy maker's level.

Shri Hirotako Sato, JICA: Mr. Sato from JICA also extended warm welcome and thanked the study team consisting of members from Royal Haskoning and Saakaar International for carrying out the study on above subject and emphasised on cooperation from all the quarters in order to derive the success from the Masterplan to be implemented in future and asked the various stakeholders and participants from community to come out in front and express their views and ideas to the to the findings being presented. He also said that Japan Government and JBIC want the support and cooperation from every quarter and asked people to gear themselves for the time to come in order to save their Rivers and their heritage.

Shri Ajai Singh, TEC - JICA: Mr. Singh while explaining the role of JICA and Japan Government in the formulation of the Masterplan for River Ganga said lots need to done at the grass root level and stakeholders level and a system chain has to be implemented between the two in order to derive the benefits from the proposed scheme and development plan. He also stressed on the needs

1. Dr. A K Pathak, Chairman Sulabh International

- Sulabh International has been the organisation to bring the movement of safe and clean defecation Activities be the communities living in the slum and have been able to make in roads to stop open defection and scavenging activities.

- As far as river action plan are concerned lots need to be done at Government level before education and awareness development of community and beneficiaries. What Kind action is being taken from the government side is unclear as still there have been constraints and non cooperation from government side in getting the land allocated for the same.
- Second biggest problem is of practices related to cremation of dead bodies due to lacunae in government side for not being able to provide adequate and safe crematoria and still the people go to river side.
- He requested JICA members to make any program being made by them more people friendly and go for involvement of active and target oriented Organisations.

2. Mr S C Verma, Project Officer DUDA Lucknow.

- Main difficulty or drawback is poor Operation & Maintenance by the concerned agencies and no flow up after the construction of the facility.
- According to him, there is no financial problem, but the money being charged from the facility user is not properly accounted by the appointed contractor.
- Reference of some successful running complex in Lucknow but they are again in commercial or market place.
- As far as .

Outcome: Various comments and suggestion were received during the workshop with the stakeholders and participants aired their acceptance and dissatisfaction over the present system and welcomed the approach presented by the project team for the betterment of the community. Over all it was a successful presentation and whatever suggestion and comments after proper filtration useful to the feasibility study purpose have been incorporated with the Final report.

Appendix E

Appendix E : Attendance List Non Sewerage Workshop
LUCKNOW
20 DECEMBER 2004
HOTEL SAGAR INTERNATIONAL

S.No.	NAME	DESIGNATION/ADDRESS
1.	Ajay K. Singh	JICA Study Team
2.	Hirotaka Sato	JICA Study Team
3.	Dr. A K Pathak	Chairman – Sulabh International
4.	Mr. Piyush Chaturvedi	Engineer Sulabh International
5.	Sanjeev Chaudhary	Sulabh International
6.	Shri. S C Verma	Project Officer – DUDA
7.	S Jeepani	Sulabh International
8.	S K Mehrotra	APO - DUDA
9.	Shiv Singh Rathore	C.O DUDA
10.	Akhtar Abbas	C.O DUDA
11.	Vinod Tiwari	C.O DUDA
12.	Brig. U D Dubey	Expert Public Health – Project Team
13.	Brig. U P Bhatnagar	Consultant Medicine- Tropical Disease
14.	Manzoor Ahmed	Exe Engineer- Jal Sansthan, Lucknow
15.	V N Tripathi	APO – DUDA
16.	P K Sharma	APO – DUDA
17.	Sanjai Singh	APO – DUDA
18.	Smt. Sharda Yadav	CDS – Haider Canal
19.	Smt. Meena Siddiquei	CDS – Haji Tola, Campbell Road
20.	Smt. Nazma Bano	CDS – Alambagh Sujanpur.
21.	Smt. Shyama Parveen	CDS – Nazar Bagh
22.	Smt. Mithilesh Yadav	CDS – Martin Purwa
23.	Smt. Sudha Jaiswar	CDS - Treasurer Martin Purwa
24.	Smt. Susheela Yadav	CDS - Moti Nagar
25.	Smt. Manju Yadav	CDS – Fajullah Ganj
26.	Smt. Rani Verma	CDS – Khadra
27.	Smt. Geeta Yadav	CDS – Gomati Nagar
28.	Smt. Urmila Bharti	CDS – Janki Puram
29.	Smt. Afroz Jahan	CDS – Chaudhary Tola
30.	Smt. Suman Gaud	CDS- Kanhiya Madhopur
31.	Haji Maqsood Ahmed	Chairman-Dhobi Kalyan Samaj Samiti
32.	Inderlal Kanojia	Mahamantri - Dhobi Kalyan Samaj Samiti
33.	Javed Ahmed	Vice Chairman- Dhobi Kalyan Samaj Samiti
34.	Ch. Abdul Aziz	Vice Chairman- Dhobi Kalyan Samaj Samiti
35.	Abdul Ghaffar	Member -Dhobi Kalyan Samaj Samiti
36.	Sheila Bharati	CDS-Barafkhana, Udayganj
37.	Rizwana Syed	CDS-Katra Abutrao Khan Chowk
38.	Shailesh Mehrotra	CO, DUDA
39.	Vinod Kumar Singh	CO, DUDA
40.	Dilip Yadav	CO, DUDA
41.	Dharampal Singh	CO, DUDA

42.	Manoj Kumar	CO, DUDA
43.	Satyendra Singh	CO, DUDA
44.	Archana Nigam	CDS-Samwatganj
45.	Sarita Pal	CDS-Dodakheda
46.	Sangita Pal	CDS-
47.	S. Vijaykrishnan	Director India, Haskoning India Private Limited
48.	Shishir Lal	Project Team
49.	Anuj Sharma	Project Team
50.	Arun Kumar	Team Leader, Project Team
51.	Haider Abbas	Project Team
52.	Archana Saini	Project Team
53.	Ruchir Shukla	Project Team
54.	Utparn Dubey	Project Team

Appendix F

गंगा व गोमती नदी मलिनिकरण पर काबू पाने के लिए सफाई प्रबन्ध योजना का अध्ययन
लखनऊ, दिसम्बर 20, 2004

क्र. स.	नाम	पद एवं पता	हस्ताक्षर
1.	अनन्य सिंह	जापान अन्तर्राष्ट्रीय दल, दिल्ली	
2.	Hirotaka Sato	JICA Study Team	
3.	DR A.K. PATHAK	Chairman, Sulabh Prof. A.K.	
4.	Piyush chaturvedi	Engineer sulabh International LKO	
5.	Sanjeev Ojha	Sulabh International	
6.	S.C. Verma	P.O., DUDA, LKO	
7.	S. Tiwari	Sulabh International	
8.	S.K. Mehrotra	APO DUDA LKO	
9.	Shiv Singh Rathor	C.O. Duda Lucknow	
10.	Akhtar Abbas	C.O. Duda	
11.	VINOD TEWARI	C.O. DUDA LUCKNOW	
12.	Brig UD Dubey	Expert Public Health	
13.	Brig U.P. BHATNAGAR	Consultant Medicine & TROPICAL DISEASES.	
14.	Manzoor Alam	Executive Engineer Lucknow Jalsansthan LKO	
15.	V.N Tripathi	DUDA A. Project officer Lucknow	

गंगा व गोमती नदी मलिनिकरण पर काबू पाने के लिए सफाई प्रबन्ध योजना का अध्ययन
लखनऊ, दिसम्बर 20, 2004

क्र. स.	नाम	पद एवं पता	हस्ताक्षर
16.	P.K. Sharma	AEO, DUDA-Lko	
17.	Sanjay Singh	AEO, Duda. Campal Hospital Campus Nawal Kishore Road, Hzt	
18.	[illegible]	[illegible]	
19.	[illegible]	[illegible]	
20.	[illegible]	[illegible]	
21.	[illegible]	[illegible]	20/12/04
22.	[illegible]	[illegible]	20-12-04
23.	[illegible]	[illegible]	20-12-04
24.	[illegible]	[illegible]	20-12-04
25.	[illegible]	[illegible]	20-12-2004
26.	[illegible]	[illegible]	20-12-2004
27.	[illegible]	[illegible]	20-12-04
28.	[illegible]	[illegible]	
29.	[illegible]	[illegible]	20/12/04
30.	सुमन गौड़	सी०डी० एस अध्यक्षा (इडा) कन्हैया माधौपुर वार्ड नं.26	Suman Gaur 20/12/04

गंगा व गोमती नदी मलिनिकरण पर काबू पाने के लिए सफाई प्रबन्ध योजना का अध्ययन
लखनऊ, दिसम्बर 20, 2004

क्र. स.	नाम	पद एवं पता	हस्ताक्षर
31.	हाजी मकसूद अहमद	- अध्यक्ष, धोबी समाज कल्याण समिति उ०प्र० मोहनीपुरवा चौराहा, हुसैनाबाद, लखनऊ	[illegible]
32.	इन्दर लाल कनौजिया	- महामन्त्री - धोबी समाज कल्याण समिति, उ०प्र०, लाला सीतारा बेगम, हुसैनाबाद लखनऊ	[illegible]
33.	जावेद अहमद	उपाध्यक्ष - धोबी समाज कल्याण समिति, उ०प्र०, मोहनीपुरवा चौराहा हुसैनाबाद, लखनऊ	[illegible]
34.	चौ० अब्दुल अजीज	- उपाध्यक्ष - धोबी समाज कल्याण समिति, उ०प्र०, मोहनीपुरवा चौराहा हुसैनाबाद, लखनऊ	[illegible]
35.	अब्दुल गफ्फार	- सदस्य, धोबी समाज कल्याण समिति, उ०प्र०	गफ्फार
36.	शीला भारती	सी०डी० एस० अध्यक्षा 14/92 धरमकोना उदयगंज लखनऊ	Sheela Bharti
37.	रिजवाना सईद	सी० डी० एस० अध्यक्षा 238/144 कटरा कुतुब खां चौक लखनऊ	R Saeed
38.	शैलेश मेहरोत्रा	सी० ओ० डूडा, लखनऊ	Shailesh
39.	विनोद कुमार सिंह	सी० ओ० डूडा - लखनऊ	[illegible]
40.	दिलीप भारद्वाज	सी० ओ० डूडा, लखनऊ	[illegible]
41.	धर्मपाल सिंह	सी० ओ० डूडा, लखनऊ	[illegible]
42.	मनोज कुमार	सी० ओ० डूडा लखनऊ	[illegible]
43.	सत्येन्द्र सिंह	सी० ओ० डूडा लखनऊ	[illegible]
44.	अर्चना निगम	सी-डी-एस डूडा लखनऊ 426/168 सआदतगंज	[illegible]
45.	अनीता पाल	सी० डी० एस डूडा लखनऊ धोबी खेड़ा	Anita Pal

3

गंगा व गोमती नदी मलिनिकरण पर काबू पाने के लिए सफाई प्रबन्ध योजना का अध्ययन
लखनऊ, दिसम्बर 20, 2004

क्र. स.	नाम	पद एवं पता	हस्ताक्षर
46.	संगीता पाल	अहयूक्षा सामुदायिक विकास समिति (डुडा) लखनऊ	
47.	शिशिर लाल	अध्यक्ष - दले	
48.	अनुज शर्मा	प्रोजक्ट टीम	अनुज शर्मा
49.	अरुण कुमार	" — "	अरुण कुमार
50.	हैदर अब्बास	Project team	
51.	Abdul Sami	Project team	
52.	Ruchir Shukla	Project Team (SI)	
53.	Utpam Dubey	Project coordinator	
54.			
56.			
57.			
58.			
59.			
60.			
61.			

Appendix G

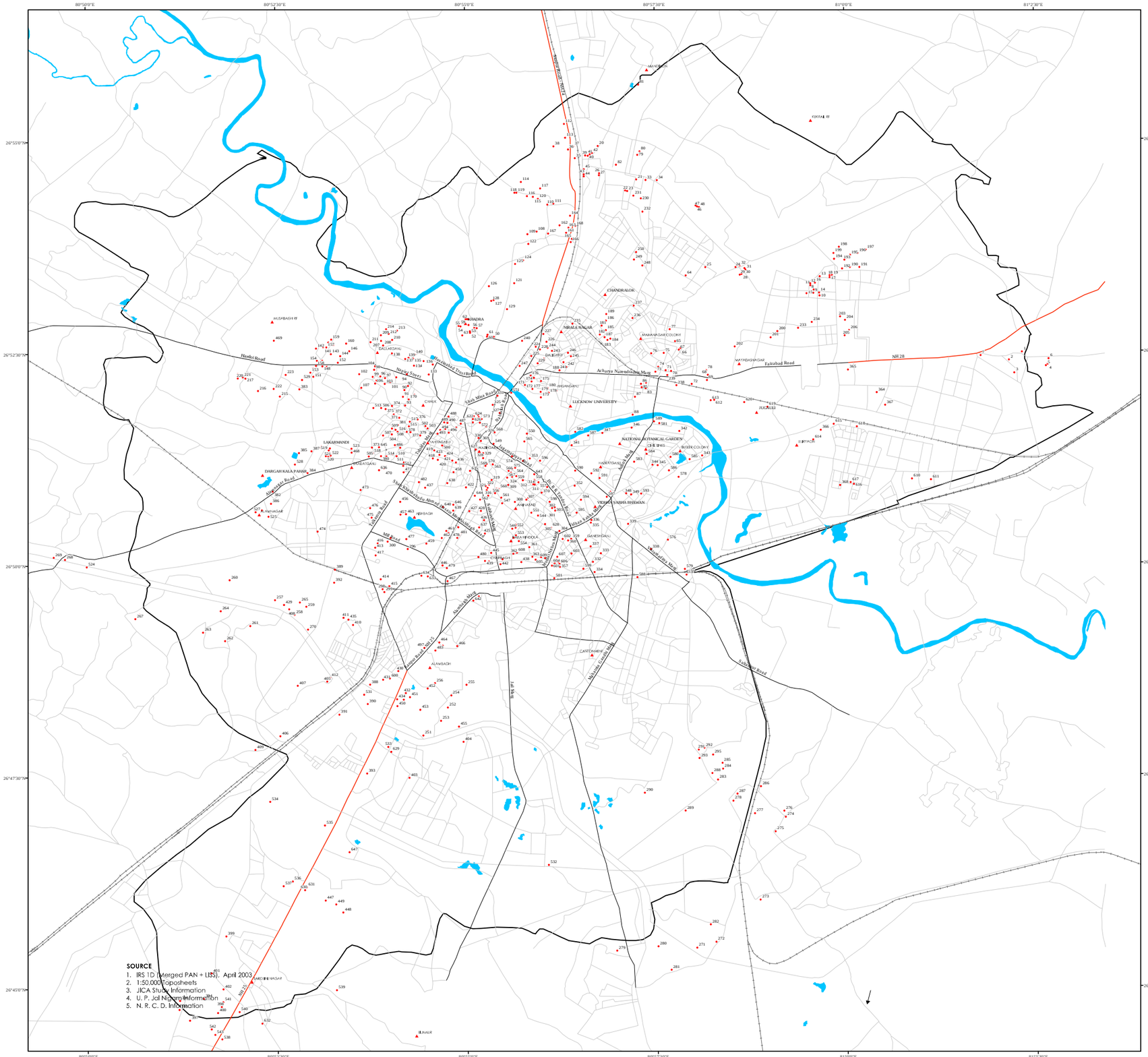
Demographic Profile of Lucknow

				Household size			6.0
Number of Household			644,269	Proportion of Urban population (%)			63.6
	P	M	F	Sex Ratio (Female per 1000 males)			888
Population-Total	3,647,834	1,932,317	1,715,517	Sex Ratio (0-6 Years)			915
Population-Rural	1,326,873	703,044	623,829	Sex Ratio (SC)			893
Population-Urban	2,320,961	1,229,273	1,091,688	Sex Ratio (ST)			878
Population (0-6)	547,950	286,063	261,887		P	M	F
SC Population	776,502	410,227	366,275	Proportion of SC population (%)	21.3	21.2	21.4
ST Population	2,868	1,527	1,341	Proportion of ST population (%)	0.1	0.1	0.1
Number of Literates	2,129,942	1,250,877	879,065	Literacy Rate (%)	68.7	76.0	60.5
Number of Illiterates	1,517,892	681,440	836,452	Illiteracy Rate (%)	49.0	41.4	57.5
Total Workers	1,086,400	907,221	179,179	Work participation rate (%)	29.8	46.9	10.4
Main workers	900,181	796,826	103,355	Proportion of Main Workers (%)	24.7	41.2	6.0
Marginal workers	186,219	110,395	75,824	Proportion of Marginal Workers (%)	5.1	5.7	4.4
Non workers	2,561,434	1,025,096	1,536,338	Proportion of Non Workers (%)	70.2	53.1	89.6
Cultivators	213,689	178,063	35,626	Proportion of cultivators to total workers (%)	19.7	19.6	19.9
Agricultural labourers	129,191	83,698	45,493	Proportion of agricultural labourers to total workers (%)	11.9	9.2	25.4
Workers in household industries	53,947	40,061	13,886	Proportion of workers in household industries to total workers (%)	5.0	4.4	7.7
Other workers	689,573	605,399	84,174	Percentage of Other workers to total workers (%)	63.5	66.7	47.0

P- Total population, M- Male, F-Female

Appendix H

SLUM MAP
LUCKNOW CITY



SOURCE

1. IRS 1D (Merged PAN + LISS), April 2003
2. 1:50,000 Toposheets
3. JICA Study Information
4. U. P. Jal Nigam Information
5. N. R. C. D. Information

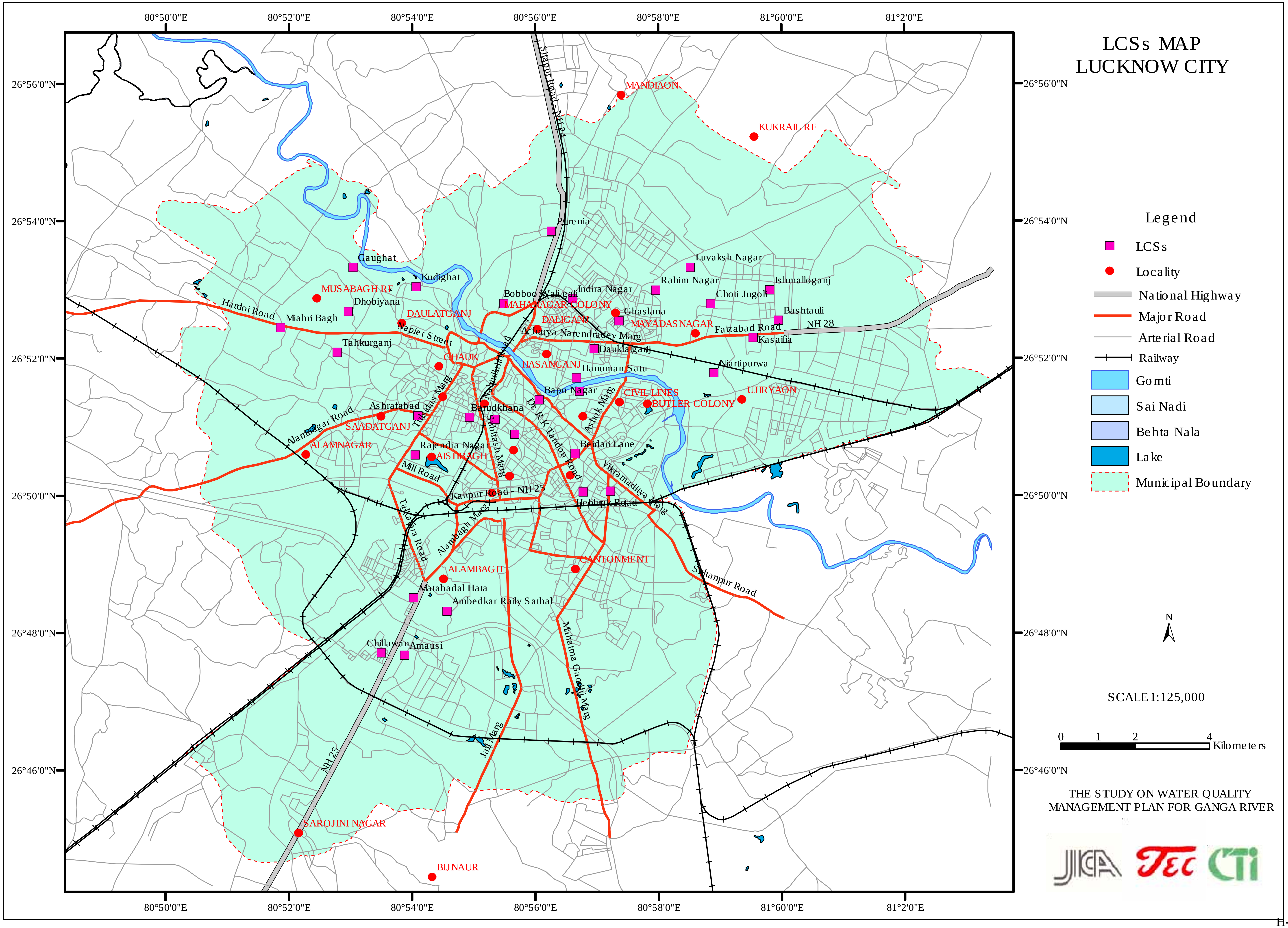
Legend

- ● Slum
- ▲ Locality
- Arterial Road
- Major Road
- National Highway
- Railway
- ☐ Municipal Boundary
- 🟦 River Channel

SCALE - 1: 30,000

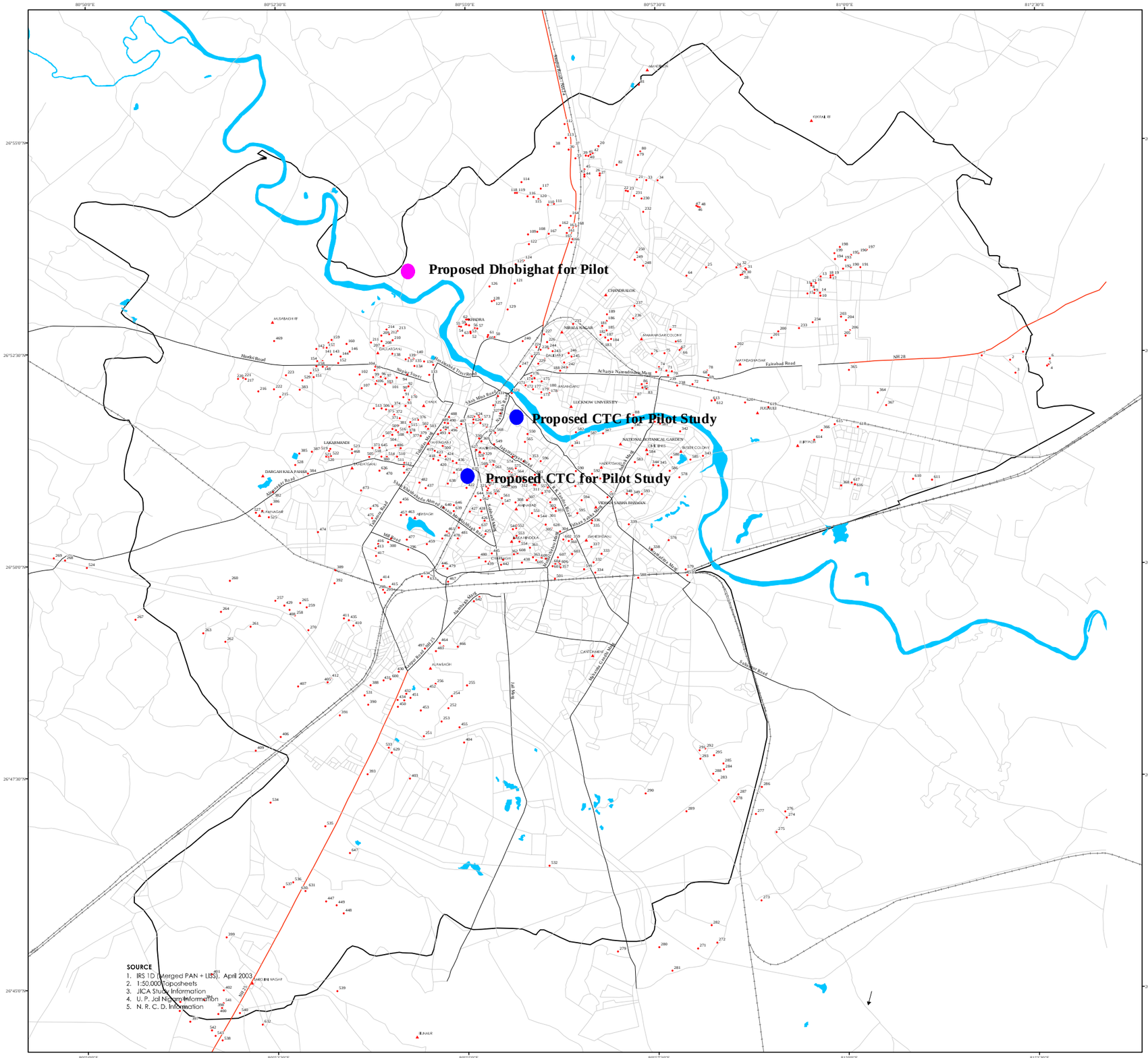
0 1,000 2,000 4,000 Meters

H-1



LCSs MAP
LUCKNOW CITY
Legend
LCSs
Locality
National Highway
Major Road
Arterial Road
Railway
Gomti
Sai Nadi
Behta Nala
Lake
Municipal Boundary
N
SCALE 1:125,000
0 1 2 4 Kilometers
THE STUDY ON WATER QUALITY MANAGEMENT PLAN FOR GANGA RIVER
80°50'0"E
80°52'0"E
80°54'0"E
80°56'0"E
80°58'0"E
81°60'0"E
81°2'0"E
26°56'0"N
26°54'0"N
26°52'0"N
26°50'0"N
26°48'0"N
26°46'0"N
MANDIAON
KUKRAIL RF
Sitapur Road - NH 24
Purenia
Gaughat
Kudighat
MUSABAGH RF
Dhobiyana
Hardoi Road
Miahri Bagh
DAULATGANJ
Napier Street
Tahkurganj
CHAUK
Bobboo Waliganj
Indira Nagar
MAHANAGAR COLONY
DALIGANJ
Ghaslana
MAYADAS NAGAR
Acharya Narendradev Marg
Luvaksh Nagar
Rahim Nagar
Choti Jugoli
Ishmalloganj
Bashtauli
NH 28
Faizabad Road
Kasailia
Dauklaganj
HASANGANJ
Hanuman Satu
Niartipurwa
Bapu Nagar
CIVIL LINES
BUTLER COLONY
UJIRYAON
Ashok Marg
Ashrafabad
Alamnagar Road
SAADATGANJ
Tulsidas Marg
Barudkhana
Subhash Marg
Dr. R K Tandon Road
Beidari Lane
ALAMNAGAR
Rajendra Nagar
AISHBAGH
Mill Road
Kanpur Road - NH 25
Vikramaditya Marg
Hebbark Road
Takhpura Road
Alambagh Marg
CANTONMENT
Sultanpur Road
ALAMBAGH
Matabadal Hata
Ambedkar Raily Sathal
Mahatma Gandhi Marg
Chillawan
Amausi
Jail Marg
NH 25
SAROJINI NAGAR
BIJNAUR

SLUM MAP
LUCKNOW CITY



Legend

- Slum
- Locality
- Arterial Road
- Major Road
- National Highway
- Railway
- Municipal Boundary
- River Channel
- **Proposed CTC for Pilot Study**
- **Proposed Dhobighat for Pilot**

N
W E
S

SCALE - 1: 30,000

0 1,000 2,000 4,000 Meters

Appendix I

List of Slums - Lucknow

ID	NAME
1	Chinhat
2	Chinhat Bazar
3	Balram Nagar
4	Pakka Talab
5	Kumharan Mandir
6	Love Dals
7	Chinhat Patari
8	Faridi Nagar
9	Chandan
10	Nizamuddin
11	Sugamau
12	Sugamau Purwa
13	Samuddin Purwea
14	Near Chandan Gaon
15	Near Chandan Gaon
16	Chamrokha
17	Kharagpur
18	Near Kharagpur
19	Near Kharagpur
20	Beniganj
21	Atroli
22	Gannay Ka pUrwa
23	Mohd. Pur Khatri
24	Khurram Nagar
25	Kanhaiya Lal Purwa
26	Shankar Purwa
27	Chuiya Purwa
28	Bahadurpur
29	Kalyanpur
30	Jahirapurwa
31	Chetan Purwa
32	Adil Nagar
33	Near Tedhi Pulia
34	Near Janki Plaza
35	Shankarpur
36	Khadari
37	Sikanderpur
38	RaniKhera
39	Gorian Purwa
40	Sultanpur
41	Khalilabad
42	Rampurwa
43	Chowdhary Purwa
44	Radhey Shyam Purwa
45	Mariyaon
46	Near Sec-G
47	Near Vishal Hospital
48	Near Hrash Hospital
49	Ram Leela Maidan
50	Deen Dayal Nagar
51	Khadra
52	Makka Ganj
53	Shukul Garahiya
54	Purana takiya
55	Loni Katra
56	Maday Ganj - A
57	Maday Ganj - B
58	Baba ka Purwa
59	Shiv Nagar -A
60	Jinnati Masjid
61	Mashalehi Tola
62	Shiv Nagar - B
63	Ali Nagar
64	Mahanadi Tola
65	Purana Mahanagar
66	Ghoshiyan
67	Gopal Purwa
68	Old Akbar Nagar
69	New Akbar Nagar
70	Maurya Tola
71	Lodhi Purwa
72	Badshah Railway Colony
73	Rahim Nagar Purana
74	Rahim Nagar Naya
75	Ghosiyana
76	Amahi Purwa
77	Bajrang Nagar
78	Near Kukrail Nala
79	Paltan Chawani
80	Bataha
81	Beli Garad
82	Katra
83	Purana Takiya
84	Baba Ka Purwa
85	Shivaji Nagar
86	Bhikampur
87	Chhaka Purwa
88	Near Gomti Pul
89	Kanghi Tola
90	Gullu Ka Takiya
91	Katra Mohd.Ali Khan
92	Begum bari
93	Chhapra Bandan
94	Gurudasmal Ka Hata
95	Rajabganj
96	Vaidan Tola
97	Krishnapuri
98	Garhi Peer Khan
99	Kareem ganj
100	Vajeer Bagh
101	Maujam Nagar
102	Jharian Talab
103	Akta Nagar
104	Kanaiya Kheda
105	Yaseen Ganj
106	Ram ganj
107	Nawati Tola
108	Gayatri Nagar
109	Naubasta
110	Fazulaganj
111	Fazulaganj Purwa
112	Sherwani Nagar
113	Gori
114	Gor Bheet
115	Rahim Nagar
116	Bharat Nagar
117	Kakooli
118	Old Daud Nagar
119	New Daud Nagar
120	Gazipur
121	Mohibbulapur
122	Near galla Mandi
123	Yogi Ngar
124	Akta Nagar
125	Shri Puram
126	Shiv Lok
127	Alok Nagar
128	Batora Ganj
129	Madyaganj New
130	Galla Bazar
131	Charakwali Gali
132	Raish Nagar
133	Peer Bukhara
134	Juta Bazar
135	Langar Khana
136	Near By Power House
137	Ram Ganj Khanti
138	Shivpuri
139	Hata Sitara Begum
140	Loniyan Tola
141	Musahid Ganj
142	Gaughat
143	Mishri Bagh A
144	Mishri Bagh B
145	Braf Khana
146	Mallahi tola
147	Barawan Khurd
148	Barawan Kala
149	Chandoiya Khera
150	Chamarahi
151	Top Khana
152	Hariya Bazar
153	Gaushala Road
154	Chandoiya
155	Sararaj ganj
156	Prakash Nagar
157	Jal Nigam Road
158	Balaganj
160	Haiyat Nagar
161	Ahlbaranpur
162	Indra Nagari
163	Near By Ahibaranpur
164	Near By Shiv Bank Colon
165	Puraniya A
166	Puraniya B
167	Kabarian Tola
168	Near Puraniya Crossing
169	Ghasiyali Mohalla
170	Tahseen Ganj
171	Tagore Marg
172	Barwalia
173	Chamrahi
174	Mukarim Nagar
175	Joshi Tola
176	Ambedkar Nagar
177	Kutubpur
178	Nehru Nagar
179	Kabariyan Purwa
180	Mankameshwar Mandir
181	Medahi Ka Purwa
182	Chhota Chand Ganj
183	Charahi Hasanganj
184	Baba Ki Bagiya
185	Babu Ganj
186	Sarai Hasanganj
187	Halwasia ka Hata
188	Niwaz Ganj
189	Chaparatalla
190	Pataha Purwa
191	Takrohi
192	D K Colony
193	Jarahara
194	Pandit Purwa
195	Ramdin Purwa
196	Badshah Khera
197	Amrai Goan
198	Mattiyar4i
199	Hardasi Khera
200	Pratap Nagar
201	Shakti Nagar
202	Lavkush Nagar
203	Kamta
204	Bastauli
205	Munshi Purwa
206	Ismaile ganj
207	Mubarak Ka Hata
208	Jhakar Bagh
209	Pajaba Ahmad Ganj
210	Daulat Ganj
211	Iqbal Nagar
212	D P Bora Plot
213	Near Mohini Purwa
214	Near Mohini Purwa
215	Seminan garden
216	Barora Hussain Bari
217	Sardar Nagar
218	madhavpur
219	Faridipur
220	Begaria Khera
221	Ahiran Khera
222	Near Begaria Gaon
223	Near Balaganj Chowraha
224	Lakar Mandi
225	Lahor ganj
226	Takiya Munshi Ganj
227	Goriyan Purwa
228	Darji Ki Bagia
229	Nai Bara
230	Akalapur
231	Subauli
232	Nand Pur
233	Tika Purwa
234	Gazipur
235	Lal Colony
236	Fatahpur Sec-E
237	Panday Tola
238	Rustam Nagar
240	Ashfaqullah Nagar
241	Bhandu Mohalla
242	Ashfaq Nagar
243	Purani Bans Mandi
244	baghshah Ji
245	Jaujhali Mohalla
246	Bishti Tola
247	Daliganj railway Stn
248	Chowdary Ka Tola
249	Mirzapur
250	Near Loha Bhandar
251	Gopal Puri
252	Bhilawa
253	Azad Nagar
254	Hasanapur
255	Ambedkar Nagar
256	Vishweshwar Nagar
257	Deepti Khera
258	Para
259	Piatamber Khera
260	Jalalpur
261	Mardan Khera
262	Narpat Khera
263	Muunu Khera
264	Haider Canal
265	Doctor Khera
266	Badshah Khera
267	Chunno Khera
268	Biharipur
269	Saleem Khera
270	Devpur Railway Crossing
271	Bhawani Ganj
272	Ghosiyana
273	Devi Khera
274	Saleh Nagar
275	Munna Sai Ki Kutia
276	Chamarahi
277	Bhadrukh
278	Nat Khera
279	Subhani Khera
280	kumaraha Mandi
281	Pasiyana
282	Mohari Bagh
283	Ibrahimpur
284	Bhagwant Nagar
285	Baroli Khalilabad
286	Chiraya Bagh
287	Rewtapur
288	Durgapuri
289	Havatmau
290	Eshwari Khera
291	New Basti
292	Utratiya
293	Neelmatha
294	Sheetal Khera
295	Pancham Khera
296	Gulzar Nagar
297	Sanjay Nagar
298	Shram Vihar
299	Arti Ngar
300	Gari Kanora
301	Talab Gagni Sukla
302	Machhli Mahal
303	Jambur Khana
304	Phool Bagh
305	Safdal Bagh
306	Jhuliyan Tola
307	Shutur Khana
308	Mata Din Ka Hata
309	Sarju Prasad Ka Hata
310	Iswar Dayal Ka Hata
311	Maqbul Ganj
312	Bhusha Mandi
313	Kasai Mandi
314	Nat Khera
315	Kurmi Tola
316	Fatehganj Galla Mandi
317	Jute Wali Gali
318	Baiashe Wale Gali

159 Peer nagar
320 Shekh Khan Ka Hata
321 Kanhaiya Lal Parag Das Hata
322 Laiya Wali Gali
323 Hata Laxman Das
324 Khayali Ganj
325 Kakori Hata
326 Marris Market
327 Peer Jalil Kaiser Bagh
328 Aga Sahab Bagh
329 Pratap Nagar
330 River Bank Nala
331 Jhau Lal Pul
332 Bheri Mandi
333 Guien Ganj
334 Sulema Kadar Ka Hata
335 Bhusa Mandi - B
336 Hari Nagar
337 Rath Khana
338 Gaus nagar Nala
339 Chatai Mohalla
340 Chamar Toliya
341 Gaus Nagar
342 Hathi Khana
343 Rassi Batan
344 Takiya Azam Beigh
345 Hata Shahnshah
346 Kallan Ki Lat
347 Haider Mirza Road
348 Janta Nagri
349 LESU
350 Maqubara Aliya
351 Machhli Wala Fatak
352 Haqueem Mehndi Maqubara
353 Dipti Ka Hata
354 Nai Basti
355 Mallahi Tola
356 Gaus Ganj
357 Wazeer Ganj
358 Pul Kumharan
359 Dali Ganj Pul
360 Agamir Dyorhi
361 Takiya Falls
362 Chaudhri Garhaiya
363 Christan Coll. Ki Dhal
364 Dhobi Ka hata
365 Jawar Nagar
366 Raza Nagar
367 Shaheed Nagar
368 Nai Basti
369 Baraf Khana
370 Nai Basti (Murad Ali Lane)
371 Ram Lila Maidan
372 Bandariya Bagh
373 Haider Canal
374 Martin Purwa
375 Pipra Ghat
376 Jiya Mau
377 Raiway Candam Quarter
378 Dali Bagh
379 Raja Oel Kothi
380 Bapu Nagar
381 Ravidas Nagar
382 Sanjay Ghandhi Nagar
383 Jai Parkash Nagar
384 Hanuman Setu Ke Peechhe
385 Mallapur
386 Uchchawan
387 Balu Adda Basti
388 Khalil Miyan Ka Hata
389 Muchchhu Miyan Ka Hata
390 Sikandar Nagar
391 Sikandar Nagar-3
392 Ramaiya Ji Puram
393 Bairal No. 17
394 Rajiv Ghandhi Nagar
395 Eklavya Nagar
396 Takiya
397 Radha Krishna Mandir
398 Purani City
399 Fatima Manzil
400 Lalbagh Ayodha
401 Bheri Wali Kothi
402 Laplac
403 Fire Station Kotwali ke F
404 Peer Pur Square
405 Baledari Lane Lalbagh
406 Pathano ki Baridari
407 Collector Compound
408 Nale Kinare Ki Basti
409 Rani Bhargav Ka Hata
410 Ghasiyari Mandi - B
411 Machhli Mandi
412 Banarsi Das Nagar
413 Mahavir Puri
414 Sudama Puri
415 Sugga Devi Marg
416 Ram Nagar
417 Adgada
418 Pasi Tola
419 Tilpurwa
420 Bariya Mohal Agenda
421 Bagh Aina Bibi
422 Gani Khan Kan Hata
423 Kabeer Bagh Ka Hata
424 Raghubar Das Ka Hata
425 Kamta Prasad Ka Hata
426 Hata Khwaja Gauhar
427 Hata Rasul Khan
428 Kundan Lal Ka Hata
429 Nahar Kinara Yunus Ma
430 Nahar Kinara Chhitwa P
431 Nangu Thekedar Ka Hat
432 Risaha Purwa
433 Husadiya
434 Jhaliyan Purwa
435 Behnan Purwa
436 Chamrahi
437 Sonia Gandhi Nagar
438 Ambedkar Nagar
439 Lodh Purwa
440 Nawab Purwa
441 Ghulam Husain
442 Gadariyan Purwa (Vikas
443 Gadariyan Purwa (Vikas
444 Belaha
445 Gwari Tola
446 Choti Jugaoli
447 Badi Jugaoli
448 Chhachhi Kuwan
449 Puri Tola
450 Nal Bandi Tola
451 Thatheri Tola
452 Bawarchi Tola
453 Feel Khana
454 Bagh Sher Jung
455 Taji Khana
456 Bagh Munnu
457 Ganesh Puri
458 Tape Wali Gali
459 Angoori Bagh
460 Katra Vision Begh
461 Katra Vision Begh (Dhol
462 Thathar Wale Colony
463 Noorbadi
464 Fazil Nagar
465 Ram Asre Maidan
466 Chota Sahab alam Roac
467 Hussainy Gulistan
468 Shahanshah Zafar Colo
469 Bagh Wali Masjid
470 Naya Najaf Road
471 Dari Walan
472 Jhawai Tola
473 Shah Ganj
474 Takiya Haji Nusrat
475 Ashrafabad
476 Balda
477 Khairiyat
478 Khirki Mirga
479 Mansoor Nagar
480 Katra Wafa Beg
481 Hasan Puriya
482 Kashmiri Mohalla
483 Pul Ghulam Hussain
239 Umrao Ka Hata
484 Kazmain
485 Hadwad
486 L.H.Khan Maidan
487 Sari Pura Chamartoliya
488 Kagzi Tola
489 Haider Ganj
490 Harshpuram
491 Mohd. Ganj Bawli
492 Bail Wari
493 Pathar Katta
494 Saikh Pura
495 Murav Tola
496 Asiya Mau
497 Noor Beg Hata
498 Daldarha Khera
499 Thadi
500 Kanhai Khera
501 Sadrauna
502 Harijan Basti
503 Peer Bukhara
504 Kala Pahar
505 Sri Nagar
506 Shyam Nagar
507 Vikram Nagar
508 Bahadur Khera
509 Bhola Khera
510 Rajni Khand / 8
511 Chandraodaya Nagar
512 Sambhal Khera
513 Baldi Khera
514 Badali Khera
515 Ali Ngar Sunehra
516 Basant Khera
517 Gangadin Khera
518 Lodhan Khera
519 Tapovan Nagar
520 Gauri Bansal khera
521 Gahru
522 Jai Raj Puri
523 Lohar Khera
524 Rahimabad
525 Naveen Gauri
526 Behatwa
527 Hanuman Puri
528 Siddhartha Nagar
529 Gauri Vihar
530 Suraj Palli
531 Vishnu Nagar
532 Hindu Khera
533 Amausi
534 AzadNagar
535 Barghawan
536 Madari Khera
537 Choti Pakri
538 Chillawan
539 Chillawan Chamrahi
540 Kanausi (Kesri Khera) (B
541 Ganga Khera
542 Dev Pur
543 Pandit Khera
544 Baldev Khera
545 Dhaundha Khera RDSO
546 Chamrahi
547 Bharat Puri - A
548 Haddi Khera
549 Premwati Ngar
550 Ambedkar Nagar
551 Bharat Puri - B
552 Kanjar Basti Shram Bihar
553 Safeda Shram Bihar naga
554 Billauch Pura
555 Saray Aghamir
556 Nawabganj Garhuaya
557 Nadan Mahal
558 Kundri Rakabganj
559 Navab Ganj
560 Rakabganj Kadeem
561 Itki Mohalla
562 Triveni ganj
563 Cheda Khas Purw
564 Chamrantoliya
565 Railway Line Kinare ki Ba
319 Kuchcha Hata
566 Chamrahi (Chamaran Tola)
567 Angara Shah takiya
568 Ram Prasad Khera
569 Mangal Khera
570 Soniya Nagar
571 Puran Nagar
572 Jaudha Khera
573 Amrudahi Bagh
574 Daunda Khera
575 Kandaha Tikaitganj
576 Harijan Bsati
577 Aishbagh Water Works
578 Ram Nagar sudarshanpuri (Aishb
579 Tilak Nagar
580 Bakkal Mill
581 A.P.Sen Road
582 Pandariba
583 Lukman ganj
584 Chaube ji ka hata
585 Jagdish Prasad Ka Hata
586 Nivaj Khera(new Malin Basti)
587 Nivaj khera
588 Arya Nagar
589 Nehru Nagar
590 Munshi Khera
591 Behasa
592 Purana Gudaura
593 Naya Gudaura
594 Fateh Ali Talab
595 Anand Nagar
596 Guru Nanak Nagar
597 Prem nagar
598 Nat Khera
599 Sneh Nagar
600 Damodar Nagar
601 Pakri Gaon Chiraiya Purwa)
602 Pandey Ka Talab
603 Moti Jheel
604 Khajua
605 Malviya Nagar
606 Sheetal Khera
607 Polo Khera
608 Daru Godam
609 Chirainda Purwa
610 Sujan Pura
611 Kuriyana
612 Chotta Barha
613 Mawaiya Jhopar Patti
614 Bibi Ganj
615 Daulat Khera (Nailwari)
616 Naubasta (Victoria)
617 Budhdhu Lal Road
618 Lakad Mandi
619 Khala Bazar
620 Saadat Ganj
621 Gaya Prasad ka Hata (Tinmini)
622 Kachchi ColonyNanda Khera
623 Nanda Khera
624 Karehta
625 Supparose
626 Kayam Khera
627 Durga Puri Mavaiya
628 Dhobi Ghat
629 Patra Colony
630 Bhadewan
631 Sardari Khera
632 Mehndi Ganj
633 Victoria Street
634 dariyai tola
635 Balda -75
636 Gali Shah Chadha
637 Thawai Tola
638 Bagh Makka
639 Bagh Makka (takiya)
640 Katra Abu Tarab Khan
641 Ghazi Mandi
642 Chidimar tola
643 Kode Wali gali
644 Shahi Mazjid
645 Nala Beghum Ganj
646 Bheem Nagar
647 Shakir Ali Ka Hata

Appendix J

Appendix J

Ground Water Quality : Lucknow

S. No	Location	Type of sample	E.C micro siemens/cm at 25°C	pH	Cl	NO_3	F
1	Gosaiganj	Well	473.0	8.1	34.0	0.1	0.2
2	Kakori	H/P	777.0	8.2	116.0	16.0	BDL
3	Mal	H/P	435.0	8.2	6.7	0.8	0.3
4	Bakhi Ka Talab	H/P	425.0	8.0	17.0	2.6	0.8
5	Rakabganj	Well	519.0	8.1	31.0	12.0	0.3
6	Mohanlalganj	H/P	565.0	8.1	143.0	1.0	0.9
7	Chinhat	H/P	1250.0	8.0	150.0	41.0	BDL
8	Malihabad	H/P	498.0	8.0	13.0	BDL	0.7
9	Amausi	H/P	397.0	8.1	13.0	BDL	0.3
	Desirable Limit			6.5-8.5	250.0	45.0	1.0
	Permissible Limit			no relaxation	1000.0	100.0	1.5
Source : Ground Water Year Book Uttar Pradesh & Uttranchal, CGWB, Ministry of Water Resources,							
Oct-04							
BDL : Below Deductable Limit							

Appendix K

Appendix K Requirement of CTC in the slums of Lucknow

S.No.	Slum Area	Ward name	Approximate Population	Population carrying Open Defecation	Willingness to pay	No. of Seats Required	Type of CTC		
				26	32	30	5 seater	10 seater	20 seater
1	Near Gomti pull	Paper Mill Colony	450	117	37	1	0	0	0
2	Aadil Nagar	Shankar Purwa	1100	286	92	3	0	0	0
3	Aaga Meer Dyodhi	Wazirganj	1250	325	104	3	0	0	0
4	Aagasahabkibagiya (Buddi)	Haider ganj	250	65	21	1	0	0	0
5	Aarti Nagar	Ambedkar Nagar	7000	1,820	582	19			1
6	Adgada	Hussain ganj	750	195	62	2	0	0	0
7	Ahivaranpur Jhopar Patti	Jaishnkar Prasad	900	234	75	3	0	0	0
8	Ahivaranpur	Jaishnkar Prasad	650	169	54	2	0	0	0
9	Aishbagh Water Works	Tilak Nagar	250	65	21	1	0	0	0
10	Akabar Nagar Naya	Mahanagar	500	130	42	1	0	0	0
11	Akabar Nagar Purana	Mahanagar	8200	2,132	682	23			1
12	Akla Pur	Lala Lajpat Rai	4000	1,040	333	11		1	0
13	Ali Nagar	Ayodhaya Das	1500	390	125	4	0	0	0
14	Ali Nagar Sunehra	Sarojini Nagar	2500	650	208	7	1	0	0
15	Alok Nagar	Triveni Nagar	1500	390	125	4	0	0	0
16	Amausi	Sarojini Nagar	7500	1,950	624	21			1
17	Ambedkar Nagar	Mankameshwar Mandir	650	169	54	2	0	0	0
18	Ambedkar Nagar	Geeta Palli	1000	260	83	3	0	0	0
19	Ambedkar Nagar	Ambedkar Nagar	1500	390	125	4	0	0	0
20	Amhi Purwa	Mahanagar	400	104	33	1	0	0	0
21	Amrahi Gao	Shaeed Bhagat Singh	5000	1,300	416	14		1	0
22	Amroodahi Bagh	Ram ji Lal Nagar	1000	260	83	3	0	0	0
23	Anand Nagar	Guru Govind Singh	5000	1,300	416	14		1	0
24	Angara Shah Takia	Rajendra Nagar	750	195	62	2	0	0	0
25	Angoori Bagh	Kalbe Abid	750	195	62	2	0	0	0
26	Arya Nagar	Chandrabhanu	1250	325	104	3	0	0	0
27	Asharfabad	Kashmiri Mohalla	2500	650	208	7	1	0	0
28	Asharfabad Balda	Kashmiri Mohalla	500	130	42	1	0	0	0
29	Ashfak Nagar	Kadamrasool	300	78	25	1	0	0	0
30	Ashfakulla Nagar	Kadamrasool	550	143	46	2	0	0	0
31	Asiamau	Saadat ganj	1000	260	83	3	0	0	0
32	Assamiya Basti(Galla Mandi)	Faizullah Ganj	1200	312	100	3	0	0	0
33	Atrauli	Shankar Purwa	900	234	75	3	0	0	0
34	Azad Nagar	Sarojini Nagar	1500	390	125	4	0	0	0
35	Babu Ka Purwa	Ayodhaya Das	2200	572	183	6	1	0	0
36	Babu Ka Purwa	Paper Mill Colony	1050	273	87	3	0	0	0
37	Baba Ki Bagiya	Ashok Azad	1300	338	108	4	0	0	0
38	Babu Ganj	Ashok Azad	2500	650	208	7	1	0	0
39	Badali Khera	Sarojini Nagar	7500	1,950	624	21			1
40	Badi Jugaoli	Rafi Ahmad	1000	260	83	3	0	0	0
41	Badshah Kera	Alam Nagar	1800	468	150	5	1	0	0
42	Bagh Aina Bibi	Hussain ganj	2500	650	208	7	1	0	0
43	Bagh Makka(Takiya)	Raza Bazar	375	98	31	1	0	0	0
44	Bagh Maqqa	Raja Bazar	1500	390	125	4	0	0	0
45	Bagh Shah Ji	Kadamrasool	650	169	54	2	0	0	0
46	Bagh Sher Jang	Mashak Ganj	1000	260	83	3	0	0	0
47	Baghmunnu(ghasiyari mandi)	Shivaji Marg	1000	260	83	3	0	0	0
48	Bailwari	Saadat ganj	250	65	21	1	0	0	0
49	Bajrang Nagar	Mahanagar	500	130	42	1	0	0	0
50	Bakal Meer	Tilak Nagar	1100	286	92	3	0	0	0
51	Balaganj	Balaganj	2000	520	166	6	1	0	0
52	Baldi Khera	Sarojini Nagar	2500	650	208	7	1	0	0
53	Balram Nagar	Chinhat	1500	390	125	4	0	0	0
54	Banarsi Das Nagar	Babu Banarsi	3000	780	250	8	1	0	0
55	Bandaria Bagh	Vikram Aditya	250	65	21	1	0	0	0
56	Bapu Nagar	Raja Ram Mohan Rai	425	111	36	1	0	0	0
57	Baraura Husain Bari	Kanhaiya Madhav Pur	1700	442	141	5	1	0	0
58	Baravan Kala	Balaganj	5000	1,300	416	14		1	0
59	Baravan Kala Khurd	Balaganj	2000	520	166	6	1	0	0
60	Barfkhana	Mallahi Tola	2000	520	166	6	1	0	0
61	Bargawa	Hind Nagar	400	104	33	1	0	0	0
62	Basant Khera	Sarojini Nagar	500	130	42	1	0	0	0
63	Bastauli	Ismailganj	3000	780	250	8	1	0	0
64	Bateshai Wali Gali	Aminabad	1500	390	125	4	0	0	0
65	Batha	Bhartendau Harishci	1500	390	125	4	0	0	0
66	Bawarchi Tola	Mashak Ganj	750	195	62	2	0	0	0
67	Begariya	Kanhaiya Madhav Pur	1000	260	83	3	0	0	0
68	Begum Vadi	Amber Ganj	800	208	67	2	0	0	0
69	Behnan Purwa	Rajeev Gandhi Nagar	1500	390	125	4	0	0	0
70	Behsa	Raja Bijli Pasi	2500	650	208	7	1	0	0
71	Behtawa	Sarojini Nagar	400	104	33	1	0	0	0
72	Belaha	Gomti Nagar	250	65	21	1	0	0	0
73	Beldari Lane Lalbagh	Hazratganj	2500	650	208	7	1	0	0
74	Beli Garad	Bhartendau Harishci	1500	390	125	4	0	0	0
75	Beniganj	Shankar Purwa	450	117	37	1	0	0	0
76	Berafkhana	Murli Nagar	2750	715	229	8	1	0	0
77	Bhadewan	Aishbagh	500	130	42	1	0	0	0
78	Bhadhur Khera	Chitragupt Nagar	5000	1,300	416	14		1	0
79	Bhadhurpur	Shankar Purwa	500	130	42	1	0	0	0

S.No.	Slum Area	Ward name	Approximate Population	Population carrying Open Defecation	Willingness to pay	No. of Seats Required	Type of CTC		
80	Bangla Bazar/ Bhadrukh	Sharda Nagar	6000	1,560	499	17			1
81	Bhagwant Nagar	Ibrahimpur	1500	390	125	4	0	0	0
82	Bhandu Mohalla	Kadamrasool	750	195	62	2	0	0	0
83	Bharat Nagar	Faizullah Ganj	3200	832	266	9		1	0
84	Bharatpuri-A	Ambedkar Nagar	1000	260	83	3	0	0	0
85	Bharatpuri-B	Ambedkar Nagar	1750	455	146	5	1	0	0
86	Bhawani Ganj	Alam Nagar	1700	442	141	5	1	0	0
87	Bhediwali Kothi	Hazratganj	5000	1,300	416	14		1	0
88	Bheem Nagar	Yahiyaganj	2500	650	208	7	1	0	0
89	Bhekham Pur	Paper Mill Colony	2400	624	200	7	1	0	0
90	Bheri Mandi	Maulviganj	1500	390	125	4	0	0	0
91	Bhillawa	Geeta Palli	1800	468	150	5	1	0	0
92	Bhisti Tola	Kadamrasool	1600	416	133	4	0	0	0
93	Bhola Khera	Chitragupt Nagar	2500	650	208	7	1	0	0
94	Bhusa Mandi	Gautam Budh	1250	325	104	3	0	0	0
95	Bhusa Mandi	Maulviganj	1000	260	83	3	0	0	0
96	Bihari Pur		3000	780	250	8	1	0	0
97	Billojpura	Kundri Rakab Ganj	2500	650	208	7	1	0	0
98	Biwiganj	Haider ganj	2500	650	208	7	1	0	0
99	Brauali Khalilabad	Ibrahimpur	3500	910	291	10		1	0
100	Chachi Kuwa	Mashak Ganj	350	91	29	1	0	0	0
101	Chakar Purwa(Chakra Pur)	Paper Mill Colony	1000	260	83	3	0	0	0
102	Chamar Tolia	Maulviganj	400	104	33	1	0	0	0
103	Chamrahi	Balaganj	300	78	25	1	0	0	0
104	Chamrahi	Mankameshwar Mandir	1000	260	83	3	0	0	0
105	Chamrahi(Chamran Tola)	Rajendra Nagar	400	104	33	1	0	0	0
106	Chamrahi	Rajeev Gandhi Nagar	750	195	62	2	0	0	0
107	Chamrahi	Kesari Kheda	250	65	21	1	0	0	0
108	Chamrahi	Sharda Nagar	400	104	33	1	0	0	0
109	Chamran Tolia	Rajendra Nagar	400	104	33	1	0	0	0
110	Chamraukha	Babu Jagjivan Ram	1500	390	125	4	0	0	0
111	Chandan	Indira Priyadarshini	1000	260	83	3	0	0	0
112	Chandoiya Khera	Balaganj	2000	520	166	6	1	0	0
113	Chandroday Nagar	Chitragupt Nagar	1500	390	125	4	0	0	0
114	Chapartalla	Chand ganj Kala	1900	494	158	5	1	0	0
115	Charak Wali Gali	Husainabad	300	78	25	1	0	0	0
116	Chatai Mohalla	Maulviganj	750	195	62	2	0	0	0
117	Chaudhuri Ka Tola	Bajrang Bali	2000	520	166	6	1	0	0
118	Cheda Khas Purwa	Rajendra Nagar	750	195	62	2	0	0	0
119	Chetan Purwa	Shankar Purwa	300	78	25	1	0	0	0
120	Chidimar Tola	Raza Bazar	375	98	31	1	0	0	0
121	Chillawa Chamrahi	Hind Nagar	250	65	21	1	0	0	0
122	Chillawa	Hind Nagar	2250	585	187	6	1	0	0
123	Chinhat	Chinhat	750	195	62	2	0	0	0
124	Chinhat Bazar	Chinhat	7800	2,028	649	22			1
125	Chiriya Bagh	Ibrahimpur	1800	468	150	5	1	0	0
126	Chitta Kheda(Malviya Nagar)	Malviya Nagar	2500	650	208	7	1	0	0
127	Chodhery Gadhiya	Wazirganj	1400	364	116	4	0	0	0
128	Choiya Purwa	Shankar Purwa	650	169	54	2	0	0	0
129	Chota Barha	Babu Kunj Bihari	2500	650	208	7	1	0	0
130	Chota Chandganj	Ashok Azad	5000	1,300	416	14		1	0
131	Chote Sahab Aalam Road	Kalbe Abid	1500	390	125	4	0	0	0
132	Choti Jugaoli	Rafi Ahmad	5000	1,300	416	14		1	0
133	Choti Pakri	Hind Nagar	1250	325	104	3	0	0	0
134	Chrainda Purwa	Malviya Nagar	750	195	62	2	0	0	0
135	Chunnu Kera	Alam Nagar	600	156	50	2	0	0	0
136	D.P Bora Plot	Daulat ganj	2000	520	166	6	1	0	0
137	Dali Bagh	Raja Ram Mohan Rai	500	130	42	1	0	0	0
138	Daliganj Pul	Wazirganj	250	65	21	1	0	0	0
139	Damoder Nagar	Guru Nanak	400	104	33	1	0	0	0
140	Dari Walan	Kalbe Abid	750	195	62	2	0	0	0
141	Dariyai Tola	Raja Bazar	1250	325	104	3	0	0	0
142	Daru Godam	Malviya Nagar	3000	780	250	8	1	0	0
143	Drazi Ki Bagiya	Bazaar Kali Ji	1000	260	83	3	0	0	0
144	Daud Nagar Naya	Faizullah Ganj	1000	260	83	3	0	0	0
145	Daud Nagar Purana		700	182	58	2	0	0	0
146	Daulat Ganj	Daulat ganj	1100	286	92	3	0	0	0
147	Daulat Kheda	Haider ganj	250	65	21	1	0	0	0
148	Deen Dayal Nagar	Ayodhaya Das	7500	1,950	624	21			1
149	Deputy Ka Hata	Wazirganj	250	65	21	1	0	0	0
150	Dev Pur	Kesari Kheda	5000	1,300	416	14		1	0
151	Devi Khera	Sharda Nagar	1500	390	125	4	0	0	0
152	Dhobi Ghat	Moti Lal Nehru	750	195	62	2	0	0	0
153	Dhondha Kheda	Kesari Kheda	500	130	42	1	0	0	0
154	Dipti Khera	Alam Nagar	700	182	58	2	0	0	0
155	Doanda Kheda	Ram ji Lal Nagar	1250	325	104	3	0	0	0
156	Doctor Kera	Alam Nagar	550	143	46	2	0	0	0
157	Durga Puri	Moti Lal Nehru	110	29	9	0	0	0	0
158	Durga Puri	Ibrahimpur	1500	390	125	4	0	0	0
159	Eklavya Nagar	Raja Ram Mohan Rai	800	208	67	2	0	0	0
160	Ekta Nagar	Gadhi Peer Khan	6000	1,560	499	17			1
161	Ekta Puram	Triveni Nagar	800	208	67	2	0	0	0
162	Faizullah Ganj Purwa	Faizullah Ganj	3000	780	250	8	1	0	0

S.No.	Slum Area	Ward name	Approximate Population	Population carrying Open Defecation	Willingness to pay	No. of Seats Required	Type of CTC		
163	Faizullah Ganj	Faizullah Ganj	5000	1,300	416	14		1	0
164	Faridi Nagar	Indira Priyadarshini	2500	650	208	7	1	0	0
165	Faridi Pur	Kanhaiya Madhav Pur	2000	520	166	6	1	0	0
166	Fateh Ali Talab	Guru Govind Singh	1000	260	83	3	0	0	0
167	Fateh Pur Sector-E	Aliganj	6500	1,690	541	18			1
168	Fateh Ganj Galla Mandi	Aminabad	1250	325	104	3	0	0	0
169	Fatima Manzil	Hazratganj	250	65	21	1	0	0	0
170	Fazil Nagar	Kalbe Abid	1750	455	146	5	1	0	0
171	Fire Station	Hazratganj	300	78	25	1	0	0	0
172	Gadariyan Purwa	Gomti Nagar	250	65	21	1	0	0	0
173	Gadhi Kanaura	Ambedkar Nagar	5000	1,300	416	14		1	0
174	Gadhi Peer Khan	Gadhi Peer Khan	6200	1,612	516	17			1
175	Gahru	Sarojini Nagar	1500	390	125	4	0	0	0
176	Gali Shah Chara	Raja Bazar	1250	325	104	3	0	0	0
177	Galla Bazar	Husainabad	2000	520	166	6	1	0	0
178	Ganga Kheda	Kesari Kheda	400	104	33	1	0	0	0
179	Gani Khan Ka Hata	Hussain ganj	750	195	62	2	0	0	0
180	Gannae Ka Purwa	Shankar Purwa	900	234	75	3	0	0	0
181	Gau Ghat	Mallahi Tola	1300	338	108	4	0	0	0
182	Gaudi	Faizullah Ganj	500	130	42	1	0	0	0
183	Gaur Bheet(Mehandi Bagh)	Faizullah Ganj	600	156	50	2	0	0	0
184	Gauri	Sarojini Nagar	2500	650	208	7	1	0	0
185	Gaus Nagar Naala	Maulviganj	750	195	62	2	0	0	0
186	Gaus Nagar	Maulviganj	1500	390	125	4	0	0	0
187	Gaushala Road	Balaganj	3000	780	250	8	1	0	0
188	Gayatri Nagar	Faizullah Ganj	5000	1,300	416	14		1	0
189	Gazi Mandi	Raja Bazar	350	91	29	1	0	0	0
190	Gazipur	Faizullah Ganj	600	156	50	2	0	0	0
191	Ghadiyali Mohalla	Chowk	2500	650	208	7	1	0	0
192	Ghasiyari Mandi	J.C. Bose	1250	325	104	3	0	0	0
193	Ghazi Pur	Maithali Sharan Gupt	2000	520	166	6	1	0	0
194	Ghosiyana(Rahim Nagar)	Mahanagar	650	169	54	2	0	0	0
195	Ghosiyana	Vivekkanand Puri	1500	390	125	4	0	0	0
196	Ghosiyana	Sharda Nagar	3000	780	250	8	1	0	0
197	Godiyan Purwa	Jankipuram	850	221	71	2	0	0	0
198	Godiyan Purwa	Dali Ganj	1500	390	125	4	0	0	0
199	Gopal Puri	Geeta Palli	1800	468	150	5	1	0	0
200	Gopal Purwa	Vivekkanand Puri	900	234	75	3	0	0	0
201	Gousganj	Wazirganj	1250	325	104	3	0	0	0
202	Gulam Hussain Purwa	Gomti Nagar	1500	390	125	4	0	0	0
203	Guljar Nagar	Ambedkar Nagar	3000	780	250	8	1	0	0
204	Gullu Ka Takiya	Amber Ganj	550	143	46	2	0	0	0
205	Guru Nanak Nagar	Guru Nanak	750	195	62	2	0	0	0
206	Gurudas Mal Ka Hata	Gadhi Peer Khan	1500	390	125	4	0	0	0
207	Guwin Ganj	Maulviganj	3000	780	250	8	1	0	0
208	Gwari Tola	Rafi Ahmad	2500	650	208	7	1	0	0
209	Haata Khwaza Gohar	Lalkuwan	1000	260	83	3	0	0	0
210	Haata Rasul Khan	Lalkuwan	5000	1,300	416	14		1	0
211	Haddi Khera	Ambedkar Nagar	250	65	21	1	0	0	0
212	Hadiya Bazar	Balaganj	4000	1,040	333	11		1	0
213	Haidar Kainal	Alam Nagar	2500	650	208	7	1	0	0
214	Haider Canal	Vikram Aditya	1750	455	146	5	1	0	0
215	Haider Mirza Road	Gola Ganj	1250	325	104	3	0	0	0
216	Hanuman Puri	Sarojini Nagar	2500	650	208	7	1	0	0
217	Hanuman Setu Ke Peechhe	Raja Ram Mohan Rai	1100	286	92	3	0	0	0
218	Hardasi Khera	Shaheed Bhagat Singh	2500	650	208	7	1	0	0
219	Hari Nagar	Maulviganj	2000	520	166	6	1	0	0
220	Harijan Basti	Alam Nagar	1000	260	83	3	0	0	0
221	Harijan Basti	Tilak Nagar	520	135	43	1	0	0	0
222	Harshpuram	Saadat ganj	600	156	50	2	0	0	0
223	Hasan Puriya	Kashmiri Mohalla	2500	650	208	7	1	0	0
224	Hasanganj Charahai	Ashok Azad	2000	520	166	6	1	0	0
225	Hasna Pur	Geeta Palli	800	208	67	2	0	0	0
226	Hata Sitara Begum	Husainabad	2000	520	166	6	1	0	0
227	Hathi Khana	Abdul Hamid	275	72	23	1	0	0	0
228	Hawat Mau Mawayia	Ibrahimpur	5000	1,300	416	14		1	0
229	Hayat Nagar	Balaganj	3000	780	250	8	1	0	0
230	Hindu Khera	Sarojini Nagar	3000	780	250	8	1	0	0
231	Husainabad Road	Husainabad	900	234	75	3	0	0	0
232	Husaini Gulistan	Kalbe Abid	1000	260	83	3	0	0	0
233	Husariya	Rajeev Gandhi Nagar	1600	416	133	4	0	0	0
234	Ibrahim Pur	Ibrahimpur	1000	260	83	3	0	0	0
235	Indira Nagri	Jaishnkar Prasad	1100	286	92	3	0	0	0
236	Iqbal Nagar Khanti	Daulat ganj	2500	650	208	7	1	0	0
237	Ishwari Khera	Ibrahimpur	800	208	67	2	0	0	0
238	Ismailganj	Ismailganj	4000	1,040	333	11		1	0
239	Itki Mohalla	Kundri Rakab Ganj	500	130	42	1	0	0	0
240	Jai Prakash Nagar	Raja Ram Mohan Rai	1000	260	83	3	0	0	0
241	Jai Nigam Road	Balaganj	350	91	29	1	0	0	0
242	Jalal Pur	Alam Nagar	7000	1,820	582	19			1
243	Jamboor Khana	Nazarbagh	2500	650	208	7	1	0	0
244	Janta Nagri	Gola Ganj	1000	260	83	3	0	0	0
245	Jarhara	Shaheed Bhagat Singh	1500	390	125	4	0	0	0

S.No.	Slum Area	Ward name	Approximate Population	Population carrying Open Defecation	Willingness to pay	No. of Seats Required	Type of CTC		
246	Jawahar Nagar	Wazirganj	1700	442	141	5	1	0	0
247	Jayraj Puri	Sarojini Nagar	750	195	62	2	0	0	0
248	Jhadiyan Talab	Gadhi Peer Khan	1400	364	116	4	0	0	0
249	Jhakad Bagh	Daulat ganj	1000	260	83	3	0	0	0
250	Jhaliyan Purwa	Rajeev Gandhi Nagar	800	208	67	2	0	0	0
251	Jhulal Pul	Peer Jalil	750	195	62	2	0	0	0
252	Jhavjhali Mohalla	Kadamrasool	2000	520	166	6	1	0	0
253	Jhawai Tola	Kalbe Abid	2500	650	208	7	1	0	0
254	Jhulian Tola	Yadunath Sanayal	1000	260	83	3	0	0	0
255	Jinnati Masjid	Ayodhaya Das	900	234	75	3	0	0	0
256	Jiya Mau	Vikram Aditya	2500	650	208	7	1	0	0
257	Jodha Khera	Ram ji Lal Nagar	1250	325	104	3	0	0	0
258	Joota Bazar	Husainabad	250	65	21	1	0	0	0
259	Joshi Tola	Mankameshwar Mandir	800	208	67	2	0	0	0
260	Jute Wali Gali	Aminabad	1375	358	115	4	0	0	0
261	K K C Pani Ki Tanki	Babu Banarsi Das	750	195	62	2	0	0	0
262	Kabadi Basti	Indira Priyadarshini	800	208	67	2	0	0	0
263	Kabadi Basti	Mahanagar	500	130	42	1	0	0	0
264	Kabariyan Purwa	Mankameshwar Mandir	1500	390	125	4	0	0	0
265	Kabariyan Tola	Jaishnkar Prasad	600	156	50	2	0	0	0
266	Kacchi Colony	Kunwar Jyoti Prsad	750	195	62	2	0	0	0
267	Kachha Hata	Aminabad	2500	650	208	7	1	0	0
268	Kakauli	Faizullah Ganj	1100	286	92	3	0	0	0
269	Kakori Haata	Rani Laxmi Bai	750	195	62	2	0	0	0
270	Kala Pahad	Alam Nagar	1000	260	83	3	0	0	0
271	Kalan Ki Lath	Gola Ganj	3000	780	250	8	1	0	0
272	Kalayanpur	Shankar Purwa	500	130	42	1	0	0	0
273	Kamta Prasad Ka Hata	Hussain ganj	1300	338	108	4	0	0	0
274	Kamta	Ismailganj	2100	546	175	6	1	0	0
275	Kanghi Tola	Amber Ganj	7500	1,950	624	21			1
276	Kanhai Khera	Alam Nagar	400	104	33	1	0	0	0
277	Kanhaiyya Khera	Gadhi Peer Khan	1200	312	100	3	0	0	0
278	Kanhiya Lal Purwa	Shankar Purwa	900	234	75	3	0	0	0
279	Kanousi	Kesari Kheda	1000	260	83	3	0	0	0
280	Karim Ganj	Gadhi Peer Khan	1200	312	100	3	0	0	0
281	Kasai Bara	Gautam Budh	2000	520	166	6	1	0	0
282	Kashmiri Mohalla	Kashmiri Mohalla	7500	1,950	624	21			1
283	Katra Abu Turab Khan	Raja Bazar	3000	780	250	8	1	0	0
284	Katra Mohammed Ali Khan	Amber Ganj	3300	858	275	9		1	0
285	Katra Vision Beigh	Kalbe Abid	650	169	54	2	0	0	0
286	Katra Wafa Beigh	Kashmiri Mohalla	1000	260	83	3	0	0	0
287	Katra	Bhartendau Harishci	1280	333	107	4	0	0	0
288	Kayam Khera	Moti Lal Nehru	500	130	42	1	0	0	0
289	Kesari Kheda	Kesari Kheda	600	156	50	2	0	0	0
290	Khadak Pur	Babu Jagjivan Ram	1200	312	100	3	0	0	0
291	Khadhri	Jankipuram	1500	390	125	4	0	0	0
292	Khandari Bazaar	Ayodhaya Das	5500	1,430	458	15	1	1	0
293	Khajua	Malviya Nagar	1250	325	104	3	0	0	0
294	Khala Bazar	Haider ganj	250	65	21	1	0	0	0
295	Khani Khera	Jankipuram	500	130	42	1	0	0	0
296	Khariyai	Kashmiri Mohalla	1750	455	146	5	1	0	0
297	Khayali Ganj	Rani Laxmi Bai	6000	1,560	499	17			1
298	Khurram Nagar	Shankar Purwa	2000	520	166	6	1	0	0
299	Kode Wali Gali	Raja Bazar	1000	260	83	3	0	0	0
300	Krehata	Labour Colony	1500	390	125	4	0	0	0
301	Krishna Puri	Gadhi Peer Khan	900	234	75	3	0	0	0
302	Kumhar Mandi	Kharika	1000	260	83	3	0	0	0
303	Kundan Lal Ka Hata	Lalkuwan	250	65	21	1	0	0	0
304	Kundri Rakab Ganj	Kundri Rakab Ganj	1000	260	83	3	0	0	0
305	Kuriyana	Babu Kunj Bihari	1500	390	125	4	0	0	0
306	Kurmi Tola	Gautam Budh	2800	728	233	8	1	0	0
307	Kutub Pur	Mankameshwar Mandir	5000	1,300	416	14		1	0
308	L.H.Khan Maidan	Saadat ganj	1000	260	83	3	0	0	0
309	Laiya Wali Gali	Rani Laxmi Bai	3000	780	250	8	1	0	0
310	Lakad Mandi	Dali Ganj	5000	1,300	416	14		1	0
311	Lakad Mandi	Haider ganj	1000	260	83	3	0	0	0
312	Lakshman Das Ka Hata	Rani Laxmi Bai	700	182	58	2	0	0	0
313	Lal Colony	Nirala Nagar	1400	364	116	4	0	0	0
314	Langar Khana	Husainabad	1000	260	83	3	0	0	0
315	Laplas	Hazratganj	250	65	21	1	0	0	0
316	Lesu	Gola Ganj	250	65	21	1	0	0	0
317	Lodh Purwa	Gomti Nagar	2000	520	166	6	1	0	0
318	Lodhan Khera	Sarojini Nagar	350	91	29	1	0	0	0
319	Lodhi Purwa	Mahanagar	2000	520	166	6	1	0	0
320	Lohar Ganj	Dali Ganj	2000	520	166	6	1	0	0
321	Lokman Ganj	Chandrabhanu	500	130	42	1	0	0	0
322	Loni Katra	Ayodhaya Das	1500	390	125	4	0	0	0
323	Love Dales	Chinhat	800	208	67	2	0	0	0
324	Luv-Kush Nagar	Lal Bahadur Shastri	1500	390	125	4	0	0	0
325	Machali Mohal	Nazarbagh	750	195	62	2	0	0	0
326	Machali Mohal	J.C. Bose	625	163	52	2	0	0	0
327	Madari Khera	Hind Nagar	300	78	25	1	0	0	0
328	Madey Ganj-A	Ayodhaya Das	5000	1,300	416	14		1	0

S.No.	Slum Area	Ward name	Approximate Population	Population carrying Open Defecation	Willingness to pay	No. of Seats Required	Type of CTC		
329	Madey Ganj-B	Ayodhaya Das	1450	377	121	4	0	0	0
330	Madey Ganj New	Ayodhaya Das	6500	1,690	541	18			1
331	Madhav Pur	Kanhaiya Madhav Pur	900	234	75	3	0	0	0
332	Madiuwa	Jankipuram	6000	1,560	499	17			1
333	Mahavir Puri	Babu Banarsi Das	2000	520	166	6	1	0	0
334	Makka Ganj	Ayodhaya Das	5000	1,300	416	14		1	0
335	Malla Pur	Raja Ram Mohan Rai	1250	325	104	3	0	0	0
336	Mallahi Tola	Wazirganj	2000	520	166	6	1	0	0
337	Mallahi Tola	Mallahi Tola	1800	468	150	5	1	0	0
338	Mangal Khera	Ram ji Lal Nagar	2500	650	208	7	1	0	0
339	Mankameshwar Mandir	Mankameshwar Mandir	1000	260	83	3	0	0	0
340	Mansoor Nagar	Kashmiri Mohalla	4000	1,040	333	11		1	0
341	Maqbool Ganj	Gautam Budh	2500	650	208	7	1	0	0
342	Mardan Khera	Alam Nagar	1600	416	133	4	0	0	0
343	Marris Market	Rani Laxmi Bai	400	104	33	1	0	0	0
344	Martin Purwa	Vikram Aditya	4500	1,170	374	12		1	0
345	Masalchi Tola	Ayodhaya Das	2000	520	166	6	1	0	0
346	Matadin Ka Hata	Ganesh Ganj	2500	650	208	7	1	0	0
347	Matiyari	Shaheed Bhagat Singh	5000	1,300	416	14		1	0
348	Mauraya Tola	Mahanagar	700	182	58	2	0	0	0
349	Mehandi Tola	Begum Hazrat Mahal	3500	910	291	10		1	0
350	Mehandi Ganj	Bhawani Ganj	5000	1,300	416	14		1	0
351	Merahi Ka Purwa	Ashok Azad	1500	390	125	4	0	0	0
352	Mishri Bagh-A	Mallahi Tola	1200	312	100	3	0	0	0
353	Mishri Bagh-B	Mallahi Tola	1000	260	83	3	0	0	0
354	Moazzam Nagar	Gadhi Peer Khan	900	234	75	3	0	0	0
355	Mohammad Ganj Bawali	Saadat ganj	1250	325	104	3	0	0	0
356	Mohammad Pur Khatri	Shankar Purwa	750	195	62	2	0	0	0
357	Mohibullaha Pur	Faizullah Ganj	1000	260	83	3	0	0	0
358	Mohini Purwa	Daulat ganj	2200	572	183	6	1	0	0
359	Mohri Bagh	Kharika	1500	390	125	4	0	0	0
360	Moti Jheel	Malviya Nagar	450	117	37	1	0	0	0
361	Mubarak Ka Hata	Daulat ganj	700	182	58	2	0	0	0
362	Mukarim Nagar	Mankameshwar Mandir	1000	260	83	3	0	0	0
363	Munna Sai Ki Kutiya	Sharda Nagar	1500	390	125	4	0	0	0
364	Munna Kera	Alam Nagar	900	234	75	3	0	0	0
365	Munshi Kheda	Raja Bijli Pasi	1500	390	125	4	0	0	0
366	Munshi Purwa	Ismailganj	1000	260	83	3	0	0	0
367	Murad Ali Lane	Murli Nagar	2500	650	208	7	1	0	0
368	Murao Tola	Saadat ganj	1250	325	104	3	0	0	0
369	Musahid Ganj	Mallahi Tola	1500	390	125	4	0	0	0
370	Naayee Baada	Bazaar Kali Ji	800	208	67	2	0	0	0
371	Nadan Mahal	Kundri Rakab Ganj	1250	325	104	3	0	0	0
372	Nahar Kinara	Lalkuwan	4000	1,040	333	11		1	0
373	Nahar Kinara	Lalkuwan	750	195	62	2	0	0	0
374	Nai Basti(Behind Badshah Naga	Mahanagar	600	156	50	2	0	0	0
375	Nai Basti	Murli Nagar	125	33	11	0	0	0	0
376	Nai Basti	Ibrahimpur	1500	390	125	4	0	0	0
377	Nala Begum Ganj	Yahiyaganj	2650	689	220	7	1	0	0
378	Nalbandi Tola	Mashak Ganj	250	65	21	1	0	0	0
379	Nale Ke Kinare	Hazratganj	250	65	21	1	0	0	0
380	Nand Pur	Lala Lajpat Rai	400	104	33	1	0	0	0
381	Nand Khera	Labour Colony	1500	390	125	4	0	0	0
382	Narpati Kera	Alam Nagar	900	234	75	3	0	0	0
383	Natkhera	Gautam Budh	425	111	36	1	0	0	0
384	Natkhera	Kharika	100	26	8	0	0	0	0
385	Naubasta	Faizullah Ganj	900	234	75	3	0	0	0
386	Naubasta	Haider ganj	300	78	25	1	0	0	0
387	Navab Purwa	Gomti Nagar	1000	260	83	3	0	0	0
388	Navin Gauri	Sarojini Nagar	2500	650	208	7	1	0	0
389	Nawab Ganj	Kundri Rakab Ganj	750	195	62	2	0	0	0
390	Nawab Ganj(Gadhiya)	Kundri Rakab Ganj	600	156	50	2	0	0	0
391	Naya Nazaf Road	Kalbe Abid	5000	1,300	416	14		1	0
392	Naya Rahim Nagar	Mahanagar	1000	260	83	3	0	0	0
393	Nayee Basti	Wazirganj	2250	585	187	6	1	0	0
394	Nebati Tola	Gadhi Peer Khan	2000	520	166	6	1	0	0
395	Neelmatha	Ibrahimpur	2500	650	208	7	1	0	0
396	Nehru Nagar	Mankameshwar Mandir	850	221	71	2	0	0	0
397	Nehru Nagar	Chandrabhanu	1250	325	104	3	0	0	0
398	New Gudora	Raja Bijli Pasi	350	91	29	1	0	0	0
399	Nivaz Ganj	Acharya Narendra	3000	780	250	8	1	0	0
400	Nivaz Khera	Chandrabhanu	1750	455	146	5	1	0	0
401	Nizamuddin	Indira Priyadarshini	1000	260	83	3	0	0	0
402	Noorbadi	Kalbe Abid	2500	650	208	7	1	0	0
403	Noorbeigh Hata	Saadat ganj	3000	780	250	8	1	0	0
404	Pajawa Ahmadganj	Daulat ganj	1800	468	150	5	1	0	0
405	Pakri Gaon	Guru Nanak	250	65	21	1	0	0	0
406	Paltan	Bhartendau Harishci	3000	780	250	8	1	0	0
407	Pancham Khera	Ibrahimpur	700	182	58	2	0	0	0
408	Pandariba	Chandrabhanu	2500	650	208	7	1	0	0
409	Pandey Ka Talab	Malviya Nagar	5000	1,300	416	14		1	0
410	Pandey Tola	Aliganj	7000	1,820	582	19			1
411	Pandit Kheda	Kesari Kheda	250	65	21	1	0	0	0

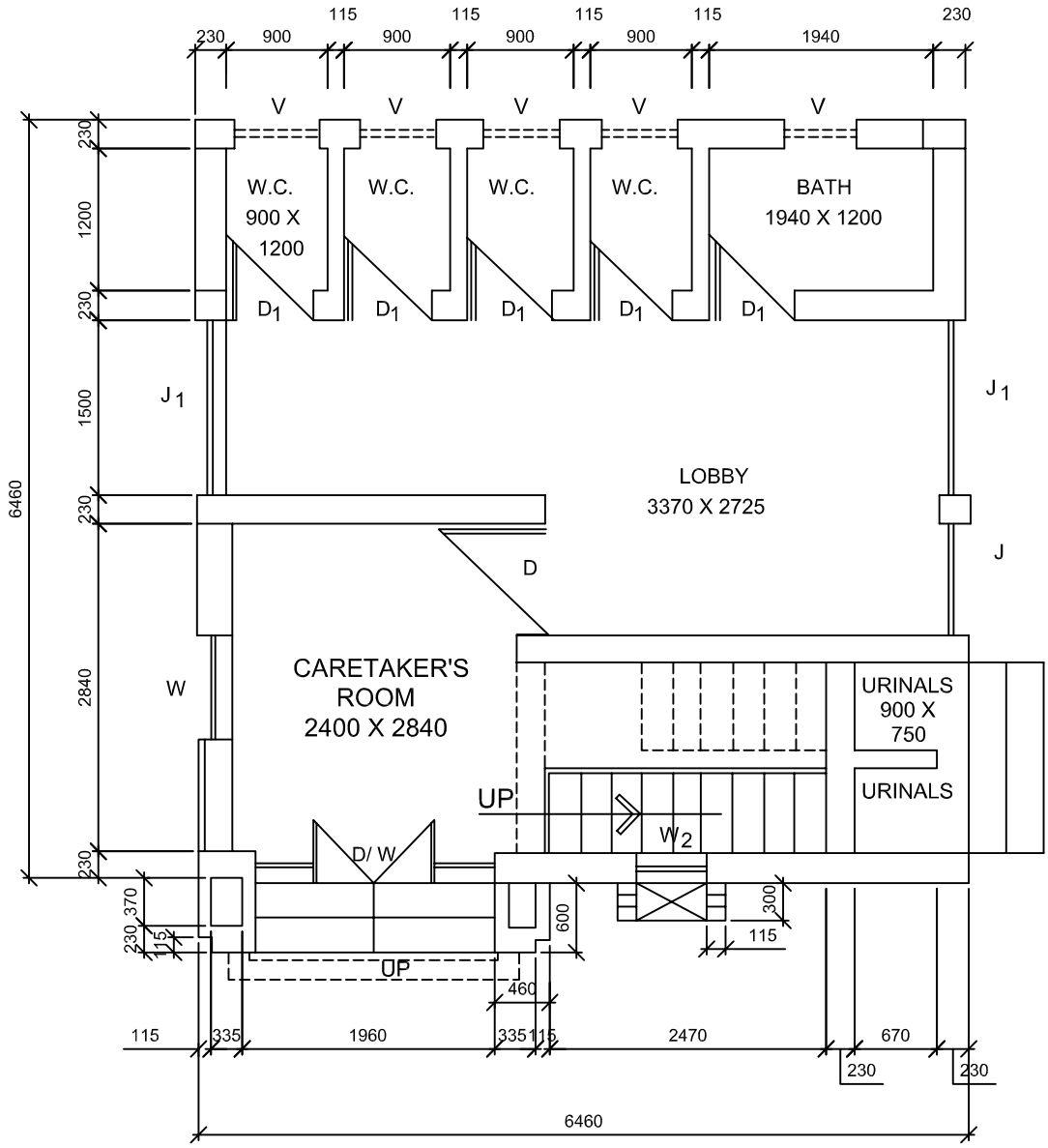
S.No.	Slum Area	Ward name	Approximate Population	Population carrying Open Defecation	Willingness to pay	No. of Seats Required	Type of CTC		
412	Pandit Purwa	Shaheed Bhagat Singh	550	143	46	2	0	0	0
413	Para	Alam Nagar	3500	910	291	10		1	0
414	Pasi Tola	Hussain ganj	350	91	29	1	0	0	0
415	Pasinganj	Gadhi Peer Khan	4000	1,040	333	11		1	0
416	Pasiyana	Kharika	5000	1,300	416	14		1	0
417	Pataora Ganj	Triveni Nagar	1500	390	125	4	0	0	0
418	Patha Purwa	Shaheed Bhagat Singh	900	234	75	3	0	0	0
419	Pathano Ki Baradari	Hazratganj	280	73	23	1	0	0	0
420	Peer Bakka	Alam Nagar	1250	325	104	3	0	0	0
421	Peer Bukhara	Husainabad	5000	1,300	416	14		1	0
422	Peer Jalil(Kaiserbagh)	Rani Laxmi Bai	3500	910	291	10		1	0
423	Peer Nagar	Balaganj	500	130	42	1	0	0	0
424	Peer Pur Square	Hazratganj	350	91	29	1	0	0	0
425	Phiel Khana	Mashak Ganj	250	65	21	1	0	0	0
426	Phool Bagh	Nazarbagh	3750	975	312	10		1	0
427	Pipra Ghat	Vikram Aditya	2000	520	166	6	1	0	0
428	Pitambar Khera	Alam Nagar	1500	390	125	4	0	0	0
429	Prakash Nagar	Balaganj	400	104	33	1	0	0	0
430	Pratap Nagar	Peer Jalil	1000	260	83	3	0	0	0
431	Pratap Nagar	Lal Bahadur Shastri	600	156	50	2	0	0	0
432	Prem Nagar	Guru Nanak	1250	325	104	3	0	0	0
433	Premwavti Nagar	Ambedkar Nagar	1000	260	83	3	0	0	0
434	Pucca Talab	Chinhat	650	169	54	2	0	0	0
435	Pul Gulam Husain	Kashmiri Mohalla	5000	1,300	416	14		1	0
436	Pull Kumaharan	Wazirganj	1500	390	125	4	0	0	0
437	Puran Nagar	Ram ji Lal Nagar	2000	520	166	6	1	0	0
438	Purana Gudora	Raja Bijli Pasi	1000	260	83	3	0	0	0
439	Purana Mahanagar	Vivekanand Puri	1400	364	116	4	0	0	0
440	Purana Takiya	Ayodhaya Das	2300	598	191	6	1	0	0
441	Purana Takiya	Paper Mill Colony	1200	312	100	3	0	0	0
442	Purani Baas Mandi	Kadamrasool	750	195	62	2	0	0	0
443	Purania-A	Jaishnkar Prasad	1500	390	125	4	0	0	0
444	Purania-B	Jaishnkar Prasad	600	156	50	2	0	0	0
445	Purania Crossing Jhopar	Jaishnkar Prasad	600	156	50	2	0	0	0
446	Puri Tola	Mashak Ganj	500	130	42	1	0	0	0
447	Radha Krishan Mandir	Hazratganj	625	163	52	2	0	0	0
448	Radheshayam Purwa	Jankipuram	650	169	54	2	0	0	0
449	Raghubar Das Ka Hata	Hussain ganj	500	130	42	1	0	0	0
450	Rahees Nagar	Husainabad	1500	390	125	4	0	0	0
451	Rahim Nagar Dudauli	Faizullah Ganj	800	208	67	2	0	0	0
452	Rahim Nagar	Mahanagar	4000	1,040	333	11		1	0
453	Rahimabad	Sarojini Nagar	1000	260	83	3	0	0	0
454	Railway Kinare Ke Basti	Rajendra Nagar	1000	260	83	3	0	0	0
455	Raja oel Kothi	Raja Ram Mohan Rai	500	130	42	1	0	0	0
456	Rajiv Gandhi Nagar	Raja Ram Mohan Rai	1000	260	83	3	0	0	0
457	Rajjab Ganj	Gadhi Peer Khan	2000	520	166	6	1	0	0
458	Rajni Khand/8	Chitragupt Nagar	4000	1,040	333	11		1	0
459	Ram Ganj Khanti	Husainabad	1500	390	125	4	0	0	0
460	Ram Lila Maidan	Murli Nagar	3000	780	250	8	1	0	0
461	Ram Nagar Sudarshan Pur	Tilak Nagar	400	104	33	1	0	0	0
462	Ram Nagar	Babu Banarsi Das	1500	390	125	4	0	0	0
463	Ram Prasad Khera	Ram ji Lal Nagar	3500	910	291	10		1	0
464	Ram Purwa	Jankipuram	400	104	33	1	0	0	0
465	Ramaiyya Ji Puram	Raja Ram Mohan Rai	2700	702	225	8	1	0	0
466	Ramganj (Ram Nagar)	Gadhi Peer Khan	1800	468	150	5	1	0	0
467	Ram Lila Maidan	Ayodhaya Das	3000	780	250	8	1	0	0
468	Raqab Ganj Kadeem	Kundri Rakab Ganj	1500	390	125	4	0	0	0
469	Rassi Batan	Abdul Hamid	600	156	50	2	0	0	0
470	Rath Khana	Maulvi Ganj	1500	390	125	4	0	0	0
471	Ravidas Nagar	Raja Ram Mohan Rai	2500	650	208	7	1	0	0
472	Raza Nagar(Shiv Puram)	Mahatma Gandhi	1000	260	83	3	0	0	0
473	Rewa Tapur	Ibrahimpur	1000	260	83	3	0	0	0
474	Risaha Purwa	Rajeev Gandhi Nagar	750	195	62	2	0	0	0
475	River Bank Nala	Peer Jalil	300	78	25	1	0	0	0
476	Rustam Nagar	Kalbe Abid	6100	1,586	508	17			1
477	Sadrauna	Alam Nagar	2000	520	166	6	1	0	0
478	Safdalbagh	Yadunath Sanayal	3500	910	291	10		1	0
479	Sahansah Jafar Colony	Kalbe Abid	500	130	42	1	0	0	0
480	Sahganj	Kalbe Abid	1500	390	125	4	0	0	0
481	Sahi Masjid	Sardar Patel Nagar	350	91	29	1	0	0	0
482	Saleh Nagar	Sharda Nagar	4500	1,170	374	12		1	0
483	Samaudi Purwa	Indira Priyadarshini	1000	260	83	3	0	0	0
484	Sambhal Khera	Chitragupt Nagar	1000	260	83	3	0	0	0
485	Sanjay Gandhi Nagar	Raja Ram Mohan Rai	1000	260	83	3	0	0	0
486	Sanjay Nagar	Ambedkar Nagar	3500	910	291	10		1	0
487	Sarai Hasanganj	Ashok Azad	7000	1,820	582	19			1
488	Sarai Agameer	Kundri Rakab Ganj	625	163	52	2	0	0	0
489	Sardar Nagar	Kanhaiya Madhav Pur	5000	1,300	416	14		1	0
490	Sardari Kheda	Om Nagar	1250	325	104	3	0	0	0
491	Sarfaraz Ganj	Balaganj	2000	520	166	6	1	0	0
492	Saripura	Saadat ganj	625	163	52	2	0	0	0
493	Sarju Prasad Ka Hata	Ganesh Ganj	6000	1,560	499	17			1
494	Seminan Garden	Kanhaiya Madhav Pur	1800	468	150	5	1	0	0

S.No.	Slum Area	Ward name	Approximate Population	Population carrying Open Defecation	Willingness to pay	No. of Seats Required	Type of CTC		
495	Shahid Nagar	Mahatma Gandhi	600	156	50	2	0	0	0
496	Shakti Nagar	Lal Bahadur Shastri	1250	325	104	3	0	0	0
497	Shankar Pur	Jankipuram	700	182	58	2	0	0	0
498	Sheetal Khera	Ibrahimpur	800	208	67	2	0	0	0
499	Sheetal Khera	Malviya Nagar	750	195	62	2	0	0	0
500	Sheikhpur	Saadat ganj	1000	260	83	3	0	0	0
501	Sherwani Nagar	Faizullah Ganj	500	130	42	1	0	0	0
502	Shiekh Khan Ka Hata	Aminabad	325	85	27	1	0	0	0
503	Shiv Bank Colony Ke Peche	Jaishnkar Prasad	700	182	58	2	0	0	0
504	Shiv Lok	Triveni Nagar	4000	1,040	333	11		1	0
505	Shiv Nagar-A	Ayodhaya Das	2000	520	166	6	1	0	0
506	Shiv Puri	Husainabad	3000	780	250	8	1	0	0
507	Shivaji Nagar	Paper Mill Colony	500	130	42	1	0	0	0
508	Shiv Nagar-B	Ayodhaya Das	2100	546	175	6	1	0	0
509	Shram Vihar(Kanjar Basti)	Ambedkar Nagar	1500	390	125	4	0	0	0
510	Shram Vihar(Safeda)	Ambedkar Nagar	500	130	42	1	0	0	0
511	Shram Vihar	Ambedkar Nagar	6000	1,560	499	17			1
512	Shri Puram	Triveni Nagar	800	208	67	2	0	0	0
513	Shukl Garaiya	Ayodhaya Das	2000	520	166	6	1	0	0
514	Shuturkhana	Yadunath Sanayal	5000	1,300	416	14		1	0
515	Shyam Nagar	Chitragupt Nagar	1000	260	83	3	0	0	0
516	Siddhartha Nagar	Sarojini Nagar	400	104	33	1	0	0	0
517	Sikandar Nagar	Raja Ram Mohan Rai	3750	975	312	10		1	0
518	Sikandar Nagar-3	Raja Ram Mohan Rai	350	91	29	1	0	0	0
519	Sikandar Pur	Jankipuram	1000	260	83	3	0	0	0
520	Sneh Nagar	Guru Nanak	2000	520	166	6	1	0	0
521	Sonia Nagar	Ram ji Lal Nagar	750	195	62	2	0	0	0
522	Soniya Gandhi Nagar	Gomti Nagar	550	143	46	2	0	0	0
523	Sri Nagar	Chitragupt Nagar	2500	650	208	7	1	0	0
524	Subauli	Lala Lajpat Rai	6000	1,560	499	17			1
525	Subhani Khera	Kharika	4000	1,040	333	11		1	0
526	Sudama Puri	Babu Banarsi Das	1000	260	83	3	0	0	0
527	Sugamau Purwa	Indira Priyadarshini	275	72	23	1	0	0	0
528	Sugamau	Indira Priyadarshini	1380	359	115	4	0	0	0
529	Sugga Devi Marg	Babu Banarsi Das	5000	1,300	416	14		1	0
530	Sujan Pura	Babu Kunj Bihari	750	195	62	2	0	0	0
531	Suleman Kadar Ka Hata	Maulvi Ganj	2000	520	166	6	1	0	0
532	Sultan Pur	Jankipuram	275	72	23	1	0	0	0
533	Supparose	Labour Colony	2000	520	166	6	1	0	0
534	Suraj Palli	Sarojini Nagar	250	65	21	1	0	0	0
535	Tagore Marg	Mankameshwar Mandir	6000	1,560	499	17			1
536	Takia Azambeigh	Gola Ganj	2000	520	166	6	1	0	0
537	Takia Peer Gaib	Kashmiri Mohalla	4000	1,040	333	11		1	0
538	Takia Hazi Nusrat	Kalbe Abid	3500	910	291	10		1	0
539	Takia Munshi Ganj	Dali Ganj	800	208	67	2	0	0	0
540	Takia Phallas	Wazirganj	625	163	52	2	0	0	0
541	Takia	Hazratganj	275	72	23	1	0	0	0
542	Takrohi	Shaheed Bhagat Singh	4200	1,092	349	12		1	0
543	Talab Gangni Shukl	Nazarbagh	2500	650	208	7	1	0	0
544	Tape Wali Gali	Kalbe Abid	1500	390	125	4	0	0	0
545	Tapowan Nagar	Sarojini Nagar	750	195	62	2	0	0	0
546	Tazi Khana	Mashak Ganj	1000	260	83	3	0	0	0
547	Tehsinganj	Chowk	1000	260	83	3	0	0	0
548	Thadi	Alam Nagar	2500	650	208	7	1	0	0
549	Thadi	Alam Nagar	2500	650	208	7	1	0	0
550	Thathar Wali Colony	Kalbe Abid	1000	260	83	3	0	0	0
551	Thawai Tola	Raja Bazar	850	221	71	2	0	0	0
552	Tika Purwa	Indira Priyadarshini	1200	312	100	3	0	0	0
553	Tikat Ganj (Kandha)	Tilak Nagar	750	195	62	2	0	0	0
554	Til Purwa	Hussain ganj	1400	364	116	4	0	0	0
555	Top Khana	Balaganj	2500	650	208	7	1	0	0
556	Triveni Ganj	Kundri Rakab Ganj	1250	325	104	3	0	0	0
557	Uchchawan	Raja Ram Mohan Rai	350	91	29	1	0	0	0
558	Umrao Ka Hata	Nishat Ganj	800	208	67	2	0	0	0
559	Uthretia	Ibrahimpur	3500	910	291	10		1	0
560	Vaasa Khera	Shaheed Bhagat Singh	650	169	54	2	0	0	0
561	Vaidan Tola	Gadhi Peer Khan	2000	520	166	6	1	0	0
562	Vikram Nagar	Chitragupt Nagar	1000	260	83	3	0	0	0
563	Visheshwar Nagar	Geeta Palli	3000	780	250	8	1	0	0
564	Vishnu Nagar	Sarojini Nagar	250	65	21	1	0	0	0
565	Warauliya	Mankameshwar Mandir	4000	1,040	333	11		1	0
566	Wazir Bagh	Gadhi Peer Khan	6500	1,690	541	18			1
567	Wazir Ganj	Wazirganj	3000	780	250	8	1	0	0
568	Yogi Nagar	Triveni Nagar	3000	780	250	8	1	0	0
			1,013,920				127	56	**24**
								119.5	
							126/2 +55 =133		**144**

5 seater is not recommended.

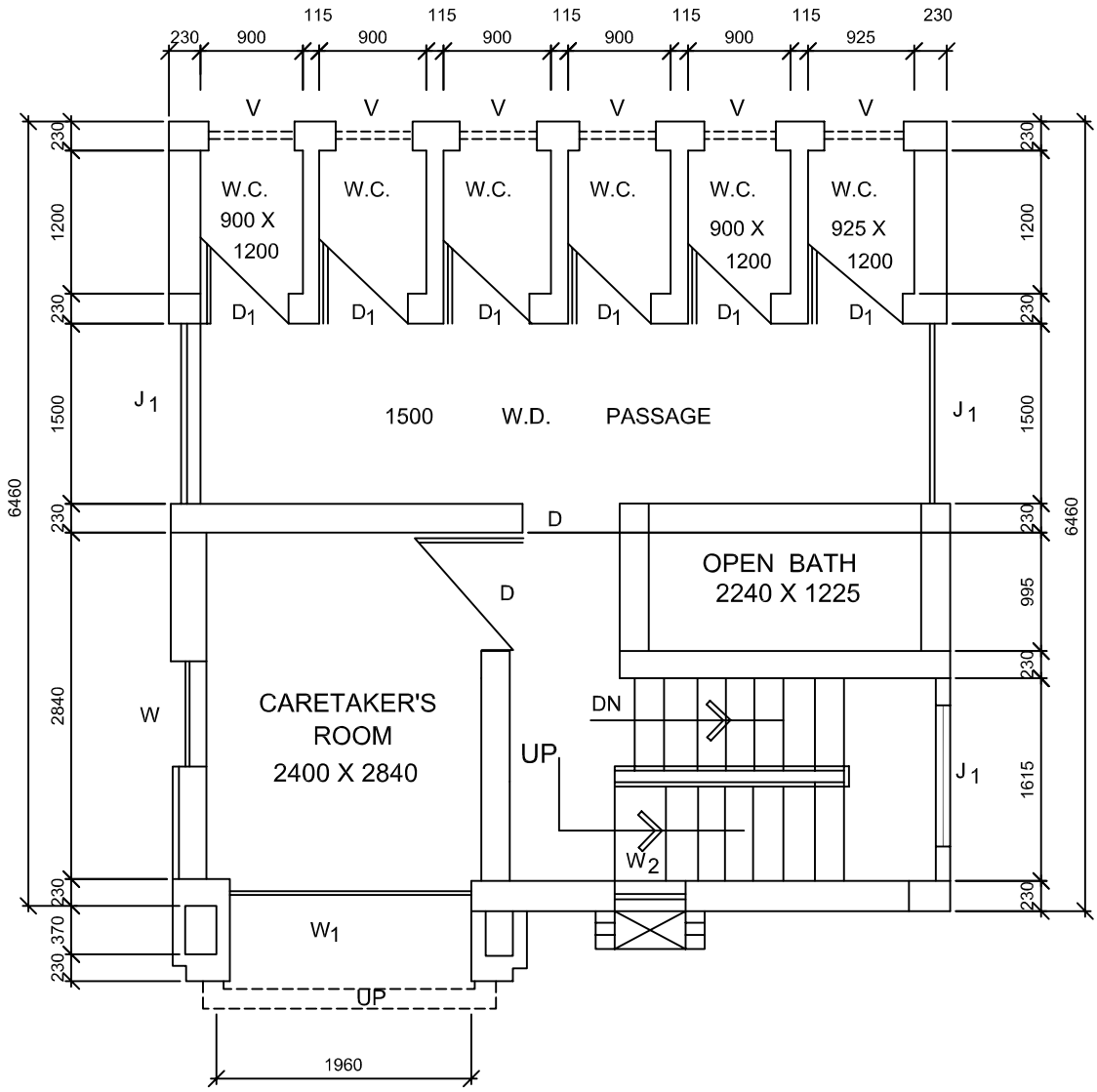
Appendix L

SCHEMATIC LAYOUT FOR 10 SEATER CTC



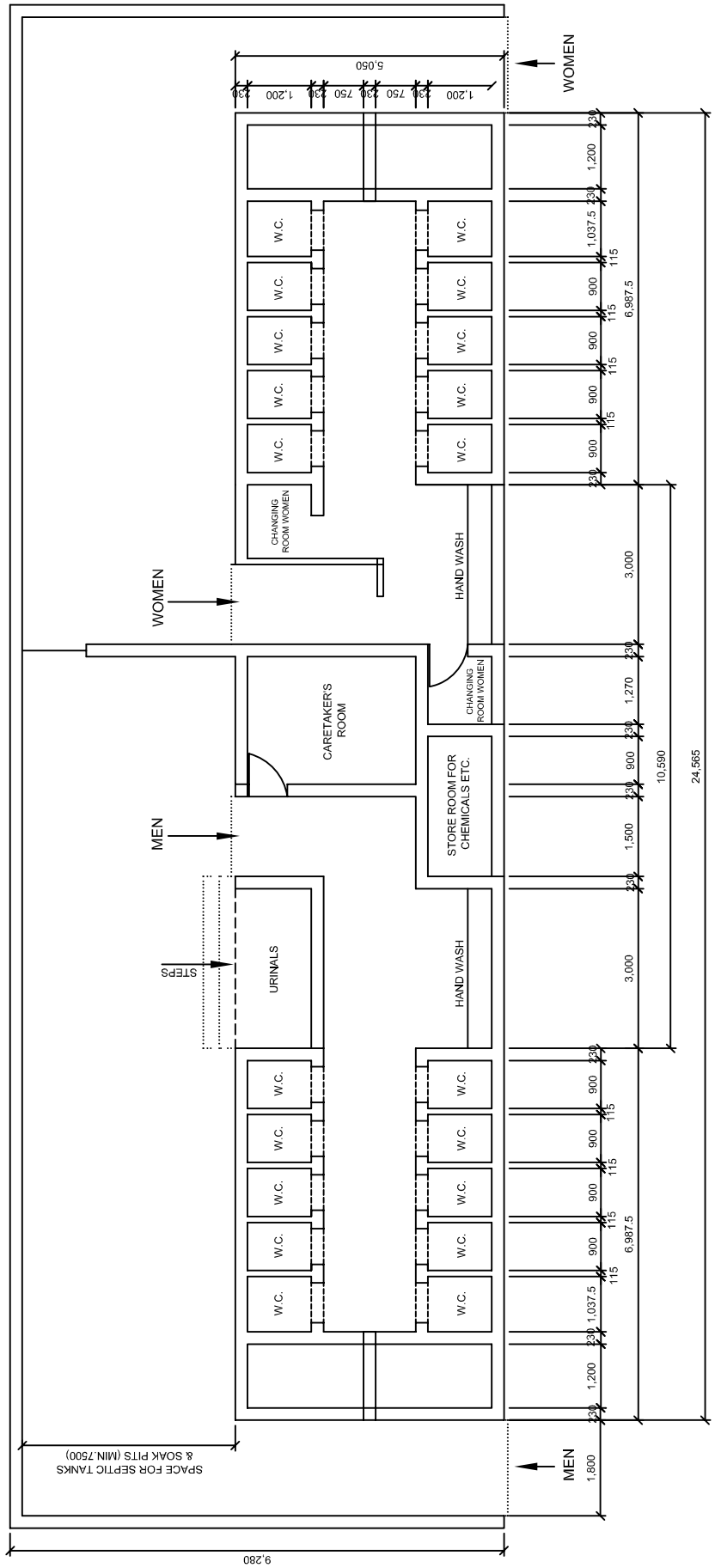
GROUND FLOOR PLAN

SCHEMATIC LAYOUT FOR 10 SEATER CTC



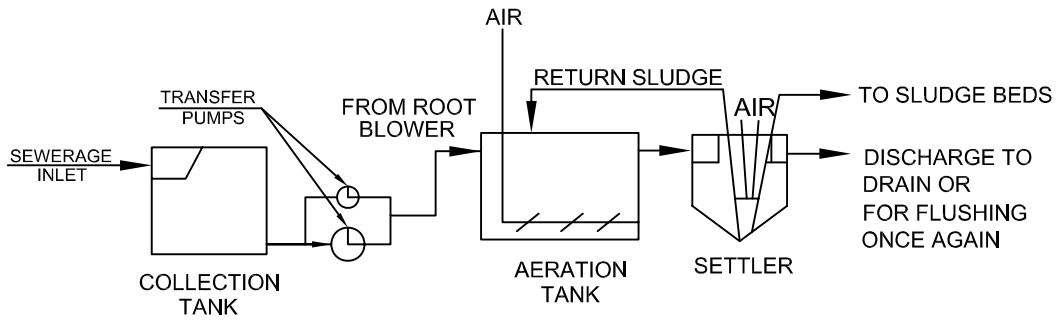
FIRST FLOOR PLAN

SCHEMATIC LAYOUT FOR 20 SEATER CTC

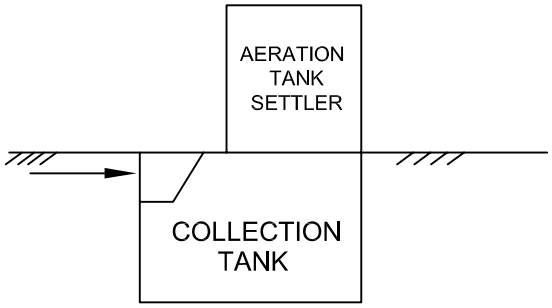


GROUND FLOOR

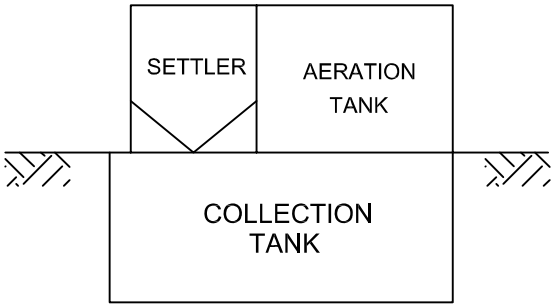
PROCESS FLOW FOR TREATMENT PLANT CTC



PLANT LAYOUT (GROUND LEVEL LOCATION)

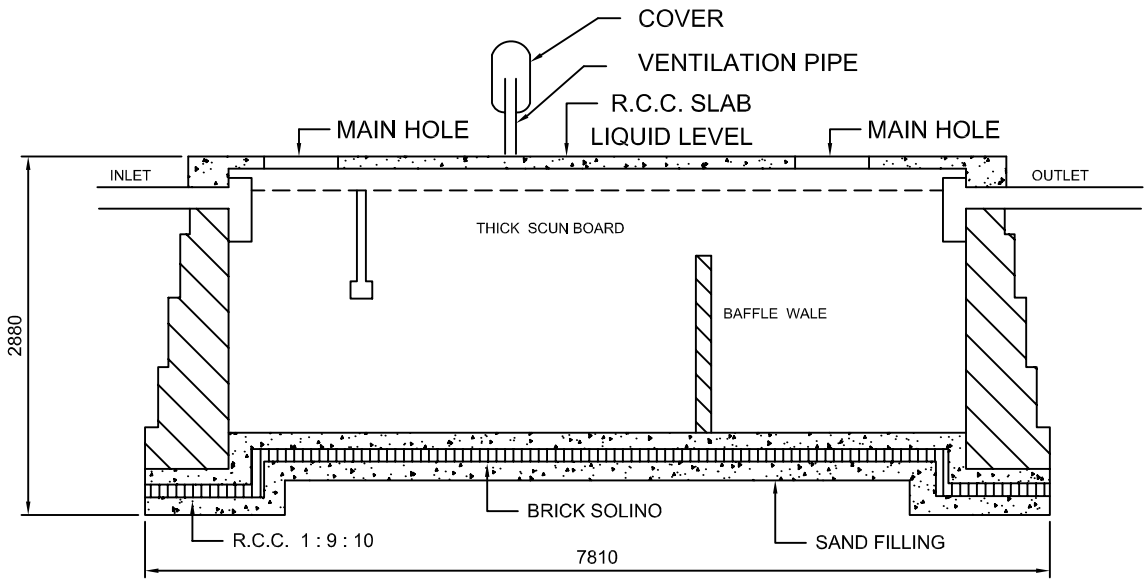


SIDE ELEVATION

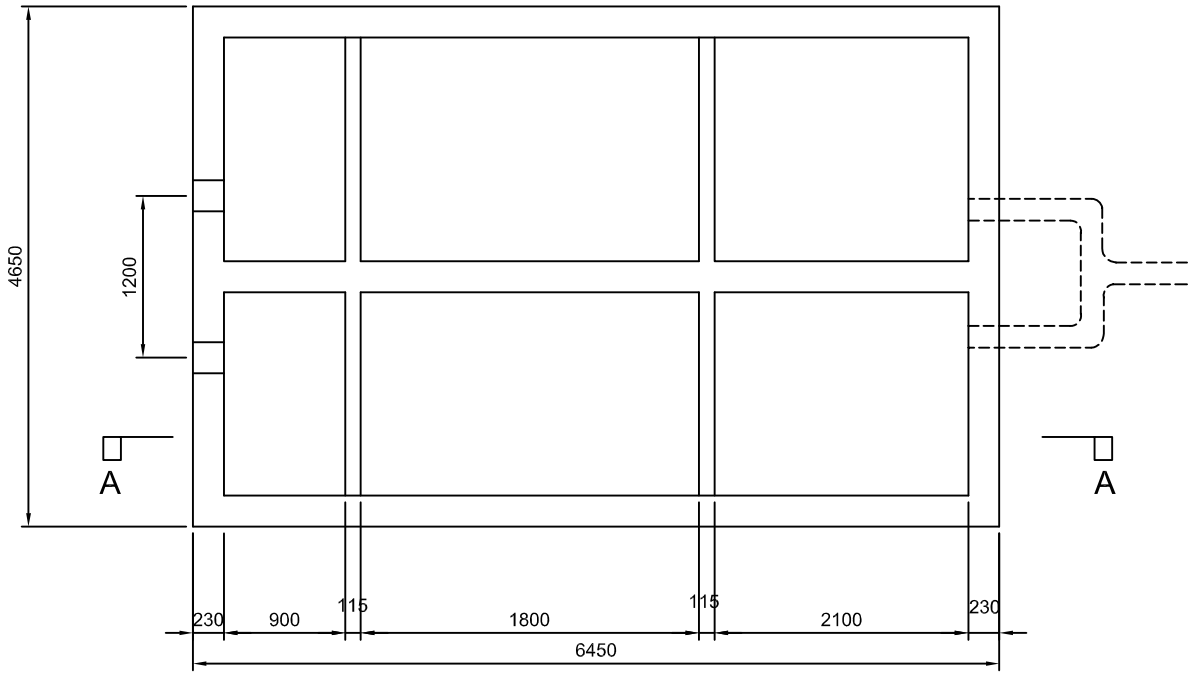


FRONT ELEVATION

SCHEMATIC PLANT LAYOUT FOR MINI - STP

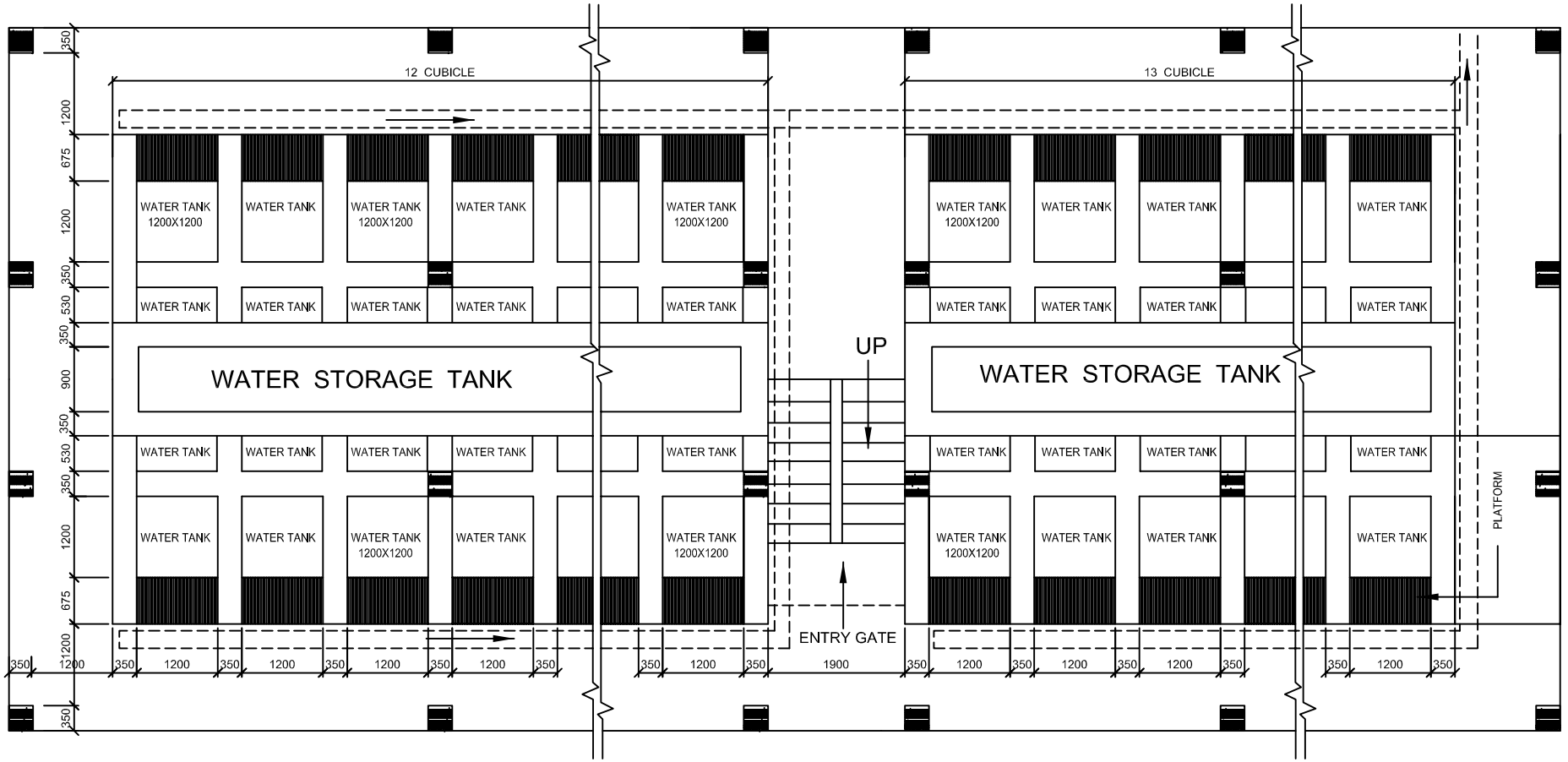


SECTION A - A



SCHEMATIC PLAN FOR SEPTIC TANK

SCHEMATIC LAYOUT FOR PROPOSED 50 CUBICLE DHOBIGHAT COMPLEX



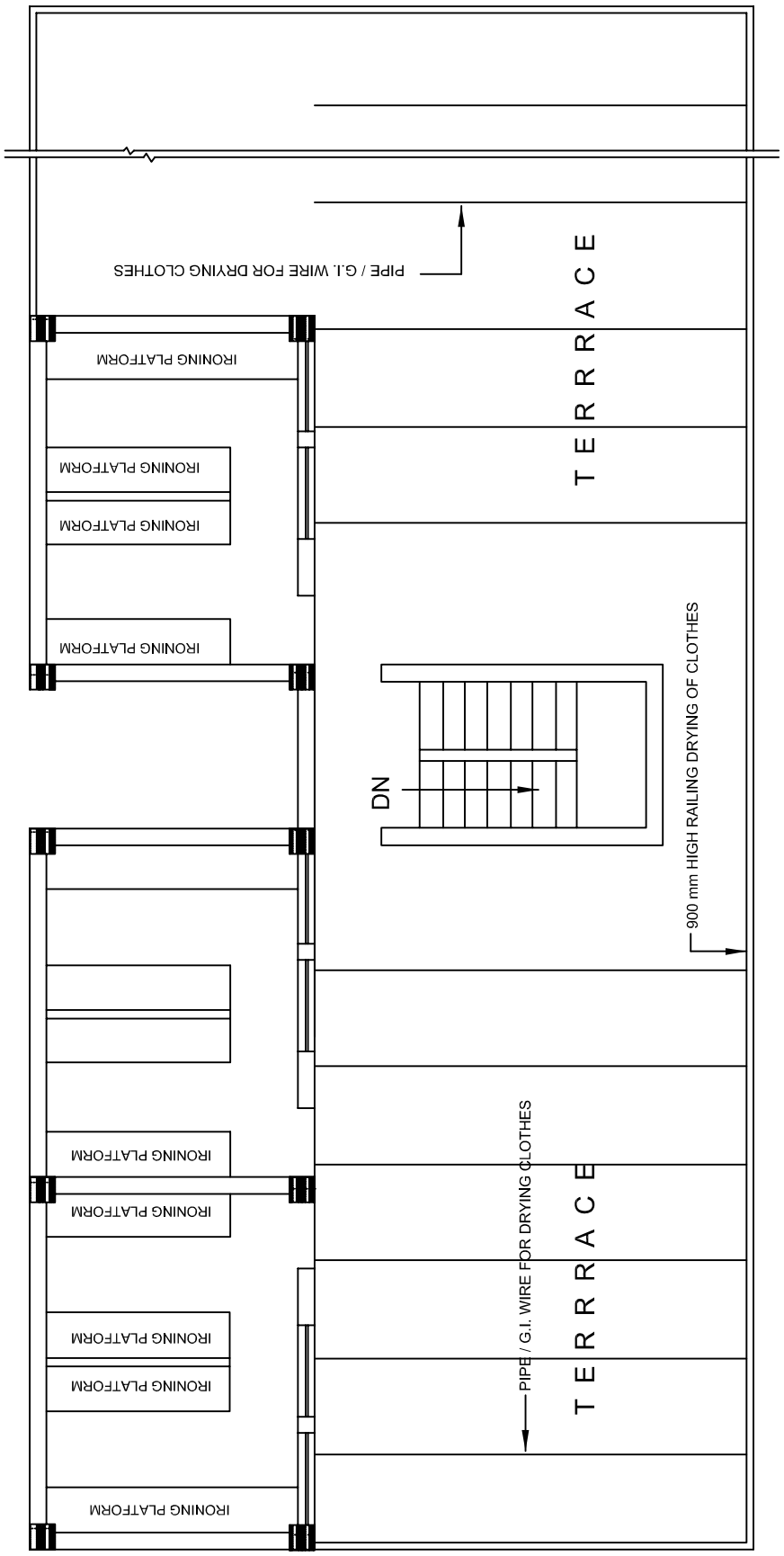
GROUND FLOOR PLAN

DESIGN OF DHOBI GHAT

(OF 50 CUBICLES)

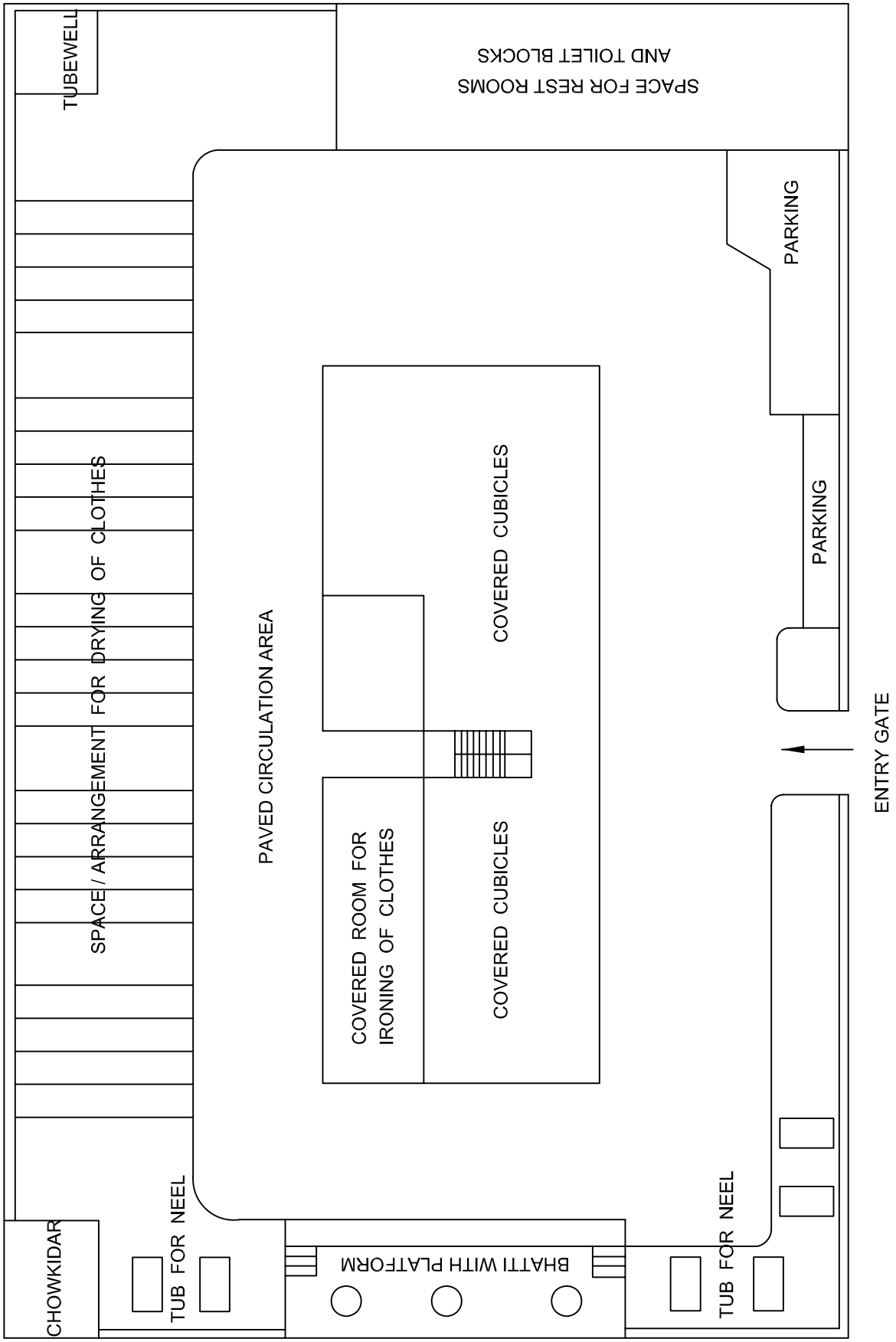
(WITH WATER STORAGE TANK)

SCHEMATIC LAYOUT FOR PROPOSED 50 CUBICLE DHOBIGHAT COMPLEX



FIRST FLOOR PLAN

SCHEMATIC LAYOUT SCHEME FOR 50 CUBICLE DHOBIGHAT COMPLEX



Appendix M

Appendix M

Table 5.3 : Anticipated Impacts and Proposed Mitigation Measures

Sr. No.	Environmental attribute	Potential impacts	Nature of Impact	Magnitude of Impacts			Mitigative measures	Implementation & Monitoring
				Low	Medium	High		
A.	Physical Resources							
1	Hydrology							
		Ground water table Depth of Groundwater varies from 2 to 20m.	Significant impact if soak pits are developed and potential leakages occurs from the latrines or sewer lines.		X		Proper lining and measures for avoiding the leakages should be undertaken. Provision for developing CTCs connected to sewer	During construction and operation phase
B.	Environmental Resources							
1.	Surface Water quality	Runoff from the CTCs leading to increase in BOD.	Direct/Local/ irreversible	X			Careful siting of CTCs, during operation of the CTCs the wastewater should have either preliminary treatment, or should be connected to the sewerage system.	Pre and Post construction activity
		Wastewater from Dhobighats during operation leading to increase in COD, BOD, oil & grease, etc.	Direct/Local/ irreversible	X			Should be connected to the local drains or sewerage systems and not allowed to flow or leak into the open areas	Post construction activity
4.	Soils and Geology	Wastewater leakages from septic tanks/soak pits	Direct/Local/irr eversible	X			Avoiding leakage, which are prone to the soil erosion. Rehabilitation and stabilization of disturbed land.	During and after the construction activity
D.	Human Environment							
1.	Health and Safety	Exposure to chemicals in Dhobighats.	Direct/Local/co ntinuous		X			After the construction

Sr. No.	Environmental attribute	Potential impacts	Nature of Impact	Magnitude of Impacts			Mitigative measures	Implementation & Monitoring
				Low	Medium	High		
		Disease due to sanitation			X		Reduction in disease due to improvement in sanitary condition.	phase.
3.	Socio-economics	Beneficial impacts from creation of CTCs which shall reduce open defecation.	Direct/regional			X	Overall industrial and economic growth of the region.	During operational phase
4.	Resettlement	Not anticipated		X			No mitigation required	

Appendix N

Preliminary Design Details for Mini STP for 5,10 & 20 Seater CTCs

Process to be followed	:	Extended Aeration
System Description	:	Consisting of: **A - Civil Works** ▪ Collection tank below ground ▪ Aeration tank on top of the CTC in RCC ▪ Solid / liquid phase separator in RCC near Aeration Tank ▪ Sludge Drying beds **B – Electro Mechanical Works** ▪ Transfer Pumps ▪ Air Blowers ▪ Air Diffusion system
Design Flow	:	5 Seater 6 – 7.5 m^3/d 10 Seater 12-25 m^3/d 20 SEater 24-30 m^3/d
Input Parameters	:	BOD = 300-350 mg/l COD = 600-300 mg/l S.S = 200-300 mg /l Oil & Grease (O&G) =10-20 mg/l
Output Parameters	:	BOD < 20 mg/l COD < 200 mg/l S.S < 100 mg/l O&G < 10 mg/l

The aeration tank, settler, the sludge beds and the blowers shall be located on the roof. The transfer pumps can also be located on the roof itself. The collection tank also will be at below ground, beneath the toilet seat with access from out side the Building.

The collection pump is considered for retention for minimum 16 hours with overflow drain connection of sewer line.

S No	Item Description	Unit	Material of Construction	5 Seat	10 Seater	20 Seater
	Estimated Flows	m^3	-	6-7.5	12-15	24-30
A.	**Civil Works**					
1.	Collection Tank	m^3	RCC	4.5	9.0	18.0
2.	Aeration Tank	m^3	RCC	4.5	9.0	18.0
3.	Settler (conical Bottom with launder)	m^3	RCC	2.2	3.5	7.0
4.	Sludge beds	m^2	Brickwork	2.0	3.0	5.0
B.	**Electro Mechanical Equipment**					
1.	Transfer pumps (2 nos)	No.	CI	1.0 m^3/ hr	1.0 m^3/ hr	2.0 m^3/ hr
2.	Blowers (2nos)	No.	CI	10.0 m^3/ hr	20.0 m^3/ hr	40.0 m^3/ hr
3.	Electric Control Panel for two Blowers and two pumps	No.		1	1	1
C.	**Power Equipment Kwh/d**	Unit		45	50	65
D.	Water Requirement	-	-	Nil	Nil	Nil
E.	Capital Cost					
E-1	Civil (Rs. 000's)	-	-	90	160	315
E-2	Electro Mechanical (Rs. 000's)	-	-	270	370	470
F	**O&M Cost Per month**					
F-1	Power (assume @ Rs 3.5 per unit)	Rs	-	4800	5400	7000
F-2	Manpower (one local person as Caretaker)	Rs	-	4000	4000	4000
F-3	Maintenance spares (monthly average)	Rs	-	500	500	600

Estimates life of the RCC structures = 40-50 years

Estimated life of E&M equipment = 15-20 years of property maintained