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-4 FEASIBILITY STUDY FOR VARANASI 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.
CTI ENGINEERING INTERNATIONAL CO., LTD.

GE
JR
05-038

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-4 FEASIBILITY STUDY FOR VARANASI 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.
CTI ENGINEERING INTERNATIONAL CO., LTD.

Foreign Exchange Rate:

Master Plan
US$ 1 = JPY 109.09
US$ 1 = Rs 45.33
(As of March 2004)

Feasibility Study
US$ 1 = JPY 103.66
US$ 1 = Rs 43.70
(As of February 2005)

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

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-4 FEASIBILITY STUDY FOR VARANASI CITY
PART II NON-SEWERAGE SCHEME

JULY 2005

TOKYO ENGINEERING CONSULTANTS CO., LTD.
CTI ENGINEERING INTERNATIONAL CO., LTD.

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-4

PART II NON-SEWERAGE

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

In the Mater Plan, two non-sewerage programmes have been proposed; Low Cost Sanitation (LCS) and Constructed Dhobighat (DG) programme. Non-sewerage programmes mainly aims at sanitary, hygienic and aesthetical improvements rather than pollution reduction because their contribution to water pollution is insignificant compared with sewerage components.

After completion of the feasibility study for Varanasi project in August 2004, upon request of Varanasi Nagar Nigam, a project for sanitary improvement for ghat in Varanasi has been included in the non-sewerage components. Therefore, the planning contents of this component are very preliminary.

CHAPTER 2

EXISTING SITUATION

CHAPTER 2 EXISTING SITUATION

2.1 EXISTING SITUATION OF LOW COST SANITATION

2.1.1 Introduction

(1) Background

In the Master Plan, Low Cost Sanitation (LCS) programme have been identified to improve over all sanitation condition in the area and reduce the open defecation practices of the community, especially for the slum communities. The programme is targeted for installation of Community Toilet Complexes (CTCs) or Individual Household Latrines (IHLs) furnished with appropriate on-site or off- site treatment. This programme, besides maintaining health & hygiene in the slum communities will also help in reducing pollution load to the river Ganga. This feasibility study manly focuses on CTCs but not private toilet or IHLs since only CTCs will be financed by National River Conservation Plan (NRCP) for this project.

(2) Objectives of Low Cost Sanitation (Community Toilet) Programme

Open defecation and urination is rampant in the whole cities, especially in slum community and the bank of river and nala, which directly and indirectly pollutes the water bodies and causes deterioration of water quality of the river as well as discharging untreated domestic sewage. The other main impact of open defecation and urination is deterioration of hygienic and sanitary condition in living environment.

The objectives of low cost sanitation plan/program are;

- To reduce non-point pollution and
- To improve hygienic and sanitary conditions in the city, especially in slum.

(3) Study Objectives

The primary objective of the study is:

- Formulation of standard framework of planning and designing of a self sustainable low cost sanitation programme for slum communities which are demand based and can be implemented with active participation of the communities.

(4) Programme Implementation Concept

The demand based LCS programme is proposed to provide appropriate sanitation mode for the communities without toilet, most of which are slum communities. The proposed LCS programme is composed of;

1) Implementation of pilot project

(a) Preparation of a standard framework of planning and designing, in which needs and demand of slum dwellers shall be reflected and by which a technically, institutionally, financially, economically and environmentally feasible and sustainable plan can be selected
(b) Application of this framework to some slum communities to prepare an appropriate sanitation plan and design
(c) Implementation of pilot project

2) Implementation of the full scale project

(a) Extending the pilot project framework to all the slum communities and prepare a appropriate plan
(b) Implementation of the full-scale project

(5) Approach

LCS programme for the city of Varanasi envisages people centred approach and demand based approach emphasising on process and institution. The assessment of the local situation in a slum was not seen as a single, one-shot investigation technique, but as a process of research and consultation that employs a variety of methods and research procedures. These include quantifiable sample survey, focus groups, individual interviews, in depth case studies, reanalysis of data from past research, available statistical/demographic information, participatory processes such as stakeholder workshops, needs assessments etc. The choice of techniques was based on the local circumstances of the study, nature of topic, financial resources and time available. A variety of such methods were used for assessments in each of the five slums. A combination of research tools applied for the study includes – transact walk, social mapping, interview schedule and focus group.

(6) Detailed Methodology

The methodology for the study involves following phases

Phase I: Problem Identification and Process Formulation

1) Identification of different stakeholders

The major objective of this task was to identify different stakeholders involved in the process and make an assessment of contribution of each to provide holistic approach to the process followed.

2) 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 is an important component of current assignment. Consultants began this process by first identifying all those groups, which have a stake in the welfare of the city. These included the user, organized grass roots community organizations, non-government institutions and the government machinery.

- Public Sector Undertakings
  (a) Urban Local Bodies - Varanasi Nagar Nigam (VNN)
  (b) Varanasi Jal Sansthan (VJS)
  (c) Uttar Pradesh Jal Nigam (UPJN)
  (d) District Urban Development Authority (DUDA)
- Community
  (a) Community Leaders;
  (b) Neighbourhood Groups;
  (c) Community Based Organizations;
  (d) Local Educational Institutions;
  (e) Respondents
- Non-Governmental Organizations

3) Selection of Study Area

The study areas were selected after taking an overview of all the slum areas of Varanasi, discussions with different stakeholders, and finalized after the Project Inception Meeting. (Minute of the first workshop along with names of stakeholders is presented in Appendix A).

The most representative slums were selected based on the recommendations of the committee. Following five slums were identified for detailed study and to develop a model.

- Three in the sewered area - Nagwa Nala, Jyodhipur, Bajardia
- Two in the non-sewered area- Bhagwa Nala, Alaipur

4) Study tools design

Necessary Study tools were designed based on the inputs received from the different stakeholding agencies. Study tools used for the project include

(a) Discussion Guides/Data Collection Format: Discussion guides were prepared to interact with the officials of VNN, UPJN, VJS and DUDA and secondary data collection
(b) Participatory Methodologies
  - ❑ Transect
  - ❑ Mapping
  - ❑ Focus Group Discussion
  - ❑ Workshop
(c) Interview Schedule for House Hold Survey

Phase II: Data Collection and Analysis:

Relevant primary and secondary information was collected using various study tools mentioned above.

1) Secondary Information Collected

Information Collected	Source
City level detail Demography (population, population growth, density, settlement pattern, socio-economic structure of the town, Development plan	❑ Census ❑ VNN ❑ Literature review ❑ DUDA
Slum Detail Slums in the city, slum population, slum location and other related details	❑ Discussion with DUDA officials
Water supply ❑ Water supply scenario in slums of Varanasi ❑ Operation and Maintenance	❑ VJS ❑ UPJN
Sanitation ❑ Detail of Public toilets in Varanasi ❑ Operation and maintenance issue ❑ Sewerage system ❑ Sewered and Non Sewered areas ❑ Institutional Structure ❑ Other sanitation Issues	❑ VNN ❑ VJS ❑ UPJN
Prevailing norms for planning and delivery of services	❑ Municipal Act ❑ Centre and State Government Policies ❑ Discussion with DUDA, VNN, VJS, UPJN officials
Case studies	❑ Literature review ❑ JICA study report

2) Primary Data Collected

Data Collected	Data Collection Tools
Socio-economic data	❑ Interview Schedule method ❑ PRA tool-Social mapping ❑ PRA tool-Well being ranking
Facilities	❑ Interviews with slum dwellers ❑ Interview with CDS ❑ PRA tool- Social and resource mapping
Health	❑ Interview with men and women in slum. ❑ Interview Schedule
Housing and land	❑ Interview Schedule ❑ Transect
Water supply and sanitation situation	❑ Interview, ❑ Focus group discussions with men, women and children.
Resource and assets	❑ Resource mapping
Gender	❑ Interviews with women ❑ Focus group discussion
Social history	❑ PRA tool- Time line
Institutions and programmes	❑ Interviews with slum dwellers
Awareness about health and sanitation	❑ Interview Schedule ❑ Focus group discussion
Issues and concerns	❑ Focus group discussion ❑ Workshop ❑ Force field analysis

3) Interview Schedule Survey

The objective of interview schedule survey was to get qualitative information on various aspects related to LCS. A sample size of 832 was taken from the selected five slums as a representative sample for the city.

The interview schedule included details about socio-economic aspects such as (a) Household profile- number of members, monthly income, occupation details, type of house, expenditure pattern and household amenities and assets. (b) Source of domestic water, distance from the source and payment details for water. (c) Sanitation- bath 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 (d) awareness about hygiene and safer sanitation practices (Sample interview schedule has been attached as Appendix B)

4) Transect

A transect through the slum was done to gain understanding of the habitat pattern spatially.

5) Mapping

Mapping was done to do spatial analysis of wide range of issues. Following types of maps were prepared by the consultants with the community for different slums of Varanasi.

Social Maps were prepared to include houses, services, facilities, main roads, lanes and streets in the surveyed slum. The services and facilities identified on the maps can reveal as much about what people perceive as important as their location.

After social mapping, one of the most common forms of mapping is resource mapping, which can cover a wide range of both natural and physical resources and land use types that utilize these different resources. For the current study resource mapping was done to identify type of soil, topography, vacant plot, access roads to a proposed site for LCS, distance from water source etc.

6) Focus Group Discussion

Focus group discussion (FGD) was carried out with different sets of groups within the identified slums. Community issues, preferences and choices as well as the most suitable technological option was identified during FGD. FGD for the assignment was done with the following different sets of people

(a) Traditional and informal organization that exists within the community (existing groups).
(b) Women of the community – it allowed women to place sanitation in terms of their owns terms and priorities.
(c) Local Leader
(d) Group representing younger generation
(e) Representative from different caste, class and different income level.

7) Workshop

After the interview schedule and other surveys, a study workshop was held to present an overview of the ongoing assessment to the various stakeholders, policy makers, the officials of the Municipal Corporation and local bodies. The agenda was to triangulate the findings from the field by opening discussion 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 lay ground for future course of action of the study and approach for implementation and preparation of guidelines for replication of the programme in other slums in Varanasi.

Once the process of collection of data is completed, the next stage was analytical and processing based on the data gathered. Various analytical instruments were used for the analysis. Detailed analysis include

Socio-Economic and Demographic Profile of the Resident

- Analysis of demographic aspects
- Social profile
- Resources
- Economic profile

Water supply details of the Area

- Supply detail
- Source detail
- Payment detail

Sanitation Profile of the Community

- Current sanitation situation in the study area
- Availability of the other related facilities particularly, sewerage, coverage 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

Phase III: Development of Standard Framework for Planning and Design

This phase was for designing programme alternatives based on various socio economic, financial, technical and institutional aspects. This was based on the information gathered from the field and its analysis. It evaluated various factors involved in selecting design options, alternative available within the framework of existing socio economic fabric which are safe, technically adequate, environmentally sound and sustainable. Framework developed tried to identify the alternatives strategies for arranging project cost, evaluate the strategies best responsive to community demand and mechanism to ensure accountability, affordability and willingness to pay for the services. It also stressed on promotion of gender equity, community participation and institutional structure to strengthen the local and community level institution.
Study methodology for planning of low cost sanitation programme is depicted in Figure 2.1.

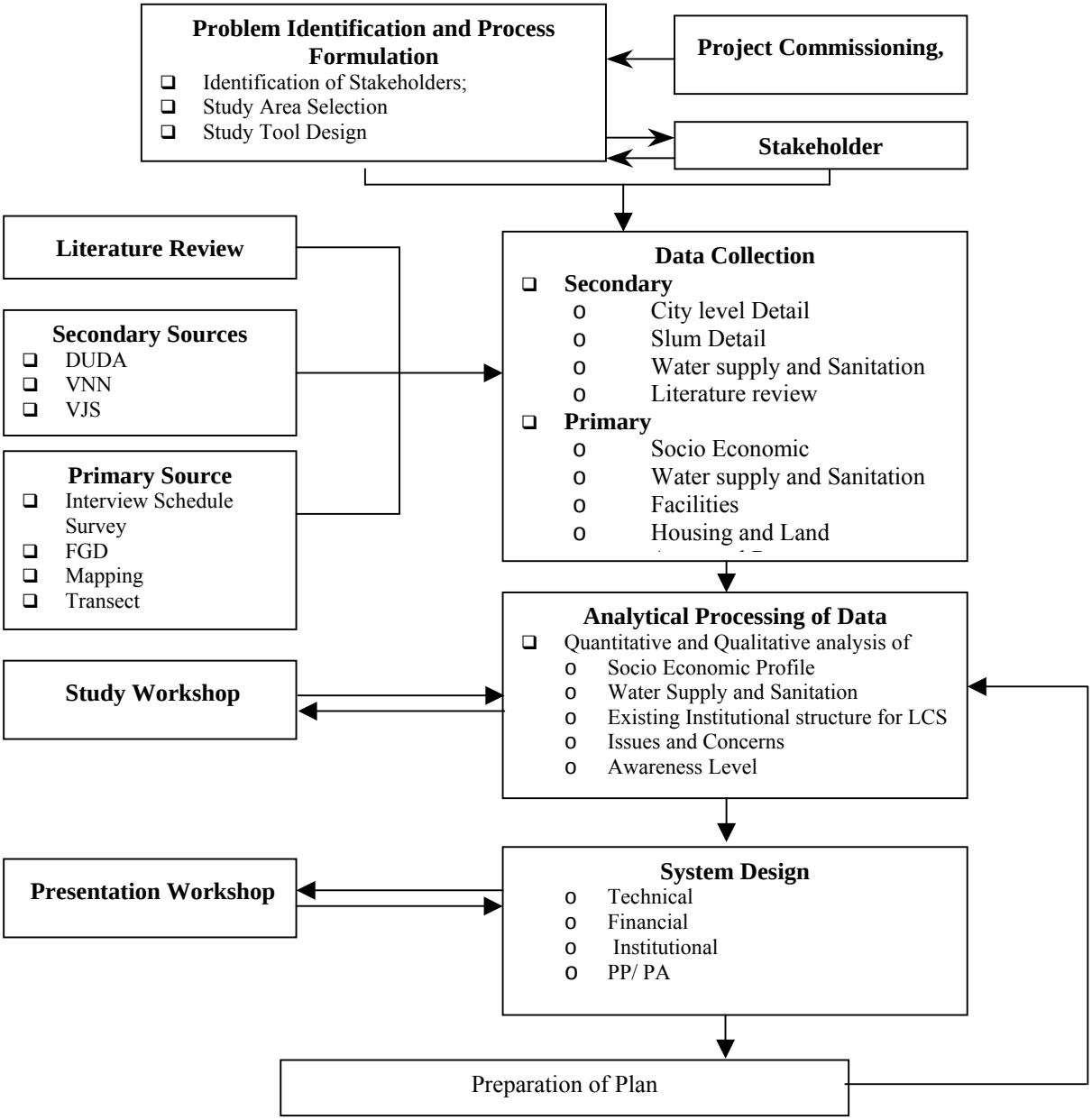


Figure 2.1 Study Methodology for Planning

2.1.2 Area Profile

(1) Brief Profile of Varanasi

The city of Varanasi is the oldest living city of India. After independence, there was a fast growth in population of Varanasi city. The rural population from nearby area and from Bihar migrated towards the city in search of their livelihood owing to the presence of several small-scale industries in the areas like Nawabganj, Khojwa, Kashmiriganj, Manduadih etc. Due to the religious significance of the place, people come from the length and breadth of the country as well as outside India. The city therefore has a very high floating tourist population.

The population of Varanasi has registered a rapid increase in last few decades. The natural growth of population and large influx of migrants resulted in haphazard development of city with water logged

street and narrow lanes. The migrants of Pakistan further increased the pressure on housing. There is an acute shortage of housing and other facilities in Varanasi leading to continuous mushrooming of slums.

A very high dependency ratio for Varanasi has lowered down the quality of life in the city. Majority of the new migrants (especially poor) and the existing population relegated below poverty line have seriously been affected by the deterioration in physical human and economic environment. Deterioration in facilities such as water supply, sanitation, transportation and communication, housing, education etc. have downgraded the 'city life'. It is being realized that in the absence of any remedial measures, a number of slums are mushrooming very rapidly in Varanasi.

(2) Slums in Varanasi

According to DUDA, currently there are 227 different slum areas in the city with a total population of 457,568, which accounts for 35% of the total population (1,325,167) of the city. The growth rate of slum population in the city is very high, with city experiencing more than 134 % growth rate in the last decade. With the increase in demand for land, the low-lying areas, the natural drains and along the roadside areas have also been occupied by the slum dwellers.

Table 2.1 indicates a very erratic growth rate in slums, however, comparing it against the total population, it was observed that the fraction of slum population to the total population of Varanasi is almost similar for all decades except last decade. Last decade experienced a very high growth rate in slums, which is higher than the growth rate of the city itself. A list of 227 slums of Varanasi in enclosed in Appendix C.

Table 2.1 Slums Population at Varanasi (1951-2001)

Year	Total Population	Decadal Growth Rate (%)	Total Slum Population	Percentage of Total Population	Decadal Growth Rate (%) in Slum
1951	341,923		48,300	14.12	
1961	471,258	37.83	69,600	14.76	44.10
1971	583,856	23.89	86,700	14.84	24.57
1981	720,755	23.45	120,812	16.76	39.34
1991	1,027,819	42.60	195,286	19.00	61.64
2001	1,325,167	28.93	457,568	34.52	134.31

Source: Census of India , Varanasi Nagar Nigam

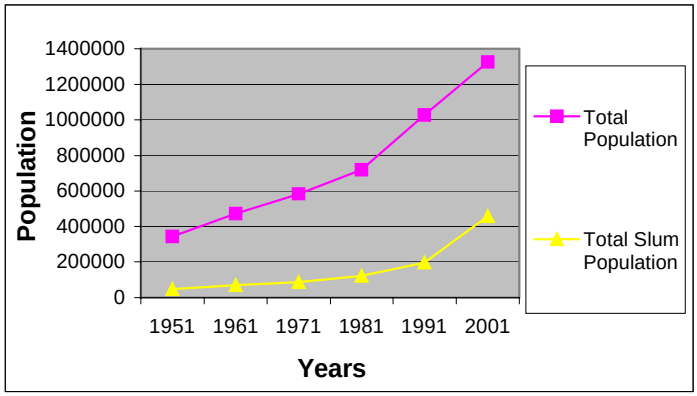


Figure 2.2 Decadal Slum Population Total for Varanasi

Following are some of the factors responsible for the growth and development of slums in Varanasi.

- Migration of large number of people from the rural areas, mainly due to the availability of better economic opportunity for them.
- Attraction of urban infrastructure and scope for job opportunity in its commercial and industrial institutions.
- High housing rentals
- Comparatively low priced/free land.
- Desire to live with own ethnic groups (especially in the case of Muslims)
- Involvement of vested interest groups, under the garb of religion or political affiliation, in developing slums for their own benefits.
- Lack of enforcement on the part of district administration to prevent encroachment of virgin lands in urban areas.
- Failure on the part of Government, semi-government and private builders to provide low cost housing for poor.
- Large scale emergence of nuclear family

The rapid growth and development of slums in Varanasi has led to the deterioration of the physical environment of the city. The environmental condition within the slum is also seen to have a health implication on the slum population, who are vulnerable to innumerable health hazards. Most of the slums are exposed to difficulty in accessing adequate water supply and do not have an organized system for garbage collection and disposal. Most slums are non-sewered or partially sewered and have open drainage system. Water logging is a very common problem in these areas. Mainly because of unauthorized status of the slum, it receives less priority compared to other city wide urban basic services. Financial constraint on the part of civic authorities is also a major reason for non delivery or partial delivery of basic facilities to them.

The slums of Varanasi city could be classified into three categories according to their nature and types.

(1) Older settlements
(2) Newer slums, and
(3) Temporary hutments.

Table 2.2 Category of Slums and Their Characteristics

Type	Localities	Structure	General Conditions and Available Facilities
Old Slums/ settlements	In the heart of the city	*Pucca* house with more than one stories	Water, electricity, sewer
Newer Slums	Located in and around new colonies on the low lying areas	*Kutcha* walls, few tin sheds	No proper water facilities, (mostly hand pumps) electricity, toilets etc.
Temporary hutments	Along with railway lines, road side on government land	Walls of bricks and few *Kutcha* Thatched roof / plastic shade.	No water, electricity, toilets.

(3) Profile of Study Area

In consultation of local bodies including Nagar Nigam, Jal Sansthan and Development Authority and considering different social and geological settings, the following 5 slums are selected for the site s of pilot projects as well as sample survey.

Table 2.3 Study Area for Pilot Project and Sample Survey

S. No.	Slum	Population	Sewered /Non Sewered	Sample size (Households)
1	Nagwa Nala	3,000	Sewered	256
2	Bhagwa Nala	1,938	Non Sewered	149
3	Jyodhipur	2,000	Sewered	145
4	Bajardiha	3,000	Sewered	267
5	Alaipur	4,322	Non Sewered	15

A brief profile of all the surveyed slums of the city is discussed in the following section.

(4) Nagwa Nala

Population:

Total 3000 (source DUDA)
Male: 1026, Female 870 females, Children 1044

Location:

The Nagwa Nala slum is situated on the fringe of Nagwa Nala. The eastern side of the slum is marked by Panchkosi Road (Assi to Nagwa) and on the western sides are the newly developed colonies of Ganga Bag and Prafulla Nagar. Nagwa Nala on the north separates the area from other parts of the city whereas the southern side is marked by Lanka – Nagwa area. Many new slum areas are mushrooming on the fringes of the Nagwa Nala Slum which include

- Across the Nala towards Assi side
- Across the Nala (Rajbhar Basti) near Ravidas Park.
- Across the Panchakoshi Road towards eastern side.

Socio Economic Profile:

The slum originated as a Scheduled Caste Basti, on the fringes of village Assi and Nagwa. Although the majority of people are from the schedule cast yet the slum is heterogeneous in nature with people from other caste like Kshatriya and Brahmins also living there. About hundred Bangladeshi migrants also stay in the rented houses.

Population density for the area is very high and the educational level is low with most of the residents being illiterate.

40 percent people living in the area are fruits and vegetables vendors, 50 percent are labourers and remaining 10 per cent are weavers, sweepers or are involved in unorganized sector. About 40 percent of females also work as vendors, rag pickers or labourers. In few households children are also found working with their family members. Most of the Bangladeshi migrants and their children work as ragpickers.

Facilities:

1) Road Network

The main road to the slum is *pucca* road about 4.5 m wide whereas the internal road width varies from 0.6 m to 1.5 m. The internal roads are *Kutcha* roads. Most of the area is low

lying and flood affected with water logging on the road. During monsoon most of the roads as well as adjacent houses are affected by flood.

2) Water supply

Water supply to the area is through a Piped network with both individual household connection as well as through public standpost. In the *Harizan Basti* households spend about two to three hours daily to collect water from a public stand post. The water supply in the area is irregular, unreliable and is not sufficient to cater to the needs of the slum population. Five public hand pumps were installed by water works department to meet the insufficiency and unreliability of water supply in the area.

3) Electricity

The electrification of the slum was done about 30 years ago. Still majority of household have illegal connection. Recently few electric meters were installed and the electric connection was regularised for some of the residents of the locality.

4) Sewerage and Sanitation

Although sewerage facility exists in the area for last 30 years, Sewage line is only along the major road and the internal roads are not having any sewerage connection. Except for the *Scheduled Cast Basti* of about 500 households most of the other households in the area have individual household latrines. Residents of the *Scheduled Caste Basti* practice open defecation or use community toilets. Two community toilets maintained by Sulabh are in the area with a total capacity of 13 seats for male and 10 seats for females. Along with the toilet bathing provision is also done with three bathrooms for males and one for females. One community toilet is located within the *Scheduled Caste Basti* and is maintained by collecting a monthly charge of Rs 30 from the household using the facility. Other community toilet is on the fringe about 100 meters from the main slum towards eastern side. The sewerage system opens up at Nagwa Nala, which goes directly to river Ganga without treatment.

5) Other facilities

- Area is having one primary school. However residents expressed their dissatisfaction on the availability of space and other facilities within the school. Very few children from the slum go to this school.
- No hospital/ primary health facility exists within the slum, however a number of private and public hospitals are within 1 km to 2 km range.

Organisations in operation:

- NGO 'World Literacy of Canada' (WLC) is working in the area for last few years. NGO is involved in literacy and adult education programme. A '*Balwadi'* (Kindergarten) with 18 children and three adult education centres with about 30 adults are in operation within the area.
- WLC is involved economic empowerment of the local slum women.
- A number of initiatives for well-being and social upliftment of slum residents are being undertaken by DUDA in the area.
- Due to heterogeneity in the population no effective community organisation exist in the area.

(5) Bhagwa Nala

Population:

Total 1938 (Source: DUDA)
Male: 525, Female: 467, Children: 946

Location:

Baghwa Nala slum (Mauza Hal) is situated on the bank of river Varuna at Panchkroshi Road.

Socio Economic Structure:

Slum is a densely populated heterogeneous community inhabited by different castes and having different occupational pattern. Most of the families in the area are staying here for many generations. About 20 families of migrant from Bangladesh reside on the entrance to the slum. In recent years a number of families have sold their properties and a number of *pucca* structure have replaced the old dilapidated *Kutcha* properties.

Most of the residents are illiterate; however educating their children has gained priority across all section of community. Two private and two primary schools functioning in the area has largely contributed to this.

Most of the residents of the area are unskilled and semi-skilled construction labourers. Few are engaged in other activities like weaving sarees, vegetable vending etc. Many Bangladeshi migrants earn their livelihood through rag picking.

Facilities:

1) Road

The slum is labyrinth of narrow roads and streets. Roads are unpaved with potholes and water logging at several places.

2) Water supply

There is no individual household water supply system for the community however few public standpost have been provided by the water works department. Water supply is inadequate and irregular and unreliable. To supplement the water source five wells and two handpumps have been erected within the slum. However most (three) of them get dried up during summer.

3) Electricity

Most of the household in the area are not connected by the electric supply. Most of them use the service illegally. Electric supply in the area is irregular and for two to three hours in a day.

4) Sanitation and sewerage

There is no sewerage facility available in the slum. Facilities for sanitation within the community are limited. Very few households have IHL and no CTCs are available within the area. In the absence of community and household toilet, open defecation is a common practice. Diseases like diarrhoea and disorder like indigestion are common which primarily spread on account of unsanitary condition.

5) Other facilities

- There are two private nursery cum primary school in the area. One maintained by an NGO "Manawadhikar Jan Nigarani Samiti" and the other is maintained by a local resident. Approximately 25 % of the children of the community go to school.
- Health care facility is available in the slum. Residents also consult private hospital and medical practitioners in the city.

(6) Jyodhipur

Population:

Total 2000
Male: 643, Female: 542, Children: 825

Location:

The slum is in the centre of the city situated in the mid of Bajardiha, Kirahia and Khonjawan slums.

Socio Economic Profile

There are approximately 500 households with household size of 7-10 family members. Most of the residents are illiterate, selected few were educated up to primary level. However it was observed that most of the children attended school. Residents of the area are working as daily wages labourers, shopkeepers, venders and hawkers to earn their livelihood.

Facilities:

1) Road network

Most of the streets within the slum are brick lined.

2) Water supply

Piped water supplied to the area is through individual household connection as well as through public standpost. Water supplied is irregular, unreliable and insufficient.

3) Electricity

The community is electrified and some of them have legal connections while some use it illegally.

4) Sewerage and Sanitation

Slum is a densely populated sewered area, where most of the residents have their own toilets and bathrooms connected to sewer line. It was observed that most of the house owners donot practice open defecation whereas the tenants go out to defecate. At several places the level of sewer line is higher than the house level, which creates a problem of back flow during rainy season. Further the problem of water logging makes the place unhygienic, causing diseases like malaria, diarrhoea and cholera.

5) Other Facilities

Other facilities like schools and medical centres are not available within the community.

(7) Bajardiha

Population:

Total: 3000 (source DUDA)
Male: 709, Female 664, Children 1627

Location:

Slum is located within the old city area. Boundary of the slum is marked by *Sriram* Colony on the east, the newly developed colonies namely *Brij* Enclave and colonies at *Patia* towards the southern side. *Khojawan Bajar* is on the western side and *Koluhawa* and *Kammachha* area are in the north of Bajardiha.

Socio Economic:

The slum of Bajardiha comprises of following different slum colonies.

- Mahfooz Nagar
- Lamhi (Sarai Surjan)
- Sarai Surjan
- Teliana
- Dhouliana
- Barkat Nagar
- Farooq Nagar
- Arubaa
- Harizan Basti
- Koluha
- Jolha
- Raza Nagar
- Said Nagar
- Ahmed Nagar
- Murgia Tola
- Maqdoom Baba
- Ajad Nagar
- Taj Mahal
- Nai Basti
- Azim Nagar (Sarai Nandan)
- Kharikiva
- Galla
- Parparva
- Kharlivas
- Garara

Slum of Bajardiha has mushroomed in last forty years with migrants from within the district and other part of the state coming to this area. The slum is densely populated and is homogenous in nature. Almost all the inhabitants living in the area are Muslim and 20 per cent of them are migrants. Area is still experiencing a heavy influx of population.

Most of the residents do not have any formal education. However a significant section of society, have received religious education in the Madarasas. Almost all females in the society are illiterate. Most of the girls from the younger generation are given religious education in Madarasas. The main occupation of the people living in the area is weaving.

Facilities:

1) Water Supply

Most of the residents have access to piped water supply either through an individual household connection or through a public stand post. But the supply is neither regular, nor sufficient to cater the needs and demands of residents. To supplement the water source, hand pumps are installed at different places. Water quality of the area is very poor. It is on account of seepage of sewage into the water system of the area.

2) Electricity

Household in the area do not have a legal electric connection and most of them are using electricity on illegally. Low voltage and fluctuation and long hours of power cuts are common.

3) Sewerage and sanitation

Slum is a mix of sewered and non-sewered area. While the area on the main road has sewer system and individual household toilets, the internal areas do not have sewerage system and resort to open defecation. Its important to note that only men of the community go out for open defecation, women of the community use dry latrines, since community does not allowed its women to go out for open defecation. Most of the household using dry latrine throw the human excreta in the open drains which terminates either in an open plot or flows in a nala and ultimately forms part of river Ganga.

A reconnaissance of the area indicated that people are less interested in using community toilets and felt that problem of open defecation in the area would be addressed by extending sewer lines to the unserved area.

4) Other facilities

Area is having one government junior high school and four other schools for the education of the children of the area. A number of madarsas for religious education are located within the area where children take religious education. Madarsas have proper sanitation facilities.

(8) Alaipur

Population:

Total 4322 (Source DUDA)

Location:

The slum is situated longitudinally all along the railway line very near to Varanasi Railway Station.

Socio Economic Profile:

The slum is homogeneous in nature and was constructed by VNN for its scavengers (*Valmiki)*. About twenty years back, forty-five houses were constructed in the area, which has now graduated into a major slum colony of 500 households.

Facilities:

1) Road network

A brick paved *Kutcha* road links the slum with the Grand Trunk (G.T.) Road. Main road in the slum is a paved road whereas the internal roads are a labyrinth of narrow streets one leading to the other. The slum is stretched on both side of the main road.

2) Water supply

Water supply is scarce with very few households having individual connection most of the households take water from the public stand post. Handpump acts as a supplement source of water supply for the area.

3) Electricity

No legal electric connection has been provided by the electricity department. But number of the household use electricity on illegal basis.

4) Sewerage and Sanitation

There is no underground sewerage system in the slum. A network of open drains on both side of the street carries not only wastewater but also human excreta along with it. There is no sanitation facility available within the slum. Provision for sanitation was not done during the construction of houses in the area. As a result, no individual or community toilet exists in the area and most of the household defecate in open near the railway track. Residents have expressed their demand for community toilet. Most of them were ready to contribute for the construction of community toilet along with the operation and maintenance. Open defecation on the railway line has been a cause of many train accidents for the residents. Other health problem experienced by the community on account of improper sanitation are diseases like diarrhoea, malaria, cholera, etc.

5) Other facility

Facilities like school and primary health centre are absent within the slum.

Organisations in operation:

No organisation is actively working for upgradation of the area.

2.1.3 Analysis and Outcome of Sample Survey in Pilot Project Areas

To assess the needs and demands for the LCS in slums of Varanasi and to identify various issues and primary concerns of the slum dwellers pertaining to LCS, a combination of quantitative and qualitative assessment techniques were used. The techniques used for the current study include different participatory methodologies, Focus Group Discussion (FGD), Workshops with different stakeholders, and structured interview schedule.

While the Participatory methodologies were used to get 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 detail and their affordability and willingness to pay for the preferred service. The results of the assessment techniques were used to derive the most appropriate and sustainable solution for the community.

2.1.4 Quantitative Assessment

The results of the interview schedule survey were analysed in the following broad head.

(1) Socio Economic Profile

Household size

Analysis of the field data reveals that average household size in the slum is 10.21. Average household size is highest in Bajardiya (14.86) and lowest is in Alaipur (5.4). The trend clearly indicates that cohesiveness amongst the people living in slum specially the weaver community residing is Bajardiya is very high.

Table 2.4 Average Household Size

Sl. No.	Name of Slum	Number of Respondents	Total number of Family Members	Average Household size (person/household)
1	Nagwa Nala	267	2085	7.81
2	Baghwa Nala	149	1382	9.28
3	Jodhipur	145	1132	7.81
4	Bajardiha	256	3804	14.86
5	Alaipur	15	89	5.93
	Total /Average	832	8492	10.21

Among 832 respondent's family, about 29 % of the members are adult male and 25 % adult female, and the rest (46%) children.

Table 2.5 Family Composition for different Slums

Sl. No.	Name of slum	Percentage of Members in the household (%)		
		Adult Male	Adult Female	Children
1	Nagwa Nala	36.21	28.97	34.82
2	Baghwa Nala	27.13	24.10	48.77
3	Jodhipur	32.16	27.12	40.72
4	Bajardiha	23.63	22.32	54.05
5	Alaipur Nuki Ghat	32.58	32.58	34.83
	Average	28.52	24.99	46.49

Literacy

Survey indicates that 48 percent of the respondents are illiterate. Among the literates maximum (27 %) have received formal education till primary level and only a few percent of the respondents are graduate.

Table 2.6 Level of Education among the Respondents

S. No	Name of the slum	Illiterate (%)	Literate (%)			
			Primary to Middle	Below high school	Intermediate	Graduation and above
1	Nagwa Nala	35.58	27.34	17.23	8.99	10.86
2	Baghwa Nala	57.72	30.20	6.04	4.03	2.01
3	Jodhipur	45.52	33.10	13.10	4.14	4.14
4	Bajardiha	56.25	23.05	11.72	7.42	1.56
5	Alaipur	60.00	20.00	20.00	0.00	0.00
	Total	48.08	27.40	12.86	6.61	5.05

The Statistics above indicates that the public participation and awareness (PP/PA) programme for the slum areas of Varanasi should be designed taking into account the fact that majority (48%) of target population is illiterate.

Occupation

A review of the occupation pattern of the sample communities reveals that except in case Alaipur slum, majority of population are self-employed. Average percentage of self-employed people in the sample slums is approximately 60 percent. The people are mainly employed in informal sector activities and work as Dhobis, Rickshaw puller, street vendors, Scavengers etc.

Table 2.7 Occupational Pattern in Slums

Sl. No.	Name of Slum	Occupation pattern (%)			
		Service Govt./Private	Self-Employed	Daily Wages	Other
1	Nagwa Nala	20.11	60.89	18.44	0.56
2	Baghwa Nala	9.04	50.00	30.85	10.11
3	Jodhipur	38.14	50.52	10.31	1.03
4	Bajardiha	13.89	76.39	8.80	0.93
5	Alaipur Nuki Ghat	55.56	11.11	33.33	0.00
	Average	18.62	60.03	18.05	3.30

Comparing the results obtained from Table 2.4 and 2.7 indicates that household size is larger in the areas where more inhabitants are self-employed. This accounts for the larger household size in Bajardiha and smaller household size in Alaipur.

Monthly Income

Monthly income of the family is an indicator of ability to pay for the services. However it was observed during the survey that most of the respondents were hesitated to disclose correct information about their household income. Survey results indicate that the respondents in Alaipur and Bajrdiha have higher income than the respondents surveyed in other slums.

Table 2.8 Distribution of Household in Different Income Slums

(Unit: %)

S. No.	Name of Slum	Income Per Month (in rupees)										
		500 to 1000	1001 to 1500	1500 to 2000	2001 to 2500	2501 to 3000	3001 to 3500	3501 to 4000	4001 to 4500	4501 to 5000	5001 to 5500	Above 5500
1	Nagwa Nala	12.73	2.62	3.37	38.58	12.73	10.48	7.86	6.36	2.60	1.88	0.79
2	Baghwa Nala	46.31	6.71	3.36	26.17	6.03	3.35	3.35	2.68	0.67	0.67	0.70
3	Jodhipur	34.48	5.52	1.38	28.96	5.52	6.21	6.90	4.83	3.45	1.38	1.37
4	Bajardiha	12.11	10.16	5.08	30.86	13.60	9.30	8.20	6.25	1.90	1.50	1.04
5	Alaipur Nuki Ghat	20.00	0.00	0.00	20.00	13.33	13.33	20.00	13.34	-	-	-
	Average	22.48	6.13	3.49	31.97	10.58	8.17	7.20	5.53	2.10	1.50	0.85

It should be noted that the income figure obtained by the interview schedule method may not give a clear picture about income pattern of the community.

(2) Housing type

All the houses in the surveyed slums has been classified in broad three categories i.e. *Pucca*, Semi-*Pucca* and *Kutcha* house. Study indicates that about 44% of the respondents live in *pucca* houses. The percentage of *pucca* houses in Jodhipur is highest among the surveved slum (66%).

Ownership

It is further observed that most of the residents in slum have houses of their own houses and only 14 % people live in the rented one.

Table 2.9 House Types in Different Slums

(Unit: %)

S. No.	Name of Slum	Nature of House				Own House	Rented
		Pucca	Semi-Pucca	Kutcha	Hut		
1	Nagwa Nala	53.56	33.71	12.36	0.37	79.78	20.22
2	Baghwa Nala	21.48	26.85	38.93	12.75	89.26	10.74
3	Jodhipur	65.52	26.90	6.90	0.69	86.21	13.79
4	Bajardiha	38.28	53.52	7.42	0.78	89.84	10.16
5	Alaipur Nuki Ghat	6.67	53.33	40.00	0.00	100.00	0.00
	Average	44.35	37.74	15.14	2.76	86.06	13.94

Ownership of the house is a positive indicator for the development of other infrastructural facilities. Detailed slum wise analysis reveal that almost all the houses in Alaipur are self-owned.

Asset Ownership

An assessment of the assets owned by the respondents was undertaken as a part of the survey. It indicated that about 23 percent people have access to television and radio (13%), which can be used as one of the medium for mass awareness.

Table 2.10 Asset of the Respondents

(Unit: %)

Name of Slum	Distribution of Assets						
	Motor Cycle	Bicycle	T.V.	Radio	Telephone	Cooking Gas	None
Nagwa Nala	7.03	30.56	25.00	11.11	5.39	16.50	4.41
Baghwa Nala	1.42	43.13	15.17	7.58	2.37	7.11	23.22
Jodhipur	8.40	34.00	26.40	10.80	2.00	11.60	6.80
Bajardiha	2.44	25.81	20.93	19.11	0.81	17.28	13.62
Alaipur Nuki Ghat	3.45	37.93	20.69	13.79	0.00	13.79	10.34
Average	5.02	31.43	22.58	13.11	2.95	14.68	10.23

(3) Availability of Infrastructure

1) Electricity

The survey indicates that only 50 percent of the households in the study sample are having regular electric connection, but it was observed that almost all households have access to electricity. Number of regular electric connection is highest in Bajardiha (71%) whereas Alaipur donot have any regular electric connection. About 36 percent household pay more than Rs 100 per month for electricity. The payment for electricity is highest in Bajardiha.

Table 2.11 Electrified Households

(Unit: %)

Sl. No.	Name of Slum	Yes	Availability of Electricity			
			If Yes (Monthly Payment in rupees)			No
			Below Rs. 50	Rs. 51 to 100	Above Rs. 100	
1	Nagwa Nala	51.69	11.24	3.00	37.45	48.31
2	Baghwa Nala	14.77	0.00	0.67	14.09	85.23
3	Jodhipur	52.41	19.31	6.90	26.21	47.59
4	Bajardiha	70.70	3.52	11.33	55.86	29.30
5	Alaipur Nuki Ghat	0.00	0.00	0.00	0.00	100.00
	Average	50.12	8.05	5.77	36.30	49.88

2) Water supply

Survey indicated only 29 percent of the slum residents have access to piped water supply. For most of the slum residents' handpump is the only source of water supply. Other sources for water are well, river etc. It was observed that only 0.72 percent people use river water for household purpose. Following Table2.12 summarises the source for domestic water in surveyed slums.

Table 2.12 Source of Domestic Water in the Surveyed Slum

(Unit: %)

S. No.	Name of slum	Source of Domestic Water				
		Hand Pump	Piped water	Open well	River	Other
1	Nagwa Nala	30.34	62.92	0.00	2.25	4.49
2	Baghwa Nala	51.68	12.08	36.24	0.00	0.00
3	Jodhipur	51.72	15.86	31.03	0.00	1.38
4	Bajardiha	68.36	12.50	19.14	0.00	0.00
5	Alaipur Nuki Ghat	100	0	0	0	0
	Average	50.84	28.97	17.79	0.72	1.68

It was further observed that none of the residents in Alaipur is having access to piped water supply and most of the residents in Nagwa Nala are having access to piped water supply (63%)

Distance travelled to get water supply

It is further observed that distance travelled by the household to fetch water is less than 100 m for most (83%) of the households. Focus Group Discussion revealed that although the distance travelled to fetch water is not large but the number of household having a common source is very large. As a result household spend two to three hours per day in collection of water from the common source.

Table 2.13 Distance of the Water Source from House

(Unit: %)

S. No.	Name of Slum	Distance of Water Source (in meters)			
		0-50 m	51-100 m	101-150 m	Above 150 m
1	Nagwa Nala	45.31	30.47	10.94	13.28
2	Baghwa Nala	24.66	67.12	6.85	1.37
3	Jodhipur	50.00	26.47	5.88	17.65
4	Bajardiha	53.85	30.77	9.62	5.77
5	Alaipur Nuki Ghat	80.00	20.00	0.00	0.00
	Average	45.48	37.29	8.76	8.47

Payment for water

Most of the residents (78%) in slums of Varanasi do not pay for the getting water. This indicates a non-availability of individual piped water supply at their residences. Discussion with the residents indicated a considerable amount of time (2 to 3 hours) is spent per day in collecting water. The coping cost for getting water turns out to be much higher for the slum dwellers than the people who have direct access to piped water supply if the time cost of the amount spend by these people is taken into account.

Table 2.14 Amount Paid for Getting Water

(Unit: %)

Sl. No.	Name of slum	Yes (Amount paid for getting water / year)				No
		0-10 Rs	11-20 Rs.	21-30 RS.	Above 30 Rs.	
1	Nagwa Nala	9.74	3.00	5.24	32.58	49.44
2	Baghwa Nala	0	0	0	0	100
3	Jodhipur	4.14	0.69	0.00	19.31	75.86
4	Bajardiha	0	0	0	6.25	93.75
5	Alaipur Nuki Ghat	0	0	0	0	100
	Average	3.85	1.08	1.68	15.75	77.64

3) Bathing facilities

No major deviation was observed in the bathing behaviour of male, female and children of the community. Most of the residents prefer bathing at their own houses. Other places for bathing like wells, tube wells and hand pumps were only used by the household not having bathing facility at home. In areas where residents were having an option of community toilet and river (e.g. Nagwa Nala), they preferred river to community toilets. Low usage of community toilet for bathing facility is on account of less water availability, odour problem and user charge charged for community toilets.

Table 2.15 Bathing Facilities in Slums

(Unit: %)

Sl. No.	Name of slum	Place of bath																	
		Own House			Community Bathroom			River			Wells			Hand pumps			Other		
		M	F	C	M	F	C	M	F	C	M	F	C	M	F	C	M	F	C
1.	Nagwa Nala	53.4	63.1	60.1	1.5	1.1	0.4	33.0	30.1	21.3	1.9	1.5	2.0	10.2	15.2	15.4	0.0	0.0	0.0
2.	Baghwa Nala	54.0	61.9	55.1	0.0	0.0	0.0	0.7	0.0	0.7	30.7	25.2	29.9	14.7	12.9	14.3	0.0	0.0	0.0
3.	Jodhipur	67.1	89.4	75.7	5.4	1.4	0.9	0.0	0.0	0.0	25.5	9.2	20.1	2.0	0.0	1.4	0.0	0.0	0.0
4.	Bajardiha	62.6	88.7	71.7	2.7	0.0	0.1	0.4	0.0	0.0	26.8	8.9	21.3	7.4	2.3	6.7	0.0	0.0	0.0
5.	Alaipur Nuki Ghat	0.0	13.3	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	86.7	85.7	0.0	0.0	0.0

4) Occurrence of diarrhoea

Survey shows that 25% of the slum dweller suffered from the diseases like diarrhoea last year. This may be attributed to non availability of proper sanitation facilities in the slum areas. Maximum cases of diarrhoea were recorded in Alaipur (40%) slum. It may be on account of non-availability of sanitation facilities in the area.

Table 2.16 Occurrence of Diarrohea Last Year in Different Slums

Sl. No.	Name of Slum	No (%)	Yes (%)	Yes (If yes, no. of family member who suffered diarrhoea)			
				1	2	3	4 and above
1	Nagwa Nala	81.65	18.35	20	14	5	10
2	Baghwa Nala	69.80	30.20	18	13	8	6
3	Jodhipur	68.97	31.03	30	5	6	4
4	Bajardiha	73.44	26.56	27	20	7	14
5	Alaipur Nuki Ghat	60.00	40.00	3	3	0	0
	Average	74.40	25.60				

Although improper sanitation is not the only reason for occurrence of diarrhoea but studies indicate that improvement in sanitary condition do prevent the occurrence of the disease.

5) Sanitation practices

This section focuses on the sanitation issues in the sample communities. An attempt has been made to understand people's concerns, preferences and general sanitation practices.

Place of Defecation

Study indicates that 29 percent of the total respondents go for open defecation. The practice of open defecation is more prevalent in Alaipur and Bhagwa Nala slum where people opting for open defection are 100 percent and 83 percent respectively. The number of people going for open defecation is minimum in Jyodhipur and Bhajardia. Most of the people in the two slums (Jyodhipur and Bajardhia) have household toilet and only 15 % people in the area practice open defecation. It was further observed that open defecation is lower in sewered area than non-sewered area. With the construction of sewer line in an area community tends to build their individual household toilet.

Presence of large number of toilets in Bajardia slum which is partially seweraged indicates that social structure of the community acts as a pull factor in many cases for a facility. It should be noted that most of the residents in Bajardia are muslim where women of the household are not allowed to defecate in open.

Table 2.17 Detail of Sanitation Facilities in Study Area

(Unit: %)

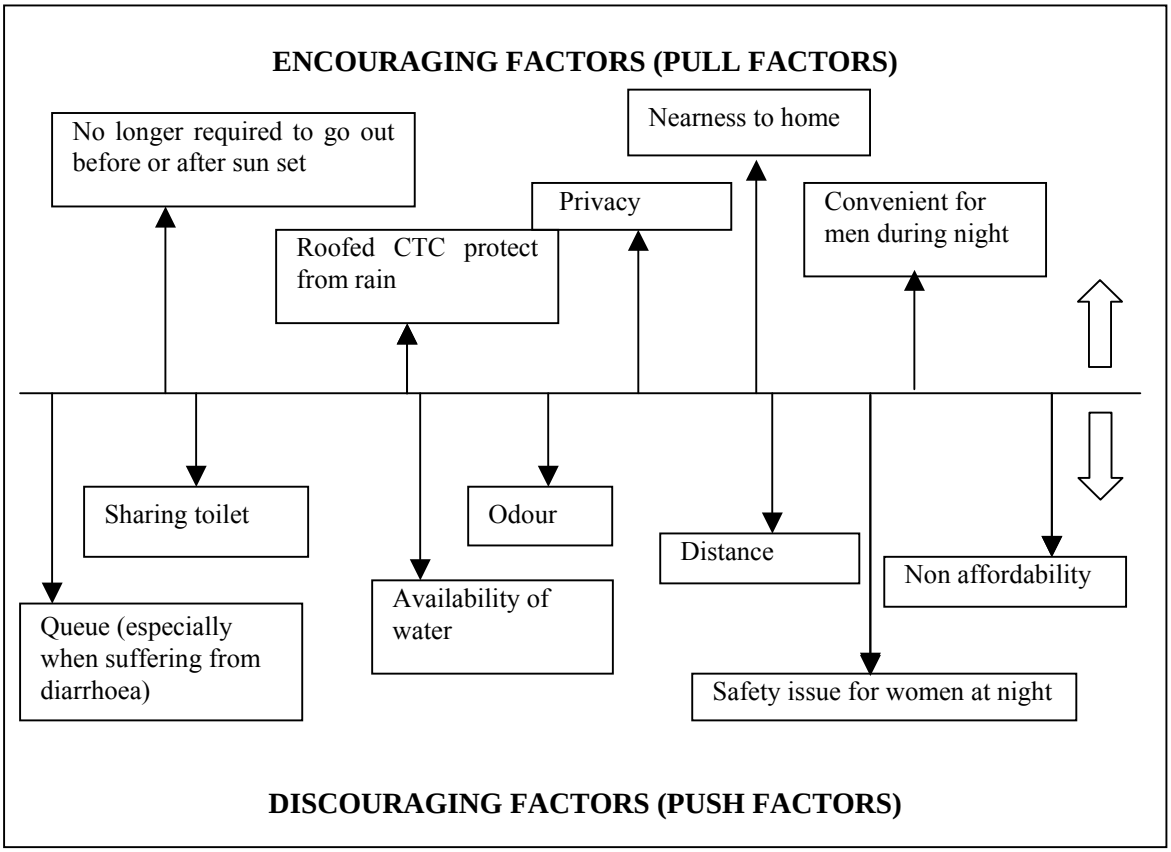
Sl. No.	Name of Slum	Sewerage Connection	Place		
			Own Toilet	Community Toilet	Open Defecation
1	Nagwa Nala	Sewered	58.43	26.59	14.98
2	Baghwa Nala	Un Sewered	17.45	0.00	82.55
3	Jodhipur	Sewered	82.76	1.38	15.86
4	Bajardiha	Sewered	84.77	0.00	15.23
5	Alaipur Nuki Ghat	Un -Sewered	0.00	0.00	100.00
	Average		62.38	8.77	28.85

Above figures show that Bagwa nala and Alaipur slum are having a very low level of services. It is important to note that income profile of Alaipur slum is much higher than all the other selected slums indicating that household affordability /income is not the only criteria for residents to choose a service. Focus group discussions revealed that in Alaipur availability of space was a constraint, whereas in Bagwa large open unchecked space available along river Varuna discouraged the residents to construct household toilets.

It should be noted that despite the presence of CTC in Nagwa Nala slum, the number of respondents found practicing open defecation is around 15%. On further investigation it was found that following factors discourage the residents from using CTCs

- Distance of the toilet from house
- Waiting in a queue to use the facility.
- Frequent non availability of water
- Dirty
- Improper lighting arrangement
- Odour
- Payment charged for usage
- Lack of maintenance
- Safety issues at night specially for women
- Women of the community feel hesitant to use the toilet during day time

'Force field' analysis in Nagwa Nala slum revealed and weighed the benefits and demerits identified by the community to use CTC as seen in figure below.



Type of Toilets

For the household with individual toilet unit, 47 percent indicated that the units are sewered units, indicating that the sewer connection is a pull factor for the construction of toilets. In the absence of sewered facility, most of the households construct one pit unit, which is cheaper and occupies less space. Bucket units /dry units are common in the areas where sewer lines are absent and households cannot afford the cost of construction of septic tank or one pit unit.

Table 2.18 Respondent with Different Type of Latrine in Varanasi

(Unit: %)

Sl No.	Name of Slum	Type of Toilets					
		Flush	Pour Flush	Septic tank	One pit	Bucket/dry	Sewer
1	Nagwa Nala	0.00	0.00	1.92	9.62	1.28	87.18
2	Baghwa Nala	0.00	0.00	7.69	88.46	3.85	0.00
3	Jodhipur	0.00	5.00	0.83	10.83	0.00	83.33
4	Bajardiha	0.00	19.35	5.53	37.79	31.80	5.53
5	Alaipur Nuki Ghat	0.00	0.00	0.00	0.00	0.00	0.00
	Average	0.00	9.25	3.47	25.63	13.87	47.78

Duration after which one pit unit gets filled up

Respondent owning one pit toilet or septic tank were questioned about the duration in which the pit gets filled up. 43 percent indicated that the pit gets filled up in six months. Filling of pit every six-month is a cause of concern for the residents which discourages them from using

the toilet. There were cases where despite having own toilet people practice open defecation and facility is used only by the ladies of the household or used by other members in case of an emergency.

Table 2.19 Period After Which One Pit Unit Get Filled

(Unit: %)

Sl. No.	Name of Slum	Period			
		Six month	One year	2 years	3 year and above
1	Nagwa Nala	26.67	53.33	6.67	13.33
2	Baghwa Nala	21.74	4.35	21.74	52.17
3	Jodhipur	69.23	15.38	15.38	0.00
4	Bajardiha	47.56	26.83	18.29	7.32
5	Alaipur Nuki Ghat	NA	NA	NA	NA
	Average	42.86	24.81	17.29	15.04

Cleaning of pit

Further investigation about cleaning detail of the pit revealed that in most of the cases either a scavenger or a labour is appointed to clean it. In 11 percent cases pit is cleaned by the owner themselves. Cleaning of the pit by the scavenger involves money to be paid to the scavenger, which is another discouraging factor for residents to use the toilet despite owning it.

Table 2.20 Detail about Cleaning of Pit

(Unit: %)

Sl. No.	Name of slum	Who clean the pit			
		Scavenger	Ordinary labour	Self	Any other
1	Nagwa Nala	66.67	20.00	13.33	0.00
2	Baghwa Nala	50.00	7.89	0.00	2.63
3	Jodhipur	16.67	13.89	5.56	0.00
4	Bajardiha	52.58	20.62	11.34	2.06
5	Alaipur Nuki Ghat	0.00	0.00	0.00	0.00
	Average	63.70	22.96	11.11	2.22

Amount Spend in Cleaning

Residents were enquired about the amount spend in cleaning the facility. 19 percent reveal that the amount spent by them is more than Rs 300. and 59 percent indicated that the money paid to the scavenger/labour was less than 200.

Table 2.21 Amount Spend in Cleaning

(Unit: %)

Sl. No.	Name of slum	Amount Spent (Rs) / time		
		Less than 200	Rs. 201-300	Rs. 301 and above
1	Nagwa Nala	60.00	6.67	33.33
2	Baghwa Nala	13.04	43.48	43.48
3	Jodhipur	53.85	30.77	15.38
4	Bajardiha	72.62	17.86	9.52
5	Alaipur Nuki Ghat	0.00	0.00	0.00
	Average	59.26	22.22	18.52

Place for Disposal of Pit Content

It was further revealed that 77% of the residents do not use open field, nala or open drainage for disposal of the pit content. Other alternates are used. On further investigation about the

other alternates it was revealed that in many cases the other alternate is river. e.g. in case of Bagwa Nala the debris from the one pit unit directly comes to river Varuna.

Table 2.22 Place for Disposal of Pit Content

(Unit: %)

Sl. No.	Name of slum	Place			
		Open Space	Nala	Open drainage	Any other
1	Nagwa Nala	0.00	46.67	0.00	53.33
2	Baghwa Nala	0.00	4.35	4.35	91.30
3	Jodhipur	0.00	0.00	23.08	76.92
4	Bajardiha	18.29	4.88	0.00	76.83
5	Alaipur Nuki Ghat	NA	NA	NA	NA
	Avergae	11.28	9.02	3.01	76.69

Satisfaction with one pit latrine

An enquiry about the satisfaction of the residents using one pit latrine revealed that only 6 percent of the residents are satisfied by one-pit toilets at their residences. Unsatisfied residents cited many reasons for their dissatisfaction with one pit system. Majority (70%) of them indicated that inconvenience caused when pit gets filled is the main reason for their low satisfaction with the system. Also few (22%) revealed that problem of cleaning of pit was the main cause of their dissatisfaction.

Table 2.23 Number of Residents Satisfied / not Satisfied by One Pit Latrine

(Unit: %)

Sl. No.	Name of slum	Yes	No		
			Inconvenient when pit is filled	Problem of cleaning pit	Any other
1	Nagwa Nala	13.33	53.33	33.33	0.00
2	Baghwa Nala	8.70	65.22	8.70	17.39
3	Jodhipur	15.38	46.15	38.46	0.00
4	Bajardiha	2.44	73.17	20.73	3.66
5	Alaipur Nuki Ghat	NA	NA	NA	NA
	Average	6.02	66.92	21.80	5.26

Opinion for construction of second pit

Most (51%) of the residents indicated that they wish to construct second pit whereas the rest cited different problems in construction of second pit which include

- Non availability of space (17%)
- Non affordability (24%)

Table 2.24 Residents Opinion for Construction of Secondary Pit

(Unit: %)

Sl. No.	Name of Slum	Yes	No		
			Have no space	Can not afford	Any other
1	Nagwa Nala	0.00	33.33	20.00	46.67
2	Baghwa Nala	4.35	30.43	56.52	8.70
3	Jodhipur	0.00	46.15	53.85	0.00
4	Bajardiha	81.71	6.10	10.98	1.22
5	Alaipur Nuki Ghat	NA	NA	NA	NA
	Average	51.13	17.29	24.06	7.52

It was further observed that in Bajardhiya 81% residents wish to construct second pit when the first one would get filled. It further supports our initial hypothesis that social structure of the community is a pull factor in case of many communities (especially Muslims). On account of their social practice residents of Bajardiha feels a strong need to own a toilet. Hence most of the residents were positive about construction of second pit once the first one gets filled up.

Preference between Community Toilet and Household Unit

Almost all residents in slums of Varanasi when asked to choose between household and Community toilet preferred IHL to CTCs. 63 percent residents revealed that large distance between the residence and the community toilet was a discouraging factor for them to use community toilet. Whereas 22% of the residents expressed that inability to pay the user charge was the reason for their less preference for community toilet.

Table 2.25 Reason for not Using Community Toilet

(Unit: %)

Sl. No.	Name of Slum	Distance	Uncleanness	Inability to pay user charges	Social habit
1	Nagwa Nala	37.50	12.50	40.00	10.00
2	Baghwa Nala	80.49	7.32	12.20	0.00
3	Jodhipur	21.74	30.43	39.13	8.70
4	Bajardiha	69.23	12.82	17.95	0.00
5	Alaipur Nuki Ghat	40.00	20.00	40.00	0.00
	Average	63.33	12.08	22.08	2.50

In Nagwa Nala slum where two community toilets are available, 40% of the respondent expressed that user charge discourages them to use community toilet.

Construction of Individual Household Unit

Preference for construction of individual household unit was sought from the resident not having IHL. It was observed that 93 percent respondents wanted to construct a toilet at their residence. Respondent who were positive about construction of toilet at their residence were further interrogated. It was observed that only 22 percent respondents mentioned that non-availability of space would be problem for them to construct the toilet at their residence.

Table 2.26 Opinion of Residents about Construction of Individual Household Toilet

(Unit: %)

Sl No.	Name of slum	Yes		No
		Have Space	No Space	
1	Nagwa Nala	77.12	16.95	5.93
2	Baghwa Nala	84.55	15.45	0.00
3	Jodhipur	69.23	26.92	3.85
4	Bajardiha	66.39	24.37	9.24
5	Alaipur Nuki Ghat	25.00	37.50	37.50
	Average	72.68	20.49	6.83

Although 62 percent residents indicated that they can afford to construct IHL but none of the residents were aware of the cost of construction of the unit. It was further identified through focus group discussion that for most of the household the maximum amount that they can afford for construction of a toilet unit is Rs 1000.

Owner Contribution for Construction of IHL

Opinion about the owners' contribution in terms of capital or labour was sought from the household not having individual household facility. Individuals' contribution as labour or capital for construction of toilet unit is found to be more or less similar in all the slums with a total of 47 percent opting for contribution through labour and 53 percent opting for monetary contribution.

Table 2.27 Residents Preference for Contribution of Individual Household Unit

(Unit: %)

Sl. No.	Name of slum	Contribution (%)	
		Money	Labour
1	Nagwa Nala	44.60	55.40
2	Baghwa Nala	48.05	51.95
3	Jodhipur	52.38	47.62
4	Bajardiha	45.16	54.84
5	Alaipur Nuki Ghat	50.00	50.00
	Average	46.82	53.18

Construction of Pour Flush Toilets in the House

Respondents not having IHL were also asked about their preference for construction of pour flush latrine in their houses. About 7 percent respondents disapproved the idea of construction of toilet unit in their houses.

Table 2.28 Residents Preference for Construction of Pour Flush Toilet at Home

(Unit: %)

Sl No.	Name of slum	Yes		No
		Sewerage	Without Sewerage	
1	Nagwa Nala	63.72	30.09	6.19
2	Baghwa Nala	65.32	34.68	0.00
3	Jodhipur	52.00	44.00	4.00
4	Bajardiha	70.37	19.44	10.19
5	Alaipur Nuki Ghat	0	40.	100
	Average	64.16	28.57	7.27

Willingness to pay and use Community Toilets

Residents were also enquired about their preferences for the use of community toilet and mode of payment for it. Only 19 percent respondents were unwilling to pay for the service, and 81 percent expressed that they would pay for the service. Most (75%) of the respondent wanted a monthly system of payment for the entire family, and the amount of monthly pass is Rs. 21-30 (38.7 %), Rs. 11-20 (25.7%).

Table 2.29 Payment Mode for Community Toilet

(Unit: %)

Sl. No.	Name of slum	Yes		No
		Monthly per family	Per use per person	
1	Nagwa Nala	81.42	0.88	17.70
2	Baghwa Nala	85.48	10.48	4.03
3	Jodhipur	80.00	8.00	12.00
4	Bajardiha	53.70	4.63	41.67
5	Alaipur Nuki Ghat	93.33	0.00	6.67
	Average	75.32	5.45	19.22

Table 2.30 Willingness of Users to Pay as Monthly Usage Charges for CTCs

Sl. No.	Name of Slum	No. of Household to use CTCs	Monthly users charges per household (Rs.)					
			0-10	11-20	21-30	31-40	41-50	51-
1.	Nagwa Nala	39	3 (7.7%)	12 (30.8%)	15 (38.5%)	2 (5.2%)	6 (15.4%)	1 (2.6%)
2.	Bagwa Nala	110	9 (8.2%)	28 (25.5%)	40 (36.4%)	4 (2.7%)	25 (22.7%)	5 (4.5%)
3.	Jyodhipur	21	2 (9.5%)	5 (2.4%)	10 (47.6%)	-	3 (14.3%)	1 (4.8%)
4.	Bajardiha	37	4 (10.8%)	9 (24.3%)	15 (40.5%)	1 (2.7%)	6 (16.2%)	2 (5.4%)
5.	Alaipur	15	2 (13.3%)	3 (20.0%)	6 (40.0%)	1 (6.7%)	3 (20.0%)	-
	Total	222 (100%)	20 (9.9%)	57 (25.7%)	86 (38.7%)	7 (3.2%)	43 (19.4%)	9 (4.1%)

Table 2.31 Willingness of Users to Pay per Usage Charges for CTCs

Sl. No.	Name of Slum	No. of Household to use CTCs	Users charge per use (in Rupees)		
			0-0.50	1.00	2.00
1.	Nagwa Nala	1	-	1 (100%)	-
2.	Bagwa Nala	13	-	10 (76.9%)	3 (23.1%)
3.	Jyodhipur	2	-	2 (100%)	-
4.	Bajardiha	2	-	1 (50%)	1 (50%)
5.	Alaipur	-	-	-	-
	Total	18 (100%)	-	14 (77.8%)	4 (22.2%)

Awareness about problems due to open-air Defecation

Most of the respondents (78 %) were aware of the environmental pollution caused by open defecation. Whereas only 58% felt it is injurious to health. Very few slum residents were aware of the direct linkage between the unsanitary condition and health hazards.

Table 2.32 Awareness about Problem Due to Open Defecation

(Unit: %)

S. No.	Name of slum	Nature of Problem				
		Pollution of Neighbouring Environment		Injurious to health		Any other
		Yes	No	Yes	No	
1	Nagwa Nala	87.50	12.50	57.50	42.50	0.00
2	Baghwa Nala	70.73	29.27	49.59	50.41	0.00
3	Jodhipur	80.00	12.00	36.00	56.00	0.00
4	Bajardiha	82.05	17.95	87.18	12.82	0.00
5	Alaipur Nuki Ghat	100.00	0.00	100.00	0.00	0.00
	Average	78.10	21.07	58.68	40.50	0.00

Loan for Construction of Individual Household Unit.

During field survey opinion about taking loans for construction of IHL was sought from the residents. 59 percent of the respondents wished to take loan for construction of individual household units. However only 8 percent were ready for Equated Monthly Instalment (EMI) of more than Rs 100.

Table 2.33 Preference to Take Loans for Construction of Individual Household Unit

Sl. No.	Name of slum	Yes (Amount of repayment of loan)			No
		Upto Rs. 50	Rs. 51 - 100	Above Rs. 100	
1	Nagwa Nala	35.85	16.98	15.09	32.08
2	Baghwa Nala	23.39	8.06	2.42	66.13
3	Jodhipur	37.50	16.67	20.83	25.00
4	Bajardiha	57.73	12.37	5.15	24.74
5	Alaipur Nuki Ghat	33.33	33.33	0.00	33.33
	Average	37.54	12.89	8.12	41.46

2.1.5 Assessment of Need and Demand

'Need for sanitation' for slums of Varanasi can be defined as number of households lacking proper sanitation facilities. Needs can be further subdivided into two categories

1) Need for the service
2) Need for Upgradation

Need for service for toilets in slums of Varanasi can be calculated by assessing following two indicators

- Number of households practicing open defecation
- Number of household with bucket unit

Assessment revealed that 28.8 percent of survey respondents practice open defecation and 8.7 % of the total number of representative sample in Varanasi use bucket unit. From the above statistics it can be concluded that around 37.5 % of the residents in slums of Varanasi are in need of toilet facility.

Need for Upgradation can be expressed in terms of upgradation of the existing units. Need in terms of upgradation can be addressed from indicators like;

- Number of respondents not satisfied with their present arrangement of sanitation e.g. one pit latrine. - 94 % of the total respondents having one pit latrine or 16 % of the residents in slums of Varanasi have need for upgradation of sanitation facility.

In the surveyed slum, need for toilet is highest in Alaipur (100%) and Bhagwa Nala (83%).

Demand for the service is linked with individuals or households preference to opt for the service. In certain cases demand is clear and direct where household express his willingness to opt for the service. Direct demand can be addressed through indicators like:

- Household not having toilet facilities but want to opt for it
- Households that wish to take loan for construction of IHL
- Households that are ready to pay for community toilets

In case of Varanasi, 2.0% of the households do not want an IHL. Other respondents not having IHL showed constrains like availability of space and affordability.

Availability of Space was a major constraint for 5.9% of slum residents. This clearly underscores their need for CTCs. *Affordability* is a constraint for 7.5 % of the total slum dweller. Cases where affordability is constraint can be treated as case of potential demand i.e. the demand which exist but has to be surfaced explicitly. Potential demand where affordability is a major constraint can be trapped through various financial mechanisms.

Calculation for the need and demands for CTC and IHL have been done in detail in the next chapter on suggested option.

2.1.6 Major Constrains

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 identified effectively.

Technical constraints

- Non-availability of sewerage or partial sewerage
- Lack of knowledge about various option for sanitary toilets
- Lack of skilled person for construction
- Lack of availability of right type of sanitary fixture e.g. Traps etc.

Availability of Space

- Availability of space is a major constraint for about 5.9% of the respondents. Availability of space is a major constrain in Alaipur Naki Ghat area with about 37.5 % of residents having no space for construction of IHL at their residence.
- Availability of space is a major constrain for upgradation or conversion of one pit unit to two-pit unit.

Affordability

- Affordability is a constraint for many of the slum dwellers. Although the survey indicates that 57.6 % of the residents who have space for IHL, can afford to pay for construction of Individual Household Unit. On detailed interrogation it was found that the maximum contribution from the household can be Rs 1,000 for construction of a toilet whereas the cost of construction of a toilet is much higher.
- 41 percent of the household from the representative sample were not interested in take loan and amongst those who expressed their willingness to take loan only 8% were willing to pay more than Rs 100 per month as instalments.

Support Services

- For a sanitation programme to be successful sufficient water supply is must. Currently only 29 percent of household in the surveyed slum have an access to piped water supply. Insufficiency and unreliability in water supply is a major constrain which affects the use of facility even though it exists. Need for sufficient water provision is highly significant in the case of CTCs and a well-designed sanitation programme would be ineffective very soon.

- Irregular electric supply is a major constraint which hinders people from using the constructed facility at night, specially the women and children.

O& M Constraints – Present Scenario

IHLs: The O&M of IHLs is the responsibility of individual householders. However it has been observed that cleaning and disposal of sludge, specially in case of toilets with single pits, is problem as there is no centralised arrangement for cleaning of pits when they get filled up. Manual cleaning is not being regularly and timely done for reasons it is costly and sweepers are generally reluctant to handle it as it is unhygienic and cumbersome.

Some of the pits, for the above reasons are seen overflowing with sludge which finds its way into roads and drains, resulting in health hazards and degradation of environment.

CTCs: There are 121 CTCs situated at different locations in the city which are much less than the required. CTCs are need of people who :

- Do not have their own toilet in household
- Come to city as devotees on the occasions of festivals, cultural ceremonies and reform religions rituals.
- Come to city for business, official works and as tourisms.

Location-wise status of CTCs

Keeping in view the above aspects, CTCs have been constructed in city at three types of locations, viz. :

- Ghats to cater to devotees, pilgrims and tourists 14 CTCs exist at ghats of Ganga river.
- Slum areas to cater to the population, which do not have own toilets in their households. 50 CTCs exist in different slums.
- Others to cater casual users who come to city in course of business, official works, seminars, processions etc. 57 CTCs exist at different places in city.

Water supply in CTCs

CTCs have water supply from :

- Jal Sansthan (Municipal supply)
- Independent tube wells
- Hand pumps

84 CTCs have water connections with Jal Sansthan's supply line, 30 have independent tube wells and 7 have hand pumps.

Disposal of effluent

Sludge of CTCs is being disposed off through either sewer or septic tank and soak pits.

- 84 CTCs are connected to sewers
- 37 CTCs are disposing effluent through septic tanks and soak pits.

There is no mechanical equipment for removal of sludge which is removed manually. No sites have been demarcated for disposal of sludge.

Electrification

All the CTCs are electrified but due to intermittent power supply they are facing a lot of problems.

No. of W.C., Bath and Urinals

All CTCs have been provided with water closets (WCs) and bath cubicles both for male and female, in separate compartments, generally in proportion of 60:40. Urinals have been provided with entrance from outside. The brief descriptions of facilities provided in CTCs are as under :

- The floors and skirting are either granolithic or of plain cement finish.
- Baths have floor of either mosaic or plan cement concrete.
- On skirting ceramic tiles have been provided upto 1200 mm height.
- Urinals – have no curtain walls in front. Its floor is either mosaic type or plain cement concrete. In skirting, ceramic tiles have been provided.
- Water storage – For this purpose over head water tanks of masonry or PVC have been provided. Surface water tanks have also been constructed to store water for pour flushing of W.Cs.
- Taps inside the cubicles of toilets have not been provided to avoid wastage water. Storage tanks have generally been provided to facilitate taking of water in mugs/tumblers for ablution and flushing of excreta.

CTCs Building

The look of most of CTCs, especially in slums and ghats is shady due to lack of proper upkeep of building. In some of the repairs of doors, floors, plaster and painting/colour washing/white washing are required.

Operation and Maintenance

Operation and maintenance is a major issue in regard to CTCs existing in slum areas. Slum dwellers are paying Rs. 30 per month per household as users charges. About 80% households do not pay for use of CTC while some of them go to open defecation. It has been observed that only about 30 households use a 10 seater CTC in slum areas. Thus fund generated as user charges is Rs. 900 per month, which is too small amount to meet the O&M cost of CTC. Due to poor revenues and no grants for major repairs from the local body, the general conditions and maintenance of CTCs are not upto the desired standard, which may be one of the reasons for lesser usage of these CTCs.

- Paucity of fund is a major constraint for operation and maintenance of the complexes.
- Mechanism for monitoring day to day maintenance
- Sustainability of the proposed option
- Mechanical facility for removal of waste
- Space for disposal of waste

Institutional constraint

- The interface for interaction between the community and the official of the local body is non existent.
- There is a lack of intersectoral coordination between different departments involved in sanitation. As a result provision and delivery of services suffer. (Institutional structure for sanitation is discussed in the next chapter)

Community constrains

- Heterogeneity with the community structure is a major constraint. It was experienced that formulation of CBO and achievement of strategic consensus was much easier task within homogeneous communities than heterogeneous.
- In heterogeneous communities one organised institutional structure is difficult to formulate.
- Mobilise Neighbourhood Committees, as a vehicle of participation is one of the most difficult activity.
- To build trust within the community to participate in the sanitation programme is major constraint. Experience shows that a considerable amount of time and commitment on the part of NGO is required for this activity.
- Social habits of the community is also a major constrain. About 7 percent household not having IHL were not interested in constructing it. This is on account of their social habit and practices, which they are not interested in changing.

2.1.7 Awareness Level and Practices

Assessment of the awareness level was done by interview schedule and Focus Group Discussion. It was found that most of the respondent (78 %) were aware of the environmental pollution caused by open defecation but owing to unavailability of IHL and low level of facilities at CTC residents were found to practice open defecation.

Only 58 percent residents were aware of the health hazards caused by the practice of open defecation. Majority of them were unaware of the linkage between the unsanitary conditions and health disorder. FGD also selected identified few who were aware of the problem caused by open defecation yet practiced it because of habit.

2.1.8 Conclusions of Sample Survey

Following conclusions were derived from the current study

- All the five selected slums are characterised by low socio economic condition, low level of literacy and low access to urban services (e.g. Water supply and Sanitation)
- Household size is generally high (10.21), with highest in Bajardiha (14.6) indicating cohesiveness in the community especially among the weaver group scattered in the city.
- Although ownership (86%) is very high yet only 44% houses are *pucca.*
- Handpump is the major source of water for most of the slum dwellers with more than 50 % of residents drawing water from it. Piped water supply is accessible only to 29 percent slum dweller.
- Although distance travelled to fetch water by most of the slum dwellers is not very high (less than 100 m), considerable time is spent (2-4 hours) per day in collecting water indicating coping cost of accessing water for slum dweller is much higher than others
- 28.85 % of residents in slums of Varanasi have no toilet facility and practice open defecation. It is higher in non-sewered area than sewered area of the city.
- Social characteristics of the community determine the defecation habit. e.g. slum of Bajardiha has maximum number of toilet units as well as maximum share of bucket unit in the city. This is owing to large section of people belonging to Muslim community where women are inhibited, to defecate in open due to cultural conditioning.
- Detailed analysis indicated that 37.6 % residents in slums of Varanasi, are in need of toilet facility which include residents not having toilet and residents having improper squatter arrangement. Further it was identified that 16 percent residents, are in need of service upgradation. Need for toilet is highest in Alaipur and Bhagwa Nala slum whereas the need for upgradation is highest in Bajardiha.

- In the absence of sewered unit, one pit unit was the most adopted type of disposal method. However only 6 percent of the residents using it were satisfied. The main reason for dissatisfaction with one pit unit was inconvenience caused during cleaning the pit after the pit gets filled up.
- About 51 percent residents having one pit unit indicated the need for twin pit system however affordability (30% of residents who want IHL) and availability of space (22% of the residents who want IHL) were the major constraints.
- Large travel distance, irregular water supply, cleanliness and un-affordability are main reason cited by the most resident for less preference for CTC.
- Most of the residents practicing open defecation were aware of the environmental (78%) and health problem (58.68 %) caused by it.
- Although affordability for construction of IHL by the residents was around 63 percent, maximum amount they were willing to spend is Rs 1000.
- Most (75.32%) of the residents not having IHL, are willing to pay and use CTC, but would prefer a 'family card' system rather than unit payment system.
- 59 percent of the respondents wished to take loan for construction of individual household units. However only 8 percent were ready for Equated Monthly Instalment (EMI) of more than Rs 100.

2.1.9 Existing Institutional Structure and Recommendations

(1) Existing Institutional Structure

Currently sanitation responsibility in slums of Varanasi is shared by a number of department which include;

Varanasi Nagar Nigam

- Responsible for construction of community toilet facilities in the slums of Varanasi (Engineering department, VNN)
- Responsible for maintenance of community toilets (Health Department, VNN)
- Health Champaign (Health department, VNN)
- Women and child development activities (Welfare Department, VNN)

DUDA

The main activities of DUDA are in the slums in urban area and relate to participation of communities, strengthening of women, capacity building and alleviation of living standard. The activities are taken under the various programs identified by Government of India. DUDA implements improvement of slums and integrated LCS activities besides others.

- Responsible for construction of community toilet in slums
- Construction of drains and small bore sewer in slums
- Upgradation of streets and roads
- Coordinates with Community Development Society

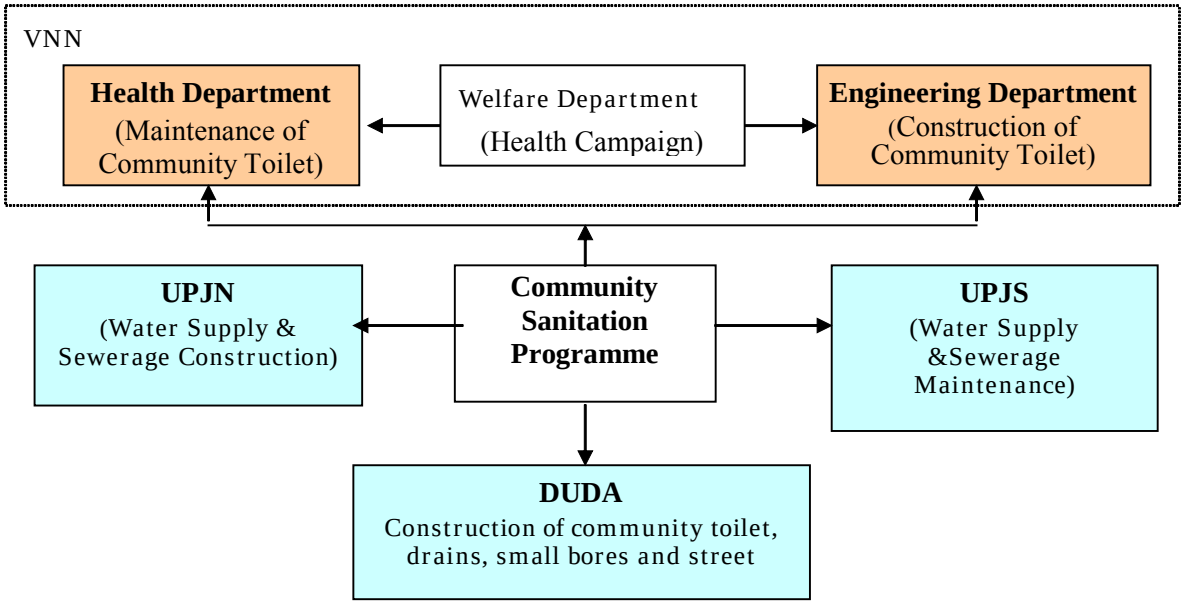
U.P. Jal Nigam

- Provision (construction) of water supply and sewerage network

Varanasi Jal Sansthan

- Ensuring supply of potable water
- Operation and maintenance of water supply and sewerage network

Varanasi Nagar Nigam and DUDA are in charge of slum development, but there is no coordination between Nagar Nigam and DUDA.

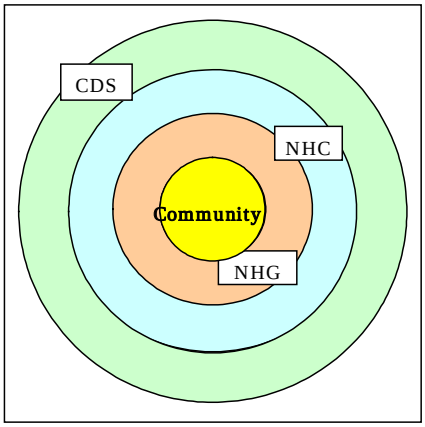


At the community level, local government has facilitated the formation of Community Development Societies (CDS). These CBO are grass root level organization constituted solely of women from poor families and work for the availability of basic services including water supply and sanitation.

Structure of CDS

CDS is an existing formal community level organisation which is involved in community development activities and can be used as a part of LCS programme. CDS has a three tier organisational structure

1) Neighbourhood Groups (NHG)
2) Neighbourhood Committee (NHCs)
3) Community Development Society (CDS)



Community Development Society:

CDS consists of 10 or more NHCs representing about 2500 families. The duties include:

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

There are 36 CDS in Varanasi, formulated by DUDA, Varanasi.

Neighbourhood Committee:

NHC consists of 10 to 12 Resident Community Volunteers (RCVs) representing about 250 families. The responsibilities include:

- Identification of local problems
- Motivating neighbourhood groups
- Developing community based credit thrift society
- Identification of training needs and capacity building programmes

Neighbourhood Group:

Consists of women from 10-40 households with a Resident Community Volunteer (RCV) as its head. The responsibilities of RCVs include:

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

(2) Suggested Institutional Structure

Inefficiency of the Urban Local Bodies (ULBs) in providing the basic services and lack of inter departmental coordination is the main reason for low level of service in the urban slums. Hence the suggested institutional framework tries to define the roles and responsibilities of the involved stakeholders. The suggested institutional framework includes experimenting by changing the role and relationship of the different stakeholders. In the new, ULBs should be limited itself to being enabler and facilitator while community acquired a major proactive role in the provision and maintenance of infrastructure.

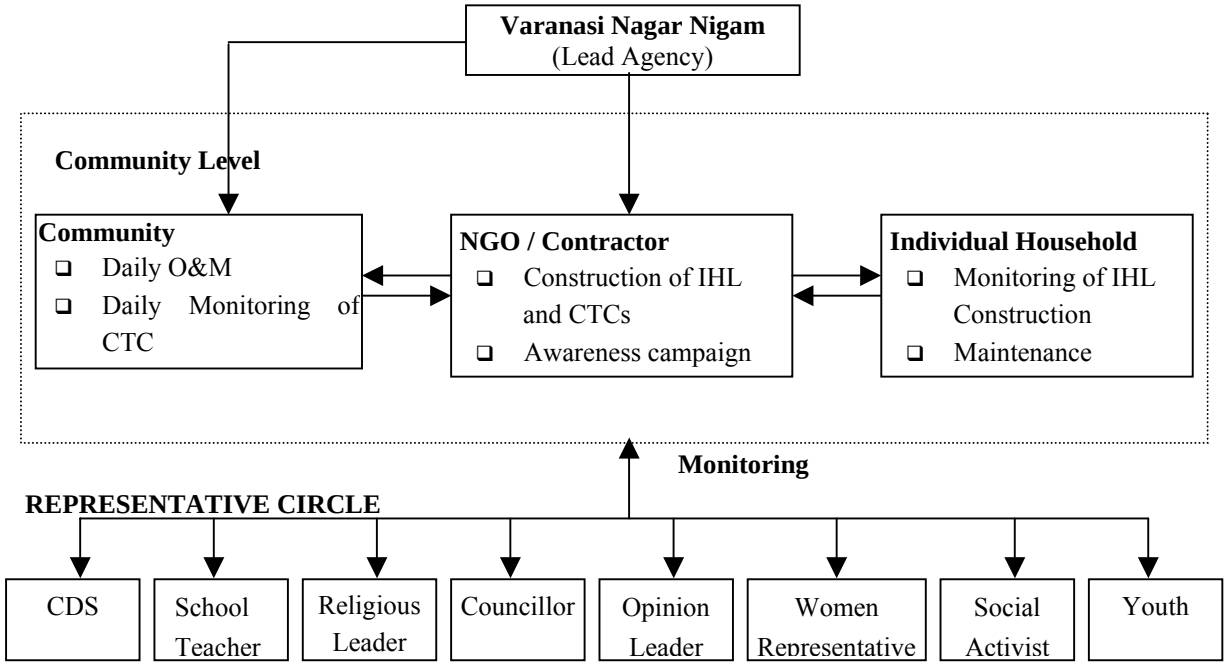
The implementation programme of LCS for the city of Varanasi can be divided in two major activities

1) Construction
2) Awareness /promotion

The suggested institutional framework for both the activity is detailed in the following section.

Construction of the facility- *Process and Institutions*

Figure below gives the institutional structure for construction and maintenance of LCS programme, water supply, electricity, maintenance of septic tank / sewerage.



It is suggested that the NGO/CBO (community) should also be made responsible for construction of the CTCs. They should also be given the responsibility of maintenance and operation. This would ensure good quality of construction because they would be accountable to the corporation for the same. Responsibilities could not be passed to any other agency. O&M of the CTCs is a key issue of their utilization. Current institutional arrangement for O&M of CTCs is through NGOs/ private contractors. There is hardly case that CBO is in charge of O&M of CTCs. For future, the possible variation of institutional arrangement can be giving O&M of CTC to such a NGO which can, in the first phase, run the toilet, concurrently mobilise the community / develop CBO capacity and subsequently hand over the toilet to the CBO. CDS mentioned above is the one possibility to hand over the O&M of CTCs.

A selection process for the NGO/CBO would have to be followed by the Varanasi Nagar Nigam (VNN). It should be similar as in the case of any agency selection by VNN. An agency with experience and credibility in construction and operation of CTC should be give preference. An agreement would then have to be signed between the selected agency and VNN. VNN should act as a monitoring agency during construction to ensure good quality work.

The VNN would be responsible for water supply and electricity for CTCs. Cleaning of septic tank / sewer would also be their responsibility. The above has been taken into consideration after reviewing the fact that the revenue generated through user charge is not adequate even today to maintain and operate the CTC's to the best standard. The VNN would play the role of a facilitator along the entire process. They would also have the responsibility of monitoring the entire project from inception to execution.

The ownership of the CTC will be lie with the VNN. It would be leased out to the NGO/CBO for a period of specified years. The appropriate period should be studied in detailed design stage.

Awareness Promotion

A Sanitation Promotion Committee (SPC) would be constituted for overseeing the awareness promotion activities. The lead organisation for this purpose would be the VNN. The committee would comprise of representatives of departments of health, DUDA, education, information, media, Jal Sansthan and Jal Nigam. The committee would also oversee the awareness campaign.

Role of Committee

- To select an implementing agency
- To act as a facilitator in the entire awareness campaign and provide necessary technical and financial inputs
- To monitor the work of the identified agency and evaluate the results there off.

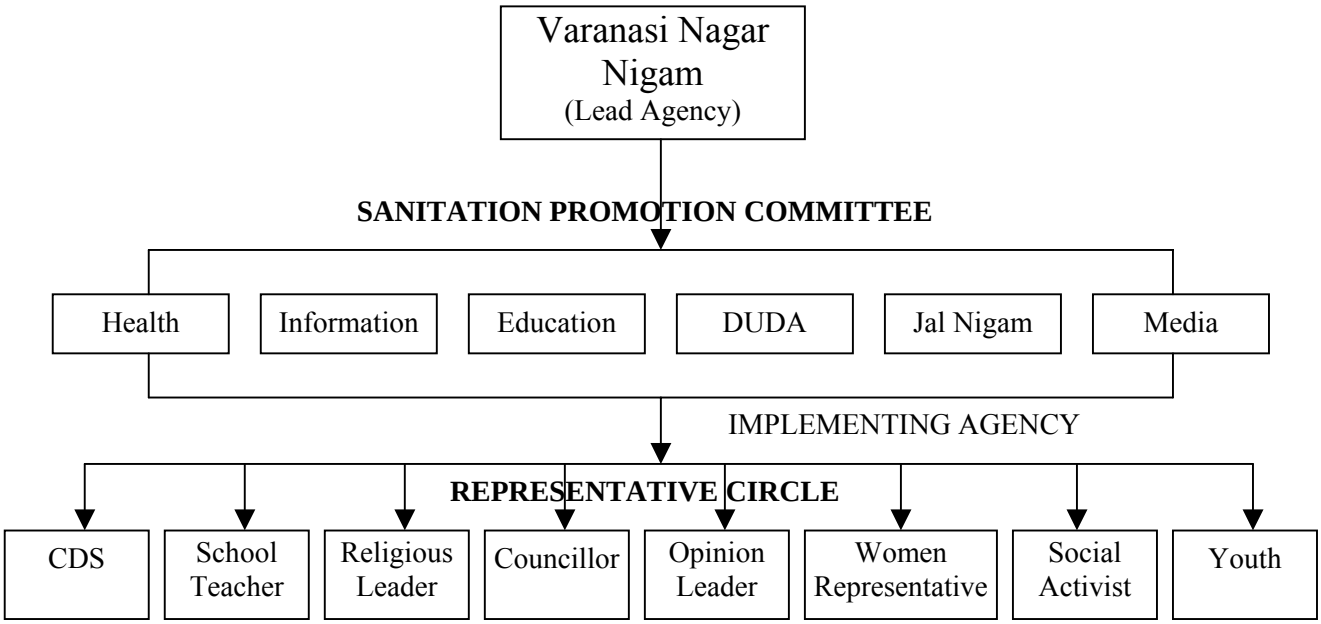
Implementing Agency

Implementing agency could be a Consultants, Construction Company, NGO or Government Agency with experience in developing and implementing community sanitation programme and behavioural change communication campaign

Role of Implementing Agency

- Conduct survey to assess the needs for the awareness campaign to identify the target audience and draw up a training and implementation schedule.
- Develop a proposal and cost estimate for the programme
- Submitted to the SPC for approval.
- Implement the PP/PA programme.

Figure below gives the institutional structure for awareness promotion



(3) Technical Options

From the field surveys, FGDs and workshop it is concluded that majority of the stakeholders in slum areas are in favour of constructing two pit pour flush latrines for individual households and CTCs by those who have either no space in the dwellings or financially cannot afford to construct toilets.

1) CTC

For the households who cannot construct IHLs for one or the other reasons, CTCs with facilities of water closets in separate components for males and females, handicapped persons and children, urinals and bathing cubicles are proposed. In slums, where people generally use the facility during 2-3 hours

in the morning one water closets cannot cater for more than 30 users. As such the required number of water closet has been worked out on the above basis. Only three types of CTCs, i.e. one with 5, 10 and 20 seats, are being proposed, keeping in view that the distances to be travelled by the users should not be more than 500 m.

The disposal of liquid waste from the CTC can be either of the following three ways :

- Sewer

  This is the best and least cost option provided sewerage system is available at a reasonable distance from the most suitable site of CTC. In existing 121 CTCs, it is found that 84 i.e. 70% percent have been connected to sewers.

- Septic tank Soak Pits

  In non-sewerage areas the alternative is either by septic tank/soak pits or biogas digester followed by treatment through activated charcoal and ultra violet rays which remove all pathogens and reduce BOD to the desired limit for discharging either on land or water body.

  Out of existing 121 CTCs in Varanasi, in 37 i.e. 30% the disposal of effluent from septic tanks is through soak pits. This option is not technically feasible in rocky and soils with low permeability.

- Biogas digester

  Complete treatment of liquid waste from CTCs is in biogas digester as described in preceding para. This option is costlier than sewerage and septic tank/soak pit but suitable where above are not feasible.

  The only limitation is that it is not economically viable if number of users is less than 500 per day, which is recommended for 20 seated CTCs only.

2) IHLs

On the basis of the preference expressed by the stakeholders and considering the technical soundness and feasibility, only pour flush latrines with twin leach pits are being recommended for construction in individual households. Only two types of soakage pits i.e. circular and rectangular, are recommended. The proposed capacities of pits will be for 5, 10, 15 users.

The drawing of the above twin pit pour-flush toilet are enclosed an Appendix D.

(4) Conclusions and Recommendations

Open air defecation which is causing at present insanitary conditions in slum areas and pollution of river Ganga, can be prevented only when the open defecation is totally stopped and the human waste is disposed off in such a way that it does not affect the environment. To achieve these objectives, low cost on site following interventions are recommended.

The final workshop was organised on 11th May 2004 at Varanasi to get the opinions and suggestions of the stakeholders, concerned departments and public representatives in regard to the proposals and recommendations given by the consultants. The opinions and suggestion expressed in the workshops have duly been kept in view while giving the recommendations. The minutes of meeting on the final workshop is enclosed in Appendix E.

In order to achieve the objectives of the study for abatement of pollution of river Ganga due to open defecation in slums, the following activities are recommended:

1) Awareness

- It is very important for people to know about the adverse effects of insanitary conditions on one's health. No sanitation programme can succeed fully unless people understand and agree to follow the recommendations. Construction of an individual or a public toilet complex is not enough.

- Keeping in view the fact that habits take time to change, any awareness programme should have a long life span. Starting well before commencing the execution of the project, it should also be conducted during the actual execution of the project and three months after construction. This will help to monitor and evaluate the impacts of implementation of the projects.

- Detailed public participation and awareness programme is formulated in the other part of the Report, Volume IV-4 Part III.

2) Construction of LCS

- In slum areas, only low cost sanitary latrines are feasible and workable options, considering the poor finances of the slum dwellers and the financial resources constraints of the Government and Nagar Nigam, Varanasi.

- In view of the above, pour-flush twin pit latrines, which are low cost, technically sound and acceptable to the community are suggested for individual households who have space for their construction.

- Construction of CTCs for those dwellers are proposed for these households who do not have space for construction of IHLs and / unwilling to construct IHLs.

- Individual houses which have space, should get a twin-pit pour flush toilet constructed either by private means, loans or with the help of existing government grant / loan schemes. It is indigenous, affordable and can be easily maintained.

- The biggest advantage in a twin-pit pour flush toilet is that it safely disposes excreta on site and it needs no sewer line. One pit is used at a time for disposal, when the first pit gets filled the other one is made operational. The time taken for the second pit to be filled ensures that the excreta in the first pit dries up and turns into manure.

3) Monitoring

- Monitoring is an essential part of implementing the project. It should be carried out right from the inception till after. All the activities – planning, execution, operation and maintenance – should be monitored by the concerned departments, representatives of the stakeholders / CBOs / Elected persons and NGOs.

- Planning by itself does not guarantee good execution. Involvement of stakeholders not only reduces the risk of poor construction but also ensures proper implementation of plans drawn.

- Later, after the construction is over and maintenance is required in IHL by the users – representatives of stakeholders are needed to see that household members are following

the right methods. In case of community toilet complexes it is essential that the caretaker dispenses his duties for proper maintenance of facilities. Close monitoring of the same would also help in better functioning of toilet complexes. It would also help in creating higher levels of communications.

4) Control

It is likely that after the construction of sanitary facilities, creating awareness about health and sanitation and mobilising people to use the toilets by habits some of the people may still defecate in open places. To check the open defecation by such people, it is recommended that action should be taken against them as per law.

2.2 EXISTING SITUATION OF DHOBIGHAT

2.2.1 Introduction

(1) Background

In the Master Plan, Constructed Dhobighat (DG) Programme has identified under non–sewerage schemes for the city of Varanasi to reduce discharge of pollutants to river Ganga from DGs. Relocation of DGs from the ghat area to inland area by providing constructed DG is proposed in the programme.

The usage rate of existing inland facilities is not satisfactory due to poor maintenance of the facility and improper provision of the facility. It is recommended that the facility should be planned and constructed based on the demand and needs of users but not supply driven approach.

The formation of an appropriate plan depends on several factors such as needs, demand and consent of dhobis and the availability of land, water supply, and wastewater disposal facility for constructed DG.

(2) Programme Implementation Concept

The demand-based Constructed DG Programme is proposed to provide appropriate laundry facility for dhobis. The proposed program is composed of;

1) Implementation of pilot project

   (a) Preparation of a standard framework of planning and designing, in which needs and demand of dhobis shall be reflected and by which a technically, institutionally, financially, economically and environmentally feasible and sustainable plan can be selected
   (b) Application of this framework to a few DGs to prepare an appropriate plan and design

2) Implementation of full scale project if the pilot project succeeds

   (a) Extending this framework to other traditional DGs in Varanasi and prepare a appropriate plan
   (b) Implementation of the full scale project.

The formulation of standard planning and designing framework and application of this framework to a few selected DGs and to prepare an appropriate plan and design are the scope of this F/S.

(3) Existing Scenario

Dhobis (washermen) have played an important role in Indian society. They are a part of 'Jajmani system' and perform significant role in maintaining the socio economic stability of the village community. They clean clothes but simultaneously participate in various rituals interacting with the higher castes. They are placed in the list of the Scheduled Caste in U.P. and Bihar but in other states they are listed in other backward classes. They continue to perform their ritual roles on different occasions for celebrating the various "Sansakaras".

The population of washermen is scattered in different areas of Varanasi city. However, there are few pockets they have concentrated. The total numbers of population is 40,000. Most of them come under poverty line. The family unit consists of four to five members. The 10% are literate and 90% are illiterate. The occupational mobility is negligible. Therefore, most of the family members are engaged in washing clothes. The payment for washed clothes (per item) is very low and has not been increased much in the last two generations. Hence, their socio-economic status is poor. Their life style is traditional and most of the families spend their income on social customs and ceremonies. The social life of dhobis is community oriented and caste panchayat plays an important role in controlling the social norms of the community. The younger generation is exposed to new consumerism and struggles for fulfilling their aspirations. Therefore, they are restless and tension ridden. They are keen to bring about social transformation in their community.

The protection of health of the washer men does not seem to have been a matter of concern to any one, compared to the way concern has been shown by the government and the non-government organisations to the health hazards faced by the scavengers. The washer men collect soiled clothes from households, hotels, hospitals and other establishments for cleaning. These clothes may be soiled with pathogenic bacteria and other hazardous stuff.

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 *bhatti* (steam vessel). The practice is giving way to the use of detergents for soaking the dirty linen but it is still persisting.

At the DGs, whether constructed or temporary, there is no protection against sun, rain or wind and no arrangement also for storing dirty or cleaned linen and ironing the clothes. The facilities for supply of clean water and electricity, drying of clothes and application of whiteners are either inadequate or absent. Since the temporary ghats are along the river or some water body, adequate quantity of water is usually available but its quality may leave much to be desired. Often, the clothes have to be dried on ground that may itself be soiled with dirt and even excreta.

The cubicles of the existing constructed DGs are only partially utilised. Reasons expressed for under-utilisation of the cubicles range from inadequate or uncertain supply of water to availability of more convenient alternative of temporary ghats along the river.

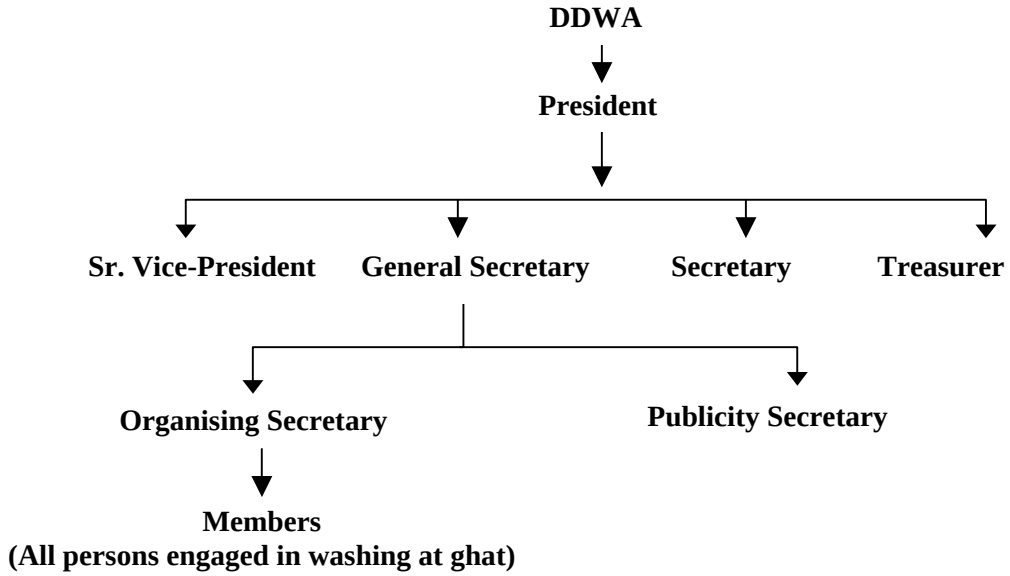
No principle of conservation of water is followed and environmental considerations do not guide the activities related to DGs.

In India, generally no specific attention has been given for the problems related to dhobis and proper designs and construction of DGs. No specific data, standard designs, guidelines etc. are available and there is no uniform practice.

Success Story

Individual study cited below highlights the case where proper ghats have been constructed and operated successfully due to initiatives of local authorities and the communities.

Case – Innovation in operation and maintenance of DGs consisting of 104 cubicles have been constructed in Billochpura Mohalla in Lucknow by community of Dhobis. The ghats are being maintained and operated by the elected body of Dhobi Association whose organisational structure is as below :



All the dhobis who worked at the ghat are registered members of the association and pay Rs. 20 per month as usage charges. There are 350 permanent members of the association. The amount so generated is sufficient for general O&M of the ghat. Whenever there is any major breakdown or repairs in the tube-well is required, they also contribute to meet the cost.

The followings are the main advantages and disadvantages of the above case study which was conducted by the local persons at Lucknow :

Advantages

- It sustains the maintenance and operation by Dhobi Association by membership fee.
- This is an example of community participation in maintaining the DG.
- They themselves take the decisions with consensus and implement them.
- They know their own problems and issues of the community and develop strategies to solve them.

Disadvantages

- Occasionally conflict arises, when there is no consensus on the issues
- It also creates factions among members for achieving the power in the administration.
- The donors hesitate to give money as they can not intervene in the processes of decision making.
- It is difficult to bring consensus as they are divided on basic issues with vested interests.

(4) Approach and Methodology

Selection of Study Area

Preliminary two DGs was selected for sample survey. In a meeting of representatives of the concerned departments, which was held on 02 April 2004, it was decided after detailed discussions that the following DGs would be taken up for sample survey:

Konia (Pucca Ghat) - Sewered area
Harishchandra Ghat - Along Ganga river in non-sewered area (Temporary Ghat)

Subsequently, it was decided that besides the survey of the above two DGs, two more pucca DGs i.e. Nadesar and Bhawania Pokhari and 22 temporary ghats along Ganga and Varuna rivers would also be visited to have a more comprehensive information and understanding. After field survey, Focussed Group Discussions with stakeholders and a workshop were also orgnaised, which were held on 13 April 2004.

Sample of the Study

At present dhobis are cleaning the clothes in temporary ghats along the river banks and Pucca ghats. Varanasi has 3 pucca ghats namely Konia, Nadesar and Bhawania Pokhary and 29 temporary and identified ghats along the banks of Ganga and Varuna rivers. The respondents were selected on the basis of purposive random sampling from both kinds of ghats, 91 persons (dhobis) were selected from pucca ghats and 163 dhobis from temporary ghats. The following table shows the number of persons selected from each ghats :

Selection of Respondents From Various Ghats

Sl. No.	Pucca Ghats	No. of persons selected
1.	Nadeshar Ghat	34
2.	Konia Ghat	38
3.	Bhawania Pokhri	19
	Total	**91**
4.	Kutcha/Temporary Ghats	163

Tools of the Study

The data were collected, both from primary and secondary sources. The primary data was collected by interview schedule (format used is annexed in Appendix F), observation guidelines and 'focussed group discussions' (one of PRA methods). This helped the team in the collection of qualitative and quantitative data. In 'focussed 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 municipal corporation, Jal Nigam reports and census 2001 and DUDA as well.

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. The findings have also been placed in the context of information gathered through discussions with officials associated with the project. The objective observations of the researchers and field staff (during the survey) have also been considered while analyzing the information.

FGDs were conducted in each part of the study. During FGDs the people were encouraged to air their point of view about the requirement and use of DGs. Almost all the FGDs had 15-20 people including men and women. In few areas, the FGDs were conducted for men and women separately. One interesting observation made by the team across different localities is that people were reluctant to come up with their opinion. This was found more among the male respondents than the female.

Description of Ghats

Konia Ghat

- This pucca ghat was constructed under Ganga Action Plan in year 1988-89. There are 152 cubicles where 310 persons can carry out washing at a time. It was designed in such a way that in each cubicle two dhobis can work at a time, but in actual practice dhobis do not find it convenient, hence, each cubicle was used by one person. However, not more than 30 cubicles are utilized at any point of time due to inadequate supply of water and also about 20% were not safe for use. Originally two tubewells were constructed but at present only one is in operation and other has been abandoned for unknown reasons. The water of tube well is also being supplied to the local residents, consequently sufficient quantity of water is not available to feed all cubicles.
- Since these cubicles were designed to be used by two dhobis, the size of the cubicle was 1.4 m x 1.8 m which was bigger than the required size. The depth of water in the cubicle is about 0.65 m, which can also be reduced.
- Waste water from the cubicles is discharged into the adjoining natural pond where domestic waste water is also being discharged. When the pond gets filled up with waste and rain water, it overflows, resulting in water logging in the adjoining habitats. Though there is a pumping arrangement to pump waste water from pond into the sewer on the main road but it is generally not being maintained and run due to lack of operation and maintenance facilities and shortage of funds.
- A latrine with one WC pan exists within the boundary of the ghat but it is abandoned as seat is broken.
- There is no arrangement for safe drinking water, with result dhobies were seen drinking untreated water as arrangement for chlorination is out of work and there is no reservoir to provide contact period for making the chlorination effective.
- The area of the ghat has not been provided boundary wall and it is open along railway track where undesirable elements are active, with the result there is no safety for clothes being dried. There is no organized place for drying the clothes.
- There is no shelter for taking rest and eating
- There is no covered space where dhobies can take shelter when it starts raining during work or during summer season.
- DGs cubicles had no sheds.
- General up-keep of the campus is very poor as there is in proper arrangement for cleaning and regular repairs.

Nadesar

- There are 92 cubicles
- The situation in respect of usage of available number of cubicles, supply of drinking water, shelter, toilets etc. is almost the same as in case of Konia ghat.
- The only difference at this ghat vis-à-vis Konia is that waste water is discharged into an adjoining drain which ultimately discharges untreated water in the Varuna river and subsequently in Ganga river.

Bhawania Pokhari

- This was originally a pond where dhobies used to wash clothes. Over a period of time this pond has been shrunk in area due to development of a colonies. No pucca ghat and proper arrangement for washing exist here.
- Water for washing of clothes is waste water of filters from the nearby water works, which is at times very muddy and really not fit for washing clothes. The drains of nearby areas also discharge liquid waste into the pond, making the water more turbid and unhygienic.

- The silt and the solids settle in the pond resulting in reduction in the capacity of the pond. There is no proper arrangement for regular desilting and cleaning of this pond, and as such generally water is unsuitable for washing of clothes. But the dhobies still use it in view of the fact that no alternative arrangement is available in the nearby areas.
- There is no space for drying clothes and the dhobies have to take clothes for drying to adjoining open spaces.
- Lacks in shelter, toilet, drinking water, space for dry clothes etc.

Temporary Ghats Along River Banks

- The exact number of places where dhobies wash clothes is not recorded but it is learnt that there are more than 30 such places along the Ganga and Varuna rivers.
- The washing platforms are absolutely temporary and dhobies have to shift them at the places according to water level in the river, which causes great inconvenience to them.
- Water of the rivers is extremely turbid during rainy season/floods and, therefore, dhobies have to move to other washing areas where distances are more.
- There being no proper place for drying the clothes, dhobies spread cleaned clothes on the sloping ground/ghats which are at all times, full of defecated excreta and cattle dung.
- There are no facilities for shelter, drinking water and toilets etc.

Consultation with Stakeholders

In the Workshop held on 13 April 2204, 21 of the 43 persons who participated were washer men. Some of them held high positions in their professional associations. The remaining participants represented the members of the study team, the concerned government departments and agencies, municipal corporation, local research and development institutions, non-government organisations and the consultants for the study.

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.

Environmental Considerations

The environmental considerations 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.

For the protection of environment, arrangements shall have to be built in the system for controlling the consumption of water and regulating the discharge of pollutants with the wastewater. For this purpose an appropriate device for measuring the quantity of water supplied to the DG should form a part of the

project. With the co-operation of the washer men, record of clothes washed and cleaning agents used shall also have to be maintained.

It may be mentioned that the earlier detergents were propylene-based alkyl benzene sulphonates, which are not completely degraded by the bacteria naturally present in water and effluent. However, the detergents are increasingly based on linear alkyl benzene, which is biodegradable. In some countries, the help of law had to be taken to bring out this change. Another concern about the detergents is the presence of phosphates, which tend to cause excessive production of algae and other aquatic plants including the water hyacinth. In this matter, however, the debate is whether the detergents used for washing clothes or the phosphatic fertilisers used in agriculture are to blame. In any case, this problem is applicable more to the lakes than a running stream. Therefore, it may not be quite relevant in the case of Varanasi.

The biggest single revolutionary trend in the detergent industry in the latter years has been the use of enzyme additives. Their use involves pre-soaking and additional cost. In local DGs, at present, this kind of detergents may be used in any appreciable proportion some time after they are popular in the affluent households.

Appropriate disposal of used water is required for constructed DGs. Apparently, onsite treatment at the site is not technically and financially feasible and not a selected option. Only connection with municipal sewer is possible option to take for appropriate disposal of used water. Therefore, constructed dhobihgahts should be located in the sewered area.

2.2.2 Situation Analysis and Findings

This chapter tries to identify the issues related to relocation and remodelling of existing DGs. The needs, demands and primary concerns of dhobis pertaining to relocation /remodelling and to provide a technically, institutionally, financially, economically and environmentally feasible solution for the same are discussed here.

(1) Situation Analysis

Pucca (Contructed) Dhobighats

- Sufficient quantity of water is not available
- There is no 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 tubewell fails or electricity is not available
- Lack of arrangement of ‘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

Temporary Ghats

- At times washing of clothes is not possible due to turbid and polluted water
- 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 places 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

(2) Findings

This subsection tries to identify the issues related to relocation and remodelling of existing DGs. The needs, demands and primary concerns of dhobis pertaining to relocation / remodelling and to provide a technically, institutionally, financially, economically and environmentally feasible solution for the same are discussed here.

Social Profile of Respondents

The washermen were interviewed on both types of ghats namely Pucca ghats and temporary ghats along Ganga and Varuna rivers. All the pucca ghats were included for study and 23 temporary ghats randomly selected out of 29, along the rivers. Table 2.34 explains the sex-wise distribution of respondents selected on each ghat.

Table 2.34 Sex Ratio of Respondents

Sl. No.	Nature of Ghats	No. of Respondents	Sex of Respondents	
			Male	Female
1.	Pucca Ghats	91	64	27
2.	Kutcha (Temporary) Ghats	163	105	58
3.	Total	254	169	85

Table 2.35 Family Members Engaged in Washing

Sl. No.	Nature of Ghats	No. of respondents	No. of family members	Average per family
1.	Pucca (Constructed) Ghats	91	246	2.7
2.	Kutcha (Temporary) Ghats	163	514	3.1

The above Table 2.35 indicates that the average number of family members engaged in washing clothes on constructed ghats is 2.7 while on temporary ghats it is 3.1. Field survey revealed that average number of family members engaged in washing activity is largest on the Nadesar ghat, and least on pucca ghat.

Number of clothes washed per day

An assessment of number of clothes washed per day was done for both pucca and kuttcha ghats The average number of clothes washed per day by each dhobhi is an important parameter for planning facilities while remodelling /relocating of ghats . The following Table 2.36 summarises the average number of cloths washed per day by dhobies.

Table 2.36 Number of Clothes Washed Everyday by Washermen

Sl. No.	Nature of Ghats	No. of Respondents	Average No. of clothes washed	Average number of clothes per person
1.	Pucca Ghats	91	6594	72
2.	Kutcha (Temporary) Ghats	163	10152	62

It can be observed from the above Table 2.36 that average clothes washed by each dobhie per day on pucca ghat are 72 while on temporary ghats is 62. The figures indicate that efficiency of dhobis is higher on the pucca ghats than kuttcha ghats. However the Focus Group Discussion with the community did not validate this hypothesis.

Consumption of washing material

Washing material used by the washermen include soap, detergents and soda. The following Table 2.37 presents average quantity of material consumed per day.

Table 2.37 Material and Quantity used for Washing Clothes

(Unit: %)

Sl. No.	Nature of Ghats	Type of material used per day in Kg.		
		Detergent	Soap	Soda
1.	Pucca (Constructed) Ghats	26.40	21.10	79.20
2.	Kutcha (Temporary) Ghats	44.75	35.25	133.40

This is clear from the above Table 2.37 that washing soda is used in much higher quantity than soap and detergents. This is due to the fact that Soda is cheap in comparison to soaps and detergents.

Sources of water

Since kutcca ghats are located on the bank of river, these utilise river water for washing cloths, whereas pucca ghats are inland constructed ghats, these utilise ground water for washing purposes. The water is first stored in cubicle water tanks, which have the capacity to store approximately 1500 ltrs of water. The following Table 2.38 provides a detail of water consumed at different kinds of Ghats.

Table 2.38 Sources of Water Consumed and their Quantity

Sl. No.	Nature of Ghats	Source of Water			No. of user per day	Quantity used per day (in liters)
		Tubewell	River	Pond		
1.	Pucca (Constructed)	2	-	1	125	142,500
2.	Kutcha (Temporary)	-	All	-	-	Flow water

It has been observed that one tank is being used by one dhobi at a time, thus on an average 1500 litres of water is being consumed for washing 65 – 75 clothes at pucca ghat. Therefore, average water consumed per cloth at pucca ghat is approximately 20 litres. It is important to plan the water requirement on new ghats accordingly.

Disposal of water

Wastewater from temporary ghats, that are along the river, flows in the river. Wastewater from two constructed ghats (Nadesar and Bhawania Pokhari) is also discharged into river Ganga. Wastewater from the remaining one constructed ghat (Konia) is collected in a pond and then pumped into the open drain, which also ultimately discharges the wastewater into river Ganga.

Table 2.39 Disposal of Waste Water

Sl. No.	Nature of Ghats	Disposal Point				Treatment Done	
		Sewer	Drain	River	Pond	Yes	No
1.	Pucca (N = 3)	-	2	-	1	-	3
2.	Kutcha (Temporary)(N = 23)	-	-	23	-	-	23

No treatment or recycling of wastewater is done in these ghats. During field survey most of respondents were of the opinion that once the water recycling is put in place, it would be acceptable to the community. However, recycle is expensive and maintenance of such system is very difficult to maintain, thus the recycle is not feasible option.

Availability of space for drying clothes

Availability of sufficient space for drying of cloths is one of the most important parameter considered by the dhobis while selecting a DG. About 77 % of the respondents at pucca ghats find the available drying space less then required, however, in case of kuchcha ghats, 55 % dhobis are not satisfied with the arrangement. This is one of the reasons, which restrains dhobis to use pucca ghats.

Table 2.40 Availability of Place for Drying Clothes

Sl. No.	Location	No. of respondent	Availability (no.)	
			Yes	No
1.	Pucca	91	21	70
2.	Kutcha (Temporary)	163	74	89

It has also been pointed out during the FGDs with the representatives of dhobis that non-availability of sufficient drying space is a major constraint.

Membership of Association

More than 80 % of the respondents were member of the Washermen Association (namely Dhobighat Bachao Sangharsh Samiti). The Association plays a significant role in the integration of the community. 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 2.41 Membership of Association

S No.	Nature of Ghats	No. of respondent	Membership (no.)	
			Yes	No
1.	Pucca	91	86	5
2.	Kutcha	163	125	38

Amount Charged per Item of Clothing

There is no uniform pattern in the amount charged per item of clothing. It fluctuates from Paise 50 to Rs. 14.00. It appears that the higher charges per item may be related to the clothes, which dhobis get from hotels. They pointed out that it is very difficult to increase the charges per piece due to the resistance from the customers. The nine respondents from the pucca ghats and 19 from temporary ghats have traditional relationship with the families of the customers and they enter into contract with them and do not charge item wise.

Table 2.42 Amount Charged per Item of Clothing

(Unit: nos.)

Sl. No.	Nature of Ghats	Yes			No
		Amount Charges per item (in Rs.)			
		0.50-1.00	1.00-2.00	2.00-14.00	
1.	Pucca	10	36	36	9
2.	Kutcha (Temporary)	2	47	95	19

Satisfaction with the present system

Most (74%) of respondents at Pucca ghats are not satisfied with the level of facilities provided at the ghats. The satisfaction level was relatively high with the respondents at kutcha ghats as 71 % of dhobies showed satisfaction with present arrangements. Further, they have also shown the willingness to change if provided with an improved system.

Table 2.43 Satisfaction with Present System

Sl. No.	Nature of Ghats	No. of Respondent	Satisfaction (%)	
			Yes	No
1.	Pucca	91	26.37	73.63
2.	Kutcha (Temporary)	163	70.55	29.45
	Total		54.72	45.28

Requirements in order of priority

Respondents were asked directly to list their requirement of infrastructure facilities in order of priority. The list of priorities expressed by the respondents should be form the basis for up gradation of existing facilities and planning of new facilities. Field study indicates that the maximum number of respondents gave first priority to the type of infrastructure facility available at the Ghat.

Table 2.44 Important Requirement in Order of Priority

Sl. No.	Nature of Ghats	No. of respondent	Number of respondent rated first priority				Provision of Bhatti	
			Water	Platform	Drying Area	Distance from Home	Yes	No
1.	Pucca	91	68	3	23	8	25	66
2.	Kutcha	163	135	1	17	13	8	155

Note : Total number of the priorities may be more than 100 as several respondents clearly mentioned more than one priorities.

66 percent of the respondents have highlighted availability of the water as their major requirement, while according to 23 percent respondents availability of space for drying clothes is the major requirement. Another issue which is highlighted from the above Table 2.44 is distance of ghat from their residence. During FGD dhobis indicated that the DGs should be constructed sector wise on the basis of settlements of dhobis. They should be within the radius of one to two km so that they can save time and energy.

The majority of the respondents are of the opinion that the *pucca* ghats should be redesigned with modern facilities. Most of the respondents from temporary ghats are willing to shift to new DGs provided sufficient facilities are available.

Willingness to pay

The success of any planned project depends on the participation from the target community. During the survey, specific questions were asked to assess the community's acceptance and willingness to participate in the planned initiatives by giving monetary contribution. Following Table 2.45 summarises willingness of respondent to contribute for the capital cost. Since the cost estimates of the project were not available during the survey, the order of magnitude for the contribution was not known. These results only indicate the willingness to contribute in principle, and these my change when per capita contribution to be worked out.

Table 2.45 Willingness to Contribute for the Construction of Dhobighats

Sl. No.	Nature of Ghats	No. of respondent	Contribution for Improvement (%)	
			Yes	No
1.	Pucca	91	92.31	7.69
2.	Kutcha (Temporary)	163	71.78	28.22
	Total/average	254	79.13	20.87

It has been observed that most (79%) of the respondents are ready to contribute for one time capital cost of the project if proper facilities are provided to them. There is more willingness to contribute among the respondents of pucca ghats (92%) as compared to the respondents of temporary ghats. The respondents from temporary ghats have also shown their acceptability to contribute for the construction of DGs as they also experience difficulties during rainy and summer seasons.

Table 2.46 indicates the acceptability of the respondents to pay user-based charges for operation and maintenance

Table 2.46 Willingness to Pay User Charges

Sl. No.	Type of Ghats	No. of respondent	Charges for better service	
			Yes	No
1.	Pucca	91	72 (79.1%)	19(20.9%)
2.	Kutcha (Temporary)	163	68(41.7%)	95 (58.3%)
	Total/average	254	140(55.1%)	114 (44.9%)

Field Survey indicates that only 55 percent respondents are willing to pay user charge after upgradation of existing services. It was found that considerable numbers of respondents at Pucca ghats (79% of the total) are ready to pay the user charge if sufficient facilities are provided. However, most (58 percent) respondents at Kutcha ghat were reluctant to pay any extra charges. They were of the opinion that it is the responsibility of Municipal Corporation and other governmental agencies to provide facilities for them.

Management of Ghat

As discussed in earlier section, the general maintenance of the ghats was found to be poor. Currently Municipal Corporation Varanasi is responsible for the management of these ghats. Most of the respondents of pucca ghat (84%) and temporary ghats (76%) feel that the management of ghats should be given to their association. According to them external bodies, such as governmental organizations and NGOs, will not be able to manage the area as per their satisfaction.

Table 2.47 Opinion about Management of Ghat

Sl. No.	Nature of Ghats	No. of Respondent	Management of Ghat (%)		
			Municipal Corporation	Local Person	Own Association
1.	Pucca	91	17.58	0.00	83.52
2.	Kutcha (Temporary)	163	20.86	2.45	76.69
	Total/average	245	19.69	1.57	79.13

Opinion About Meeting Extra Financial Burden

Majority of respondents of pucca and temporary ghats have expressed the opinion that they are willing to bear the extra burden for the construction of new DGs. The shape of contributions may be both in terms of money and labour. The respondents who belonged to low economic groups have shown their inability to share extra burden.

Table 2.48 Opinion about Meeting Extra Burden

Sl. No.	Nature of Ghats	No. of respondent	Extra Burden (Nos.)	
			Yes	No
1.	Pucca	91	82	9
2.	Kutcha (Temporary)	163	151	12

Suggestions Of Respondents

Table 2.49 Suggestions of Respondents

Other Comments/Suggestions	Nos.
▪ Proper arrangements to keep the ghats clean	13
▪ Arrangement for adequate supply of water for cleaning the clothes	46
▪ Proper arrangement for the outflow of waste water	21
▪ Fencing of ghats by constructing boundary wall to ensure security from anti-social elements who often take away clothes	87
▪ Adequate place for drying the clothes	84
▪ Filling up of the pond at Konia ghat and the place to be used for drying clothes	28
▪ Construction of a toilet for the use of washermen and women	29
▪ Supply of electricity and water both during day and night	37
▪ Installation of standby generator	16
▪ Construction of Rest Room	29
▪ Putting in operation the unused CTC	18

Note : Suggestions given by 91 respondents (washermen) who are using Pucca ghats for washing and drying of clothes

The above suggestions were given by 91 respondents (washer men) who are using Pucca ghats for washing and drying of clothes. The majority of respondents (87) emphasized the construction of boundary to ensure the security from anti-social elements who often take away the clothes. They feel that this will protect them and save money which they pay to customers for the lost clothes. Secondly, they (84) suggested that the suitable place be provided for drying clothes. Due to lack of place for drying they carry the wet-clothes to their own houses or require another additional person to look after the clothes which affects the efficient functioning. More than fifty percent of the respondents, (46) of them feel that adequate water supply be provided so that they can wash more clothes and enhance the socio-economic status of the family. From the Table 2.49, it also appears that the respondents look at the problem from a holistic perspective and suggest that the facilities of shelter, drinking water, toilets, electricity and outflow of waste water be provided by the local self government.

Category-wise Opinions of Respondents

It was thought necessary to know about the reaction of local residents and other individuals who were associated with performing various rituals on the ghats for the daily bathers. We have randomly selected the individuals from different social groups which had been shown in the following Table 2.50.

Table 2.50 Category Wise Distribution of the Respondents

Sl. No.	Category	Frequency
1.	Daily visitors for Ganga bath	14
2.	Pandas	13
3.	Mallhas	13
4.	Local residents	16
	Total	**56**

The table shows that most of the respondents from all categories feel that by allowing the washermen to wash the clothes on the bank of Ganga increase the pollution and makes the ghats dirty. It creates difficulties in taking bath in clean water. Persons do not walk leisurely on the bank of the river due to the assemblage of crowd. Mallhas could not park their boats on the bank of river due to environs being dirty. This effects their earning.

Table 2.51 Problems Faced by Different Categories of Respondents due to Washing Clothes in Ganges by Washermen

Sl. No.	Problem	Daily bathers (N = 14)	Pandas (N=13)	Mallhas (N=13)	Local residents (N=16)
1.	Pollution of Ganges	6	6	3	4
2.	Makes ghats dirty	6	3	3	6
3.	Inconvenience in walking	4	1	2	8
4.	Inconvenience in bathing	1	1	-	9
5.	Increases the agglomeration	2	1	2	5
6.	Difficulties in parking the boats	-	-	5	-

Note : The total of percentage may be more than 100 as some of the respondents have mentioned more than one problem.

The following Table 2.52 shows that the majority of the respondents from all the groups feel that washer men should not be allowed to wash clothes on the bank of rivers. This creates problems for performing the religious rituals.

Table 2.52 Respondents' Opinion regarding Restrictions on Washing Clothes in Ganges

(Unit: nos.)

Sl. No.	Category	Yes	No	Total
1.	Daily visitors	11	3	14
2.	Pandas	10	3	13
3.	Mallhas	9	4	13
4.	Local residents	12	4	16
	Grand Total	42	14	56

The following Table 2.53 shows that the large numbers of respondents are of the opinion that the washer men should be provided separate place for washing clothes. They should be provided all facilities so that they may not hesitate to shift. This would help in cleaning Ganga and simultaneously assist the washermen to work in convenient and clean environment.

Table 2.53 Respondents' Opinion with regard to Separate Place for Washermen

(Unit: nos.)

Sl.No.	Category	Yes	No	Total
1.	Daily visitors	13	1	14
2.	Pandas	10	3	13
3.	Mallhas	9	4	13
4.	Local residents	12	4	16
	Total	42	12	56

(3) Need and Demands

As per our study it was observed that dhobis on temporary ghats were not provided the basic amenities of life like shelter, space for drying clothes, toilet, drinking water etc. They carry their wet clothes to home for drying them. In pucca ghat some facilities were given but they could not attract the dhobis to use the cubicles. They were quite away from their residence. They waste lot of time to reach on the pucca ghat. The water facility was inadequate which creates problems in washing clothes. They will be motivated by providing facilities and encourage them to use pucca ghats for washing clothes.

CHAPTER 3

PROPOSED LOW COST SANITATION PROGRAMME

CHAPTER 3 PROPOSED LOW COST SANITATION PROGRAMME

3.1 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 Individual Household Latrines (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 Community Toilet Complexes (CTCs,) which again should be cost effective and sustainable with available funds for serving the large population in the slums.

LCS program consists of provision of CTCs and IHLs. However, only CTCs are financed by the National River Conservation Plan (NRCP) by National River Conservation Directorate (NRCD) and thus provision of CTCs is proposed for LCS programme in this Study.

3.2 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

3.3 PLANNING AND DESIGNING

3.3.1 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

3.3.2 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.

The typical designs of three types of CTCs (5, 10 and 20 seaters) are being enclosed in Appendix G.

3.3.3 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
- 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

3.3.4 Unit Construction Costs

Based on the current PWD Schedule of Rates for Varanasi (2004) and the normal site conditions, the unit costs of the above proposed interventions are as given below:

Table 3.1 Unit Costs of Proposed Community Toilet Complex

No. of seats	Number of W.Cs.			Bath	Urinal	Unit Cost (Rs.)		
	Male Female	Children	Handi-capped			Disposal by Septic tank & soak pits	With Sewer connection	With biogas digester with UV treatment
5 seated	4	-	1	1	-	3,75,000	3,25,000	-
10 seated	8	1	1	1	1	7,00,000	6,00,000	-
20 seated	18	1	1	5	4	13,00,000	11,00,000	17,00,000

Table 3.2 Break-up of Unit Costs of CTC

(Unit: Rs.)

Type of CTC	Cost of complex	Cost of sewer connection	Cost of septic tank	Cost of biogas	Cost of soak pits	Total cost
5 seated	305,000	20,000	-	-	-	325,000
5 seated	305,000	-	55,000	-	15,000	375,000
10 seated	570,000	30,000	-	-	-	600,000
10 seated	570,000	-	100,000	-	30,000	700,000
20 seated	1,060,000	40,000	-	-	-	1,100,000
20 seated	1,060,000	-	195,000	-	45,000	1,300,000
20 seated	1,060,000	-	-	595,000	45,000	1,700,000

Each CTC will be provided an independent tube-well for getting reliable and adequate water supply. The unit costs for CTCs do not include the implementation charges of an executing agency.

3.4 OPERATION & MAINTENANCE AND INSTITUTIONAL RECOMMENDATIONS

O&M of the CTCs is a key issue of their utilization. This issue attributes to institutional arrangement of CTC. Current institutional arrangement for O&M of CTCs is through NGOs/ private contractors. Two options for institutional arrangements for CTCs are considered and recommended and their advantages and disadvantages are discussed in the following paragraphs.

Option 1: O&M of CTC by NGO

This option is built upon the current institutional arrangement in various cities where the construction and O&M contract has been extended to NGO. Lessons learnt from engaging NGO on YAP and GAP indicate that many of the NGO are actually private contractors who may have the construction capacity but not much experience in O&M or conducting public awareness activities. As a result unable to sustain the CTC, many NGO have abandoned the facilities. In this option, NGO is referred to an organization which demonstrates adequate ability in O&M of sanitation facilities, community participation activities and has a social focus. A careful assessment of NGO needs to be done before handing over the CTC.

In this process, it is important that communities are consulted with respect to their demand / need and willingness to pay at the construction stage. This will ensure their participation and acceptability to the toilets being provided. This activity can be the responsibility of the same NGO contracted for O&M of the CTCs, which has experience in community mobilization / participation activities.

The merits of this arrangement are below:

- Takes advantage of the NGO prior experience in O&M of sanitation facilities
- Helps in keeping the ULB lean by avoiding the need for inducting / regularizing workers on payroll
- Prevents unionization
- Decreases overhead establishment costs and achieves better work efficiency at lower costs
- Keeps the focus of ULB on supervisory function

The demerits

- Being external agencies to the community, NGO have a lower motivation to run these facilities well
- External NGO tend to have low accountability with the local population and quality control may be difficult to ensure
- Taking legal action against an NGO is difficult as compared to a registered contractor
- Identification of competent NGO may be difficult since different NGO have different capacities and areas of interest depending on their size and experience
- There may be concerns relating with transparency in operation

For improved performance by NGO, it is suggested that:

- Rigorous and competitive selection of NGO is undertaken to assess competency and track record
- Clear criteria for performance evaluation is evolved
- Ascertain capability in conducting public participation activities
- Legal penalties are included in the contract and imposed for non fulfilment of obligations
- Incentives / awards in cash or kind for say “Best run CTC” are introduced.

Option 2: O&M of CTC through community management

In this option, a community based organization (CBO) is given the responsibility of O&M of CTC, by issue of a contract directly to such a group of users. A CBO can be identified out of the existing groups such as women groups, self help groups, savings groups, youth groups etc. If suitable CBO do not exist, then efforts should be directed in forming such organization or creating capacity of existing credible though weak structures. Ideally the group should have involvement of women as they are the key stakeholders / beneficiaries. In a community managed scheme, users may do the maintenance work themselves, or they could play a managerial role, raising funds for maintenance and paying the utility. The group would be responsible for running the CTCs, raising enough revenue to cover the operating expenses. In the long run, the community based group would manage their revenue and operating surplus, maintain bank accounts, and pay salaries and bills. Such community managed contracts have been successfully implemented for O&M of rural piped water supply shemes in UP and Orissa in India and primary collection of solid waste in urban areas. Similarly, water standpoints in urban areas are being managed by user committees in Dhaka and Swayambu in Nepal.

In India, examples of sustainable and efficient sanitation services being provided by CBO are few, however, they provide valuable insights in successful processes and innovative approaches. It is learnt that in Pune, such a practice has become popular and achieved a reasonable level of success. Similarly, in Kanpur, a CBO called Kanpur Slum Dwellers Organization (KSDF) has made efforts to build and operate community toilets, assisted by National Slum Dwellers Federation, Mumbai and an NGO, SPARC. KSDF is now active in 30 slums either directly or indirectly through government programs as well as small group initiatives. KSDF first mobilizes the community, followed by assessment of users' needs. Based on the interest of the slum leaders, a door to door survey is conducted and the findings are then discussed in the community, with regard to problems, possible solutions and strategies. KSDF has played a facilitating role in community mobilization and encouraging the community to construct CTCs themselves and operate and maintain them on pay and use basis. In one such community, a part time caretaker and a sweeper was employed from the community. The caretaker is the cigarette shop owner next to the toilet, whose job is to collect money from users, supervise cleaner's work and maintain accounts. The toilet is running on a significant profit, due to its proximity to a commercial area. The community has, since then, reduced monthly charges for the residents, and used the monthly savings for replacing the toilet's roof and constructing a community centre.

As evident from the case studies in the master plan, the success of community based approach depends on mobilizing the community, encouraging them to plan and work together as a cohesive group and engineer. Effective community participation skills are required to facilitate this process, for which NGO can be engaged. A successful community managed contract for O&M of CTC would involve (1) identification and selection of suitable communities that indicate willingness to participate in such an activity, (2) facilitation in formation of suitable CBO, or building on the ones that may already exist, (3) capacity building of the CBO in various aspects of the project, (4) taking over the contract and setting up mechanisms for O&M. This could be carried out in association with a partner NGO.

The merit of CBO:

- Harnessing local knowledge and/or resources. In case of O&M of CTCs, people from within the community can be hired as caretakers or sweepers, who, apart from being more responsible towards the complexes, could be useful in motivating individuals or the community to use and pay for the toilets.
- Putting resources back into the community. For example, it may generate employment or equipment for minor repair may be bought from the community shops. It also creates opportunities for profit/ income that can be plowed back into the project or used in a suitable manner for the community.
- Improving quality control as users have a vested interest in the service.

- Reduced cost of works. In Kanpur, where the community built the structure, an investment saving of 40% was made due to absence of profits margin, overhead costs of contractor/ formal institution and some amount of free labour from the community.
- Encouraging a more socially responsible standard of operation, without profitability being the criteria for operation
- Being a more transparent system with a greater sense of control over matters
- Realizing social benefits by involving the community and helping promote the community management in the long term.

Disadvantage of CBO:

- CBO may be a temporary management structure
- CBO may be prone to internal social conflicts or unable to agree on priorities and terms, may dissolve.
- CBO may be dominated by influential individuals, who may mislead or dictate terms.
- Community leaders who put in a lot of effort in promoting the project or instrumental in success of the group, may start to raise the question of payment for their efforts or members may turn dishonest and steal revenue.
- Local political leaders, under threat of erosion of their support base, may influence the community not to pay for the services ("government would provide free services") or channel services to influential sections of the community
- CBO may be weak and unable to take on all their responsibilities

For the above, an evaluation and monitoring criteria and mechanisms for assessing performance will have to be evolved. Moreover, suitable measures for integrating and coordinating the work of CBO with municipal organizations would have to be evolved.

This path breaking approach is new and involves a long and slow process. It is, therefore, recommended piloting this option in a selected number of communities to test its feasibility and develop the process. Once successful, it can be replicated on a larger scale in the second phase. It would be easier to implement first in small communities where cohesive and effective community organisations exist with broad community awareness. This entire process can be led by an experienced lead NGO, which based on the lessons learnt from the pilots, can replicate on a city wide basis.

In conclusion, it is prudent to mention that community initiatives can be a complicated and a slow process. Moreover, community management is clearly not an easy option and may be only one of a range of actions required. Generally, there is an emerging need for more flexible service arrangements and partnerships whereby all players make their contribution: service providers, users, NGOs, and private sector. One possible variation can be giving O&M of CTC to such a NGO which can, in the first phase, run the toilet, concurrently mobilise the community/ develop CBO capacity and subsequently hand over the toilet to the CBO. Specific solutions, that are viable and realistic, will, of course, vary from place to place.

3.5 RECOVERY OF OPERATION AND MAINTENANCE COSTS

(1) Affordability

According to the sample survey, there is a wide variation of household income levels from 500 Rs. to above Rs. 5500. However, the income of 40 % of the households falls in Rs. 2000 -3000. Generally, 2-4% of the income or 5 % at maximum can be spent for sanitation including water supply. Assuming 2 % of income can be spent for sanitation excluding water supply, Rs.40 – 60 would be an affordable range for most of the households for toilet use.

On the other hand, the same survey finds out that the willingness of users to pay as monthly usage charges for CTCs are Rs. 21-30 (38.7 %), Rs. 11-20 (25.7%), and Rs. 41-50 (19.4%).

(2) Payment mode

Most of the residents in the sample survey expressed monthly family pass prefer to person-visit charging system for payment to use CTC.

(3) 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. It is needles to say that CTCs in slum areas can not be compared with those in public places where the users turn up during all the hours of the day.

(4) Operation and maintenance costs

The cost of running a CTC involves expenses for electricity, cleaning chemicals and salary and wages for the supervisors, attendants and sweepers and repairs, etc. Among all the cost heads, the main component are found to be wages. A typical calculation for one such facility operated by Sulabh International is presented in Table 3.3.

Table 3.3 Operation and Maintenance Cost of CTC

(Unit: Rs.)

No. of seats in CTC	No. of household users	O&M cost per month					Total O&M cost per month	O&M cost per annum
		Man Power (2 persons)	Electricity & water	Cleaning material	Sludge disposal	Repairs & replacement		
5	15	4900	800	500	350	850	7,400	88,800
10	30	4900	1150	1000	450	1650	9150	109,800
20	60	4900	1900	2000	600	3200	12600	151,200

(5) Cost recovery measures

One of the most important considerations for the project is cost recovery that ensures sustainability of the project. It is assumed that the facilities are provided by the government and only the O&M cost should be recovered by users. To recover the O&M cost the following alternatives are studied.

Alternative 1: All the costs are recovered by user fee
Alternative 2: Care taker is provided by the community and water and electricity charge and sludge disposal are covered by Nagar Nigam
Alternative 3: Alternative 2 and revenue from advertisement and shop is generated

1) Alternative – I: All O&M Cost to be shared by users

(Unit: Rs.)

No. of seats in CTC	No. of household users	O&M cost per month					Total O&M cost per month	O&M cost per annum	Per household per month charges for financial sustainability
		Man Power (2 persons)	Electricity & water	Cleaning material	Sludge disposal	Repairs & replacement			
5	15	4900	800	500	350	850	7,400	88,800	493
10	30	4900	1150	1000	450	1650	9150	109,800	305
20	60	4900	1900	2000	600	3200	12600	151,200	210

To recover full O&M cost by users, Rs. 493, Rs.305, and Rs.210 per household are required for 5, 10 and 20 seater CTCs. These monthly charge are not affordable for the households in the slum.

2) Alternative II – Water Supply, Electricity & Desludging to be responsibility of Local Body, Caretakers to be provided by Community

(Unit: Rs.)

No. of seats in CTC	No. of household users	O&M cost per month					Total O&M cost per month	Per family per month charges for financial sustainability
		Man Power (2 persons)	Electricity & water	Cleaning material	Sludge disposal	Repairs & replacement		
5	15	500	LB	500	LB	850	1,850	123
10	30	500	LB	1000	LB	1650	3,150	105
20	60	500	LB	2000	LB	3200	5,700	95

From the point of view that the users should be involved in O&M, the alternative II shows that caretakers should be provided by community with a nominal wage, and water, electricity supply and sludge disposal should be responsibility of the local body. In this case, the user charge comes down but still it is a little bit high compared with the affordable range of the slum households. There are many unemployed people in slum so caretakers can be employed at only nominal wage. The residents should be trained for caretakers by experienced NGOs / Consultants through PP/PA programme.

3) Alternative III – Generate revenue by providing space at CTC for advertising & shops

(Unit: Rs.)

No. of seats in CTC	No. of household users	O&M cost per month						Total O&M cost per month	Per household per month charges for financial sustainability
		Man Power (2 persons)	Electricity & water	Cleaning material	Sludge disposal	Repairs & replacement	Revenue by advertising		
5	15	500	LB	500	LB	850	1,000	850	56
10	30	500	LB	1000	LB	1650	1,500	1,650	55
20	60	500	LB	2000	LB	3200	2,000	3,700	62

In this Alternative, the local body should provide water and electricity supply, and desludging of septic tank and leach pits, community should supply caretaker at a nominal wage, and space is provided for advertising and/or shop, by which monthly income of about Rs. 1,000 to 2,000 would be expected. This alternative may be more preferable option. The proposed income from advertising and rent of shop appears feasible from manufactures of soaps, detergents, cleaning materials, sanitary wares and alike if they are persuaded by local authorities and community worker. Such advertising is popular and income generating from CTCs in public spaces.

It is understandable that in case the present tariff of Rs. 30 per month per household is increased, slum dwellers will also not be availing the facilities and continue to defecate in open space. However, it is recommended that the tariff should be increased from the present rate of Rs. 30 to Rs. 30 for members upto 5, Rs. 45 for 6 to 10 and Rs. 60 for more than 10. It is also expected that households will be able to pay these charges when they are motivated and made aware of the benefits. Besides, there will be some income from casual users who reside temporally in the area or visit occasionally

The sample survey shows the diversity of household incomes even in the lower income group. The higher charge may be affordable for the higher income households in the low income group but not for the lower income households. Most of the much lower income households may not have any toilet in their household. To provide these households with a CTC, some

measures including the followings should be taken. However, to keep self-sustainability, subsidy from local governments shall be minimised. The more detailed cost recovery exercise shall be carried out in the Pilot Project.

- Reduce O&M cost, especially of caretakers, by using community human resources
- Increase the number of users (more 30 households)
- Adopt charging system preferable for lower income households
- Consider subsidy from local governments but to be minimised
- Invent measure to generate other revenue at toilet space, such as shop, advertisement
- Invite visitor use
- Construct CTC in markets, railways, bus terminus and other public places where charges are realised on the basis of person per usage

3.6 SOCIAL AND ECONOMIC BENEFITS

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

3.7 IMPLEMENTATION OF PROPOSED PROGRAMME

3.7.1 Low Cost Sanitation Needs

The results of the sample survey in the selected 5 slums summarised in the Table below.

Table 3.4 Existing Sanitation Modes and Availability of Space for IHL

(Unit: %)

Slum	Own IHL						Don't own IHL			
	Flush	Pour Flush	Septic Tank	One pit	Bucket / dry	Sewer	Existing CTC	Open Defecation		
								Have space for IHL	No space	Don't need IHL
Nagwa Nala	0.0	0.0	1.1	5.6	0.7	50.9	26.6	11.6	2.5	0.9
Bahwa Nala	0.0	0.0	1.3	15.4	0.7	0.0	0.0	69.7	12.8	0.0
Jodhipur	0.0	4.1	0.7	9.0	0.0	60.0	1.4	11.0	4.3	0.6
Bajardiha	0.0	16.4	4.7	32.0	27.0	4.7	0.0	10.1	3.7	1.4
Alaipur	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	37.5	37.5
Average	0.0	5.8	2.2	16	8.7	29.8	8.8	20.9	5.9	2.0

According to sample survey 37.6% of the households do not have any kind of latrines and 8.7% have only squatting platforms and flush excreta into drains/streets/open space. Considering the willingness, affordability and availability of space it is worked out that about 20.9% of the households who don't own any sanitary facility at present will be able to construct IHLs. It is expected and normally practised that the government / local body will provide loan on soft terms to those who are willing to take and have capacity to repay, and grant to those who are below poverty line. Toilet facilities should be provided to all those who have space, so as to ensure abatement of pollution and raise the standard of sanitation. Thus, 29.6 %, say 30 % of households will construct the IHLs.

According to sample survey 2.0% households are not willing to construct IHLs, 5.9% have no space within their dwelling for construction IHLs. Thus those about 8 % of households will require the facilities of CTCs.

From the Table 3.4 above, the percentage of CTC and the population served by CTCs in Pilot Slums are calculated as Table 3.5 below.

Table 3.5 Population Served by CTC

	Percentage for population requiring CTC (%)	Total Population (person)	CTC required population (person)	Sewered /Non-Sewered
Nagwa Nala	3.4	3,000	102	Sewered
Baghwa Nala	12.8	1,938	248	Non Sewered
Bajardiha	5.1	2,000	102	Sewered
Jodhipur	4.9	3,000	147	Sewered
Alaipur	75.0	4,322	3,241	Non Sewered

On average basis the requirements of CTCs in all the 227 slum areas have been worked out and details are given in Appendix C. The population served by CTCs are calculated using 8 % based on the sample survey.

3.7.2 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.

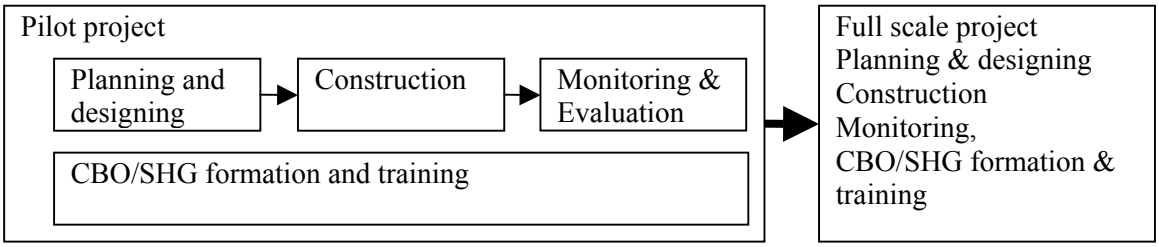


Figure 3.1 Programme Implementation Strategy

(2) Institutional Setting Up for Monitoring

The proposed institutional set-up is graphically presented in Figure 3.2. 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 be 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.

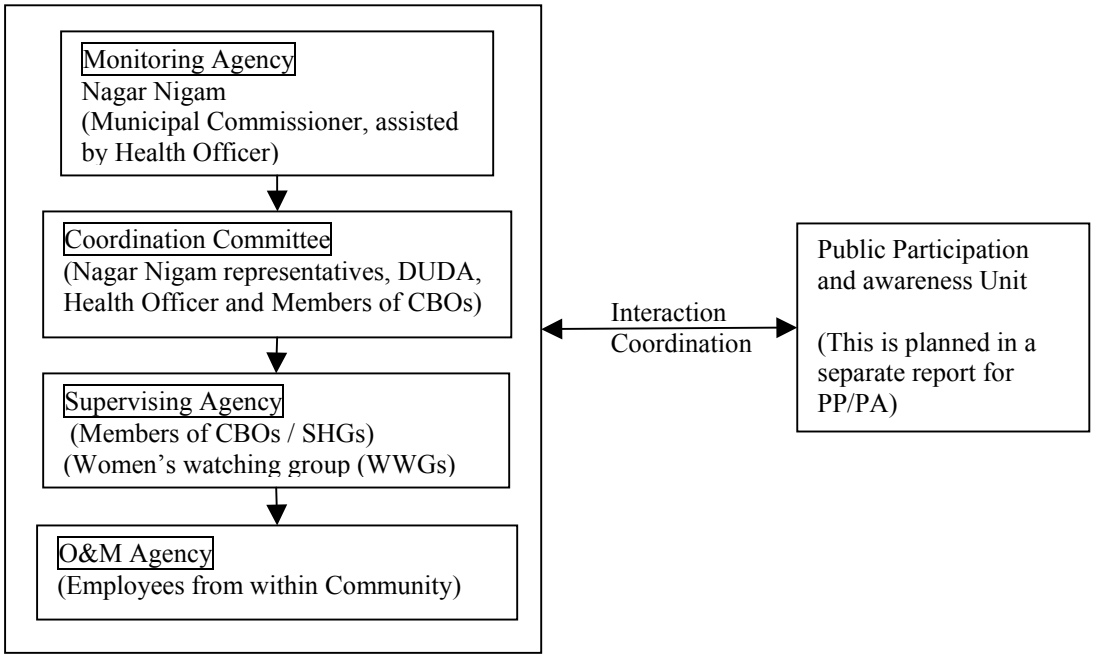


Figure 3.2 Proposed Institutional Set Up for CTC Monitoring

(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[1]

The Consultants recommend that proposed Public Participation and Awareness (PP/PA) programme is carried out by CDSs/"Samudai Vikas Samitis" with the close assistance of Nagar Nigam in three phases as a process running parallel 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 DGs.

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.

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

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 neighbourhood.

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 CBOs, 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

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, analyse 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 3.6 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
Odour	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 3.7 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) Guidelines

Following guidelines and documents are attached in Appendix.

Appendix H: Guidelines for Supervising the Construction
Appendix I: Guidelines for Looking after Operation and Maintenance by Supervisor
Appendix J: Guidelines for Users of the Community Toilet
Appendix K: Guidelines for Local Body to check Operation & Maintenance
Appendix L: Typical Agreement Between the Local Body and Construction/O&M Agency

3.7.3 Total Programme Cost of Proposed CTCs

(1) Construction costs of CTC for 5 slums as pilot project

Based on estimated population served by CTC, the construction costs for Pilot Project are estimated in the Table 3.8. The total estimated cost is Rs.11,150,000 and 10 CTCs are proposed.

Table 3.8 Construction Costs for Pilot Project

Sl. No.	Name of Slum	Requirement of CTCs			Costs of CTCs (Rs.)
		5 Seated	10 Seated	20 Seated	
1.	Nagwa Nala (sewered)	1			325,000
2.	Baghwa Nala (non-sewered)		1		700,000
3.	Jyodhipur (sewered)	1			325,000
4.	Bajardiha (sewered)		1		600,000
5.	Alaipur (non-sewered)		1	5	9,200,000
Grand Total		2	3	5	11,150,000

Note : The cost does not include detailed design cost, provisions for land and supervision charges of construction agency.

(2) Construction costs of CTC for 227 slums as full scale project (including pilot project)

Based on estimated population served by CTC, the construction cost for Pilot Project are estimated in the Table3.9 below. The total estimated cost is Rs. 102.7 million and the proposed number of CTCs is 205. However, the number is indicative and the detailed number will be decided in detailed design study.

Table 3.9 Construction Costs with Breaking up

(Unit: Rs.)

Sl. No.	Type of CTC	Total Number of CTC	Connect to Sewer	Septic tank/soak pits	Biogas digester	Unit cost (Rs)	Total Cost (Rs)
1	5 seated	127	90	-	-	325,000	29,250,000
				37	-	375,000	13,875,000
2.	10 seated	65	44	-	-	600,000	26,400,000
				21	-	700,000	14,700,000
3.	20 seated	13	6	-	-	1100,000	6,600,000
			-	-	7	1700,000	11,900,000
	Total	205	140	58	7	4800,000	102,725,000

Note : The cost does not include survey, detailed design cost, provisions for land and supervision charges of construction agency.

3.7.4 Implementation Schedule

Step 1: Pilot Project

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

5 slums were selected as a pilot project for implementation. It will take 2 months for detailed survey (selection of location, confirmation of the needs for CTC from dwellers, selection of technical option, institutional arrangement, O&M plan etc.), and another 4 months for construction and 2 months fro evaluation. COB formation and PP/PA activities should be conducted throughout construction.

Table 3.10 Proposed Implementation Schedule for 1 CDS

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 PP/PA activities are planned in the different volume of the report.

Step 2: Extend to Whole Slum

After the pilot project, the programme will extend to whole slum area in Varanas using lessens learnt through pilot project. The full-scale project will be implemented by 5-CDS wise and in total 33 CDS as following schedule.

Table 3.11 Proposed Implementation Schedule

	2006			**2007**			**2008**			**2009**			**2010**		
Pilot project															
1st 5-CDS															
2nd 5-CDS															
3rd 5-CDS															
4th 5-CDS															
5th 5-CDS															
6th 5-CDS															
7th 5-CDS															

3.7.5 Project Implementation Cost

Based on following assumption, the total project costs with a yearly break-up (2006-2010) is presented in table below.

- The project duration is 4 years staring in 2006;
- 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;

The Table 3.12 and 3.13 present the project implementation cost with breaking-ups of contingency, consulting & engineering, project administration and yearly requirement of budget for CTC peogramme. Total project implementation cost will be Rs.128 million fro 4 years.

Table 3.12 Project Implementation Cost

(Unit: Rs.)

	Unit cost for 1 CDS (except pilot project)	Cost for CTC (pilot project)	Cost of 33 CDS cost
Capital Cost	2,775,000	11,150,000	91,575,000
Physical Contingency (5%)	138,750	557,500	4,578,750
Consulting & Engineering Costing (10%)	277,500	1,115,000	9,157,500
Cost of project administration (10%)	277,500	1,115,000	9,157,500
Total	3,468,750	13,937,500	114,468,750
		Grand-total	128,406,250

Table 3.13 Year Project Implementation Cost

(Unit: Rs.)

	2006	2007	2008	2009	Total
Capital	11,150,000	27,750,000	41,625,000	22,200,000	102,725,000
Physical Contingency (5%)	557,500	1,387,500	2,081,250	1,110,000	
Consulting & Engineering Costing (10%)	1,115,000	2,775,000	4,162,500	2,220,000	
Cost of project administration (10%)	1,115,000	2,775,000	4,162,500	2,220,000	
Total	13,937,500	34,687,500	52,031,250	27,750,000	128,406,250

CHAPTER 4

PROPOSED CONSTRUCTED DHOBIGHAT PROGRAMME

CHAPTER 4 PROPOSED CONSTRUCTED DHOBIGHAT PROGRAMME

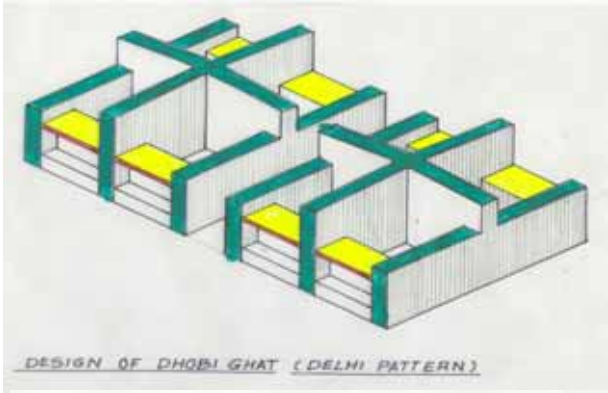
4.1 PLANNING AND DESIGNING

4.1.1 Design Alternatives

The constructed Dhobighats (DGs) at Delhi, Lucknow and Mumbai have one cubicle for each washer man. The washer man can fill or empty the cubicle by manipulating the inlet and outlet with the help of improvised stoppers. In certain other respects, they have different features, which are described below.

(a) Dhobi stands inside the cubicle:

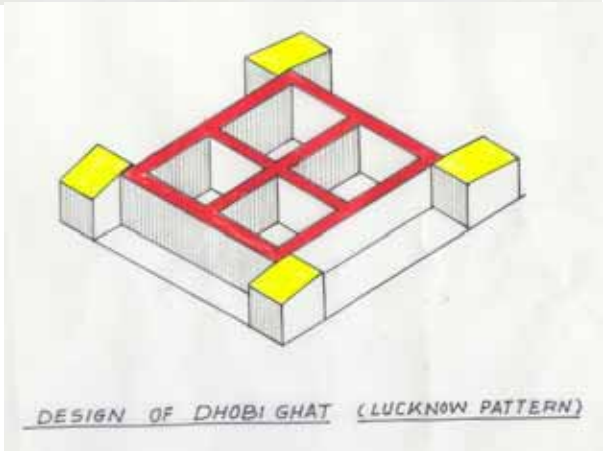
Dhobis stands inside the cubicle while washing clothes. While doing so, the Dhobi has to stand in polluted water for long periods, which not only is harmful to the skin but also may affect the general efficiency. Also, the design in itself is inconvenient as the Dhobi has to jump over the platform to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



(b) Dhobi standing outside the cubicle:

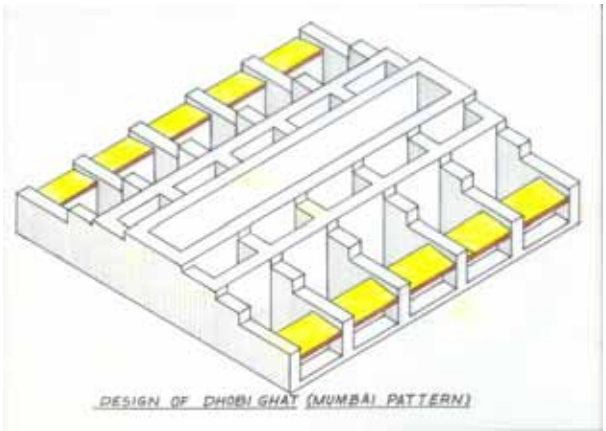
This option obviates the impact of having to stand in water containing washing chemicals.

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.



(c) 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.



The constructed ghats at Konia and Nadesar in Varanasi have the configuration similar to that in Delhi.

The dimensions of the cubicle, height of walls separating the cubicles and the size of the platform over which the clothes are washed show minor variations. Since, their sizes and configuration are evolved with practice, no major deviation is proposed. However, the important issue is whether the washer man should stand in water inside the cubicle or should he stand outside. Standing in polluted water for long periods can be harmful to skin and poses risks of infection. The washer men are used to it and most of them indeed prefer to stand in water rather than stand outside the cubicle. Their apprehension is that the splashes during washing will dry over skin if they stand outside the cubicle and that may be more harmful than when they stand in water. The general consensus was that both types of cubicles be constructed in the initial phase and based on acceptability further construction should be taken up.

It is proposed that the feature of reusing rinse effluent in both the configurations (i.e., the washer man standing inside and outside the cubicle) should be tried at Varanasi and carefully studied before new units are extensively constructed. Thus, JICA Study Team suggests to construct one new constructed DG as pilot project. After the use of washing place for about 3 to 6 months, a feedback of the users (dhobis) should be obtained. The most appropriate design for dhobis should be suitably modified and adopted for constructing ghats at appropriate sites so as to eliminate the use of river bank as temporary ghats. O&M of facility should be handed over to locality-wise co-operative societies of dhobi or an association. Thus, involvement and participation of dhobis at the all stage; survey, detailed design and construction, should be essential. If dhobis do not take initiative for construction of DG, the government seek another way like lease out the constructed ghats to private parties for running the establishment under the overall control of the government.

4.1.2 Facilities required

Each dhobi washes about 50-60 clothes in a day and requires about 800-1000 liters of water. The clothes are washed in two stages - in the first stage about 70% of the dirt is washed away and in the second stage the remaining 30% of dirt is removed. The water used in the second stage can again be used for the next washing as it contains only 30% of the dirt.

A typical DG has 30 cubicles and this be used by 180 dhobis.

The entry of soiled clothes in the homes of the washer men is a potential health hazard. Ideally, the soiled clothes should be brought to the DG and taken back from there to the clients.

Facilities required at DG

- Store for dirty linen
- Bhatties
- Covered cubicles for washing clothes
- Area for drying of clothes
- Ironing of clothes (lockers can be provided below the ironing table)
- Canteen/provisions shop with covered area for sitting and eating
- Toilets for men and women
- Compound wall with gate
- A room for chowkidar (watchman) or caretaker
- Independent tube well for water supply with a standby pumping set
- Tub for applying neel or whitener to clothes
- Parking space for cycles, cycle rickshaw, motor bike, etc.
- Covered area to sit and rest
- Open platform
- Clinic corner and first aid

4.1.3 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.

4.1.4 Disposal of wastewater

No waste water from the DGs should be discharged either on land or river Ganga or any water body with treating it to the extent prescribed by the state pollution Control Board / Central Pollution Control Board.

The following options are available:

1) On-site Treatment
2) Discharging into sewerage system

The maximum discharge from a DG with 90 cubicles will not be more than 100,000 litres/day. This is a very small quantity of water and if treated on-site, it is not only the initial cost for of settling up the treatment plant which will be about Rs. 500,000 but the recurring cost, which will required skilled operators, supervision, testing, chemicals etc. and then the final disposal, will be too high. Since the exact sites for locations of the proposed DGs are to be decided in detailed consultations with the stakeholders, Nagar Nigam, association of dhobis etc. and availability and costs of water, electricity and land is to be invested, it can not be evaluated at this stage whether on-site treatment will be cheaper than connecting to the nearest sewage system. However, on-site treatment is not a feasible option from every aspect such as operation and maintenance, finance and sustainability. The DGs should be located in the sewered area and be connected with sewer.

As stated above and on general experience, it is recommended that preference should be grow to dispose the waste water into sewerage system, which expected to be economical considering initial and recurring costs and avoid day to day maintenance and supervision vis-à-vis on-site treatment.

4.1.5 Proposed Renovation for Existing Dhobighats

Existing pucca (temporary) DGs should continue and some essential facilities should be provided to improve working conditions and protect the health of workers. The premises of the existing pucca DGs be registered in the name of the associations to check encroachments as demanded by representatives of association of dhobis.

(1) Konia ghat

Initially, it is necessary to provide certain essential facilities at this DG, which may include the following :

- Safe drinking water
- Arrangement for drying clothes
- Tubs for applying whitening agents
- Toilet for men and women
- Standby arrangement for supply of water
- Boundary wall
- Independent tube-well

To create space for proposed facilities, the required number of cubicles in one row may be demolished. There may be site-specific problems in finding adequate space and funds for the aforesaid facilities and some adjustments and compromises may be unavoidable. However, it has to be appreciated that these provisions are desirable and cannot be put off for long.

The effluent should be diverted to the sewerage system. The existing pumping arrangement will need some modifications to make it reliable and of adequate capacity. Diversion of effluent will abate pollution of the pond. Thereafter, the pond can be free of water hyacinth and the area can be reclaimed for an appropriate purpose. Subsequently, the entire facility including the pond should be re-developed. Three organized DGs, of 30 cubicles each, are tentatively recommended for this site with all the facilities.

(2) Nadesar ghat

The existing facilities are similar to those at Konia Ghat. Initial improvements suggested for Konia are applicable for Nadesar Ghat also.

Sewer lines are being laid on the adjoining roads and, therefore, the waste water is proposed to be discharged into the sewers, when they become operational. Subsequently, the entire area should be re-developed and converted into two organized DGs with all the facilities and having 30 cubicles each. Adequate space is available at the site including the area needed for drying clothes.

(3) Bhawani Pokhari ghat

The ghat is in the shape of a pool where wastewater discarded by the nearby water filtration plant of the municipal waterworks is used for washing the clothes. The quantity of water coming daily in the ghat is about 5 MLD. It contains a lot of silt, which has to be frequently removed. About 40 to 50 dhobis wash clothes daily at this ghat. Their requirement of water is about 50,000 liters/day, which is only about 1% of the water discharged from the waterworks to this site.

It is recommended that Jal Sansthan may be persuaded to construct a holding tank and discharge to this ghat the decanted clear water from the holding tank, which may be only 1 to 2 per cent of the wastewater from the waterworks. Alternatively, if Jal Sansthan does not agree to this, about 98-99 % wastewater be diverted to sewer which is about 800 mts. From the sewer / pipe discharging into the pokhari and only 1 to 2 % be discharged into it. This will reduce considerably the silting of the phokari. The outlet of DG / wastewater should be connected to the nearest sewer.

For re-organisation of the ghat, some of the nearby houses may have to be acquired to provide essential facilities to dhobis. Facilities mentioned in the case of Konia Ghat should also be considered for this Ghat, in particular the facility for drinking water, toilet and drying the clothes.

4.2 OPERATION AND MAINTENANCE

4.2.1 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.

4.2.2 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 DG 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.

4.2.3 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

4.2.4 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.

4.2.5 O&M Cost Recovery

The annual O&M costs of DG with 30 cubicles works out as below:

Sl. No.	Item	Annual expenditure (Rs.)
1.	Repairs and replacement @ 2% of the capital cost	35,500
2.	Electricity charges	70,000
3.	Watchman – 1 no.	36,000
4.	Cleaner – 1 no.	26,400
5.	Cleaning materials & tools	36,500
	Total Rs.	204,400

The general consensus being that major repairs/replacement should be carried out by the local body and the regular O&M cost be borne by the beneficiaries on this basis. The DG with 30 cubicles are planned to be used by 180 dhobis, thus, the monthly O&M charges that each dhobi will be required to pay, work out to Rs. 95.00 per month. This appears to be affordable and the dhobis should be able to pay it.

However, in case dhobis feel, which should not be, the consensus can be reached to pay the monthly amounts on account of repayment of construction cost (taken as loan) and O&M charges by raising the rates of washing of clothes by a meager amount, say 10% over the present rates.

4.3 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 DGs envisaged under this project become fully operational, the level of pollutants going into the rivers is expected to reduce. The construction of DGs 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.

4.4 IMPLEMENTATION OF DHOBIGHAT PROGRAMME

4.4.1 Proposed Locations and Design

Renovation of existing 3 DGs and 7 new constructed DGs are proposed as follows. The seven areas for construction of new DGs have been identified in consultation with the officials of the association of Dhobi and local authorities. These were also agreed by various representatives in final workshop.

	New construction		**Renovation**
1	Shivpur Talab	1	Konia
2	Pandeypur	2	Nadesar
3	Beniya Bagh	3	Bhawania Pokhari
4	Khajuri – Sarnath		
5	Madhopur Sigra		
6	Bhelupur		
7	Rajmandir		

Preliminary, the location of proposed DGs are shown in the map attached as Appendix M and the site plan as Appendix N. The exact location shall be decided considering the following factors:

- Concentration of dhobis
- Number of dhobis to use the facilities
- Distances to be travelled by dhobis
- Availability of space
- Availability of water
- Availability of electricity

The locations for the construction of new DGs will be identified at the time of preparation of Detailed Project Report (DPR) in consultation with the stakeholders and the local body. It is learnt that the land for all the sites will be available and they belong to the local body. It is expected that there will be no need for acquisition of land.

A plan showing the arrangements of proposed DGs is provided in Appendix O.

4.4.2 Programme Implementation Strategy

(1) Project Implementation Concepts for Constructed DGs

The proposed DGs 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 should be improved through a process of capacity building.

The JICA Study Team recommends that a pilot project to manage DGs through Dhobi Associations be implemented and a good example or model for O&M of DGs be created before implementing full-scale project. This model project can then be extended to full-scale projects.

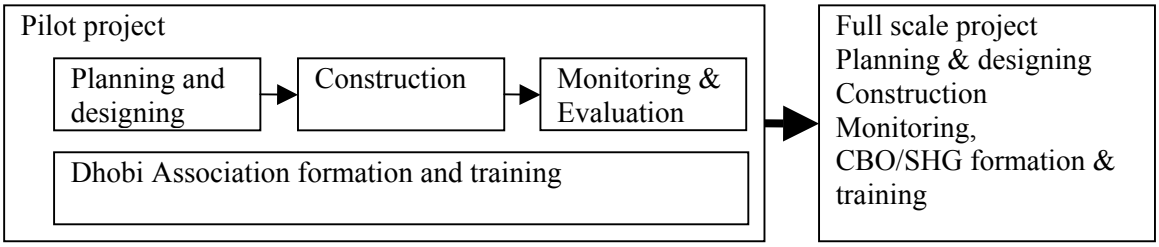


Figure 4.1 Programme Implementation Strategy

Implementation of pilot project

1) Preparation of a standard framework of planning and designing, in which needs and demand of dhobis shall be reflected and by which a technically, institutionally, financially, economically and environmentally feasible and sustainable plan can be selected
2) Implementation of this framework on a pilot base

Implementation of pilot projects if the pilot project succeeds

3) Extending this framework to other traditional DGs in Varanasi
4) Implementation of the full scale project.

(2) Institutional Setting Up for Monitoring

The proposed institutional set-up is graphically presented in Figure 4.2. 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.

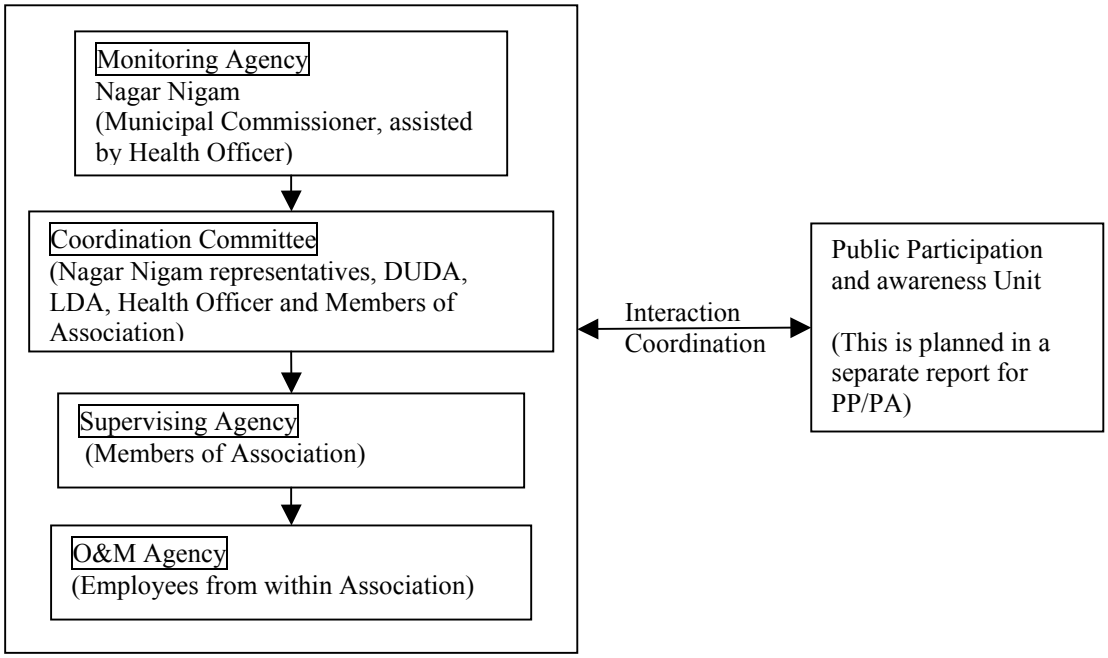


Figure 4.2 Proposed Institutional Set Up for Dhobighat Monitoring

(1) 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.

	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 DG; discuss and finalise DG 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.										━	━	━

Figure 4.3 Time Schedule for Activities

(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, analyse 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 DG" 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 DGs 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 DGs 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 DGs;
- 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 DGs; 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 DGs
- Maintenance of water pump and other facilities at the constructed DGs
- Reporting to the Nagar Nigam
- Mobilizing membership
- Setting ground rules for members User charge recovery accounting and bookkeeping
- Operation and maintenance log
- Monitoring of DGs

(10) Programme Monitoring

Monitoring should have three components

- Monitoring of Consultant/NGO's activities
- Monitoring of construction agency

- Monitoring of daily operations and maintenance

The Monitoring Cell constituted at Nagar Nigam will monitor the programme in order to make an ongoing assessment of the programme and take action whenever necessary. The Dhobi Association will monitor construction of ghats and operation and maintenance data such as water and electricity supply required for their work.

Monitoring will be an ongoing process. Monitoring formats should be prepared by the monitoring cell in the Nagar Nigam. The Consultant/NGO conducting workshops for dhobis would have to send monthly, quarterly and yearly report to Nagar Nigam. Each report would be accompanied by a narrative on non-accomplishment or achievement vis-à-vis the programme and outputs which would be spelt out by the Consultants/NGO in the action plan.

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 4.1 proposes a schedule for different monitoring activities.

Table 4.1 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 DGs 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

Evaluation

Indicators	Frequency of data collection	Data collectors
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	Half Yearly	Health Department

4.4.3 Construction Cost Estimation

Based on the proposals, the tentative costs of proposed new DGs and renovation/modifications of existing three pucca ghats are given below:

A: New Dhobighat

Sl. No.	Name of ghat	No. of cubicles	Cost (Rs.)
1.	Shivpur Talab	30	1,775,000
2.	Pandeypur	30	1,775,000
3.	Beniya Bagh	30	1,775,000
4.	Khajuri – Sarnath	30	1,775,000
5.	Madhopur Sigra	60	3,550,000
6.	Bhelupur	90	5,325,000
7.	Rajmandir	30	1,775,000
		Total	**17,750,000**

B: Upgradation of existing Dhobighats

Sl. No.	Name of ghat	Cost (Rs.)
1	Konia	L.S. 1,000,000
2	Nadesar	L.S. 750,000
3	Bhawania Pokhari	L.S. 500,000
Total		2,250,000

Total Cost (A + B = Rs. 17,750,000 + 2,250,000) 20,000,000

Note : Sheds, rest-room, toilets, new tube-well, arrangement for drying clothes, drinking water, ironing space are the facilities proposed in upgradation

The above estimates do not include costs for providing electric, water and sewer connections and supervision charges by construction agency. These costs, if any, are to be assessed at the time of preparation of Detailed Project Report.

The representatives of the association of dhobis are of the opinion that the cost of construction should be fully borne by the local authority, which seems reasonable as the works are meant to improve the environment and abatement of pollution of rivers.

However, if the local body feels that there should be participation of the stakeholders, it is suggested that then pay 50% of the capital cost. Initially construction should be carried out by local body and the contribution of the stakeholders should be treated as loan without interest and recovered in monthly instalments of Rs. 81.00 from each stakeholder over a period of 10 years. This amount is very reasonable and appears to be affordable by the stakeholders and there was general consensus among dhobis to pay upto Rs. 100 per month.

This is based on calculations for a DG with 30 cubicles and each cubicle is being used by 6 persons.

4.4.4 Implementation Schedule

Step 1: Pilot Project

As a pilot project, one proposed DG will be implemented. It takes 2 months for detailed survey (selection of location, confirmation of the needs for DG from dhobis, selection of technical option, institutional arrangement, O&M plan etc.), and another 4 months for construction. PP/PA activities should be conducted throughout construction.

Implementation Schedule for Pilot Project and One Dhobi Ghat

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.

After the completion of pilot project, the evaluation of technical / institutional / O&M system should be done on the following.

- Dhobis' behaviors / attitude
- Number of users of CTC
- Status of DG
- Status of financial condition, etc

Step 2: Upgrading of three existing and 6 new construction

When the result of evaluation shows that the pilot project succeeds, the programme will extend to whole DGs in Varanasi. The detail survey, design, construction, PP/PA will be implemented by each DG wise.

The following tables show implementation schedule and required costs for full-scale project.

Implementation Schedule for Full Scale Project

	2006			**2007**			**2008**			**2009**		
Pilot project												
3 upgrading +2 new DGs												
4new DSs												

4.4.5 Total Project Implementation Cost

Based on following planning conditions, yearly total project costs have been worked as shown in Table below. Total project implementation cost will be Rs.25.3 million.

- 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 4.2 Project Cost Estimation

(Unit: Rs.)

	Project Cost for DG (pilot project)	**Cost for DGs (except pilot)**	**Total**
Capital Cost	1,775,000	18,225,000	20,000,000
Physical Contingency (5%)	88,750	911,250	1,000,000
Consulting & Engineering Costing (10%)	177,500	1,822,500	2,000,000
Cost of project administration (10%)	177,500	1,822,500	2,000,000
Total	2,218,750	22,781,250	25,000,000

Table 4.3 Yearly Project Cost Estimation

(Unit: Rs.)

Item	**2006**	**2007**	**2008**	**Total**
Construction	1,775,000	5,800,000	12,425,000	20,000,000
Physical Contingency (5%)	88,750	290,000	621,250	1,000,000
Consulting & Engineering Costing (10%)	177,500	580,000	1,242,500	2,000,000
Cost of project administration (10%)	177,500	580,000	1,242,500	2,000,000
Sub-Total	2,218,750	7,250,000	15,531,250	25,000,000

CHAPTER 5

GHAT SANITARY IMPROVEMENT PROJECT

CHAPTER 5 GHAT SANITARY IMPROVEMENT PROJECT

5.1 INTRODUCTION

After completion of the feasibility study for Varanasi project in August 2004, upon request of Varanasi Nagar Nigam, the project to improve sanitary condition of ghats in Varanasi was included in the non-sewerage component. Therefore, the plan of this component was preliminarily prepared and it requires Detailed Design Report including conceptual plan and design in the next project implementation stage through intensive stakeholder involvement.

5.2 PILOT PROJECT

Ghat improvement project as a pilot basis in Varanasi is an important component of the Study on Water Quality Improvement Plan of river Ganga. The objectives of the Pilot Project are to improve the sanitary conditions of the ghats and bathing environment. For the pilot project, Manikarnika Ghat has been selected and the following project components have been identified. This project will be used as a replicable model for a ghat improvement.

- Construction of changing room at Janana Ghat
- Renovation of Manikarnika Kund
- Construction of Heritage Corner
- Construction of shading roof for Takhat Hazara
- Renovation of raised (roof) cremation platform
- Renovation of ground cremation platform
- Repaving of Ramlila Maiden Ground
- Renovation of Birla Dharmshara building
- Renovation of existing public toilet
- Provision of dustbins
- Provision of signage board
- Provision of pump for de-silting

Ghat improvement pilot project is described in a separate volume of the Reports.

5.3 GHAT SANITARY IMPROVEMENT PROJECT

In addition to the pilot projects, several other projects are identified for ghat improvement project as follows. These projects shall be planned in more details and implemented if Manikarnika Ghat pilot project is successfully implemented.

5.3.1 Initial Selection of Ghats

The JICA Study Team has made several meetings on high priority site and facilities to be improved in view of sanitary/hygiene improvement with the local governments concerned such as Varanasi Nagar Nigam (Municipal Corporation), Irrigation Department, Tourism Department, UP Jal Nigam, and Archaeological Survey of India (ASI). In addition, needs of ghat improvement were.

It is agreed by the government and non-government stakeholders to select preliminarily the eight ghats and one option of all the ghats as shown below for further study to focus on two or three ghats alternatives for final selection. The location map of ghats is attached in Appendix Q.

- Sitala Ghat
- Dasasvamedha Ghat
- Prayaga Ghat
- Rajendra prasasa Ghat

- Manikarnika Ghat
- Sankatha Ghat
- Telianala Ghat
- Raj ghat
- All the ghats for small scale improvement

These eight ghats were selected based on the site inspection and discussions with the government and non-government stakeholders.

The local governments of Varanasi are requested to select the priority sites with necessary facilities to be adopted in the Pilot Project. For this, JICA Study Team has made an alternative study on the proposed sites and necessary facilities based on the discussions with stakeholders such as the local governments concerned, users, NGOs, priests, etc.

In the joint meeting held on 2nd July 2003 with the officials from the Varanasi Nagar Nigam, Irrigation Department, UP Jal Nigam, Tourism Department, Archaeological Survey of India and JICA Study Team under Chairmanship of District Magistrate with concurrence of Divisional Commissioner, all the participants agreed to select and request JICA one of the following sites/scheme.

1) Assi Ghat
2) Rajendra Prasad and adjoining Ghats
3) Manikarnika Ghat
4) All the ghats for repair/renovation of steps to sustain the stability of steps
5) All the ghats for installation of pumps and hydrants for di-silting from the gahts

Following this meeting, the local governments of Varanasi requested JICA to adopt the sites/scheme in priority order as 1) Manikarnika Ghat, 2) Rajendra Prasad and adjoining ghats.

5.3.2 Risk Survey

A risk-identified survey was conducted in social, political, religious aspects. From interviews of the various stakeholders such as local governments, social workers, NGO, users, opinion leaders, residents, priest, etc. no risk was reported and identified as long as the pilot project is limited to improve facilities from the viewpoint of sanitation/hygienic improvement and user safety. It was confirmed with them that the pilot project does not have any risk and the Stakeholders are willing to cooperate for the project.

5.3.3 Preliminary Design of Identified Projects

As agreed in the joint meeting held on 2nd July 2003 with the local governments of Varanasi, the preliminary design was prepared for the sites with scheme as shown below.

1) Manikarnika Ghat
2) Rajendra Prasad and adjoining Ghats
3) Assi Ghat
4) All the ghats for repair/renovation of steps to sustain the stability of steps
5) All the ghats for installation of pumps and hydrants for de-silting from the ghats

The design concept of the pilot project is to improve facilities in the ghat to give better environment, to improve sanitary and hygienic conditions without changing the original settings of the ghat.

Preliminary design and cost estimation was prepared for the five alternatives as below.

Projects –I: Manikarnika Ghat

This has been selected as pilot project.

Projects – II: Rajendra Prasad and adjoining Ghats

Present conditions:
Toilet/Urinal: One community toilet complex on the top of Rajendra Prasad Ghat, but the usage is very low.
Changing room/shower: There are 1-2 changing rooms installed by people but not adequate.
Sanitary conditions: Rampant open defecation and urination, leading to unhygienic conditions.
Other observations: Broken stairs of the adjoining Ghats to Rajendra Prasad gaht. Damaged joints of the stairs

Recommendations	Preliminary Cost Estimate (Rs.)
① Change/lockers room, shower room	400,000
② Portable cubical for urinal (4units)	200,000
③ Medical/Tourist information centre.	150,000
④ Shoes staking at entrance	90,000
⑤ Safety measures for bathing users	200,000
⑥ Guide boards.	150,000
⑦ Repairing of existing steps.	4,220,000
⑧ Renovation of existing toilet	750,000
TOTAL	**6,160,000**

Projects – III: Assi Ghat

Present conditions:
Toilet/Urinal: One community toilet complex operated by the Sulabh International
Changing room/shower: No changing room
Safety measures: The O&M of toilets is very poor and stinking.
Other observations: Damaged stairs and clips. No measures to check silt deposition

Recommendations	Preliminary Cost Estimate (Rs.)
① Change/lockers room with showers	900,000
② W.C & urinals at a higher level.	700,000
③ Medical/Tourist information center.	150,000
④ Small physical exercise area, Yoga cum Meditation area, View point area.	1500,000
⑤ Ramp arrangement for physically disabled people.	450,000
⑥ Shoes staking at entrance	90,000
⑦ Development of entrance	300,000
⑧ Safety measures for bathing users	250,000
⑨ Guide boards.	150,000
⑩ Repairing of existing steps.	2,000,000
⑪ Retaining wall to prevent siltation	750,000
⑫ Seating arrangement	280,000
TOTAL	**7,520,000**

Projects - IV: All the Ghats for repair/renovation of steps to sustain the stability of steps.

Recommendations	Preliminary Cost Estimate (Rs.)
① Repair of joint	15,000,000
② Renovation of steps	50,000,000
TOTAL	**65,000,000**

Projects - V: All the ghats for installation of pumps and hydrants for de-silting from the ghats

Recommendations	Preliminary Cost Estimate (Rs.)
① Pumps and Hydrants 10 x 77	77,000,000

5.3.4 Summary

Preliminary cost estimate of identified projects are summarised as follows.

Project	Preliminary Cost Estimate (Rs.)
I: Manikarnika Ghat (Pilot Project)	(Grand aid)
II: Rajendra Prasad and adjoining Ghats	6,160,000
III: Assi Ghat	7,520,000
IV: All the ghats for repair/renovation of steps to sustain the stability of steps	65,000,000
V: All the ghats for installation of pumps and hydrants for di-silting from the ghats	77,000,000
Capital costs	**155,680,000**

5.4 PROJECT IMPLEMENTATION METHODOLOGY

The projects have been preliminary identified and these projects shall be verified and justified further for implementation.

5.4.1 Project Step

The following steps shall be taken to implement the projects to select appropriate components of the facility and to ensure sustainable operation and maintenance (O&M) and public participation and awareness (PP/PA) plan.

Step 1 : Evaluation of Pilot Project (Manikarnika Ghat Sanitary Improvement)
Step 2 : Identification of project
Step 3 : Conceptual design
Step 4 : Basic design
Step 5 : Operation and maintenance plan and public awareness
Step 6 : Detailed design
Step 7 : Construction
Step 8 : Evaluation of usage and impact and feedback

5.4.2 Methodology of Study

In order to understand the knowledge, attitude, practices and behaviours of the people regarding the problems of ghats and make the improvement plan need-based and people-oriented, the following mythology shall be adopted.

- Ghat Inventory Survey
- Questionnaire Survey of Ghat Users
- Workshop
- Focus Group Discussion

Detail methodology is explained in Volume V of this Report, Pilot Project for Sanitary Improvement of Manikarnika Ghat.

5.4.3 Implementation Cost Schedule

The preliminary implementation cost schedule is given in the following table.

	2006	2007	2008	2009	Total
Capital	38.92	38.92	38.92	38.92	155.68
Physical Contingency (5%)	1.95	1.95	1.95	1.95	7.80
Consulting & Engineering Costing (10%)	3.89	3.89	3.89	3.89	15.56
Cost of project administration (10%)	3.89	3.89	3.89	3.89	15.56
Total	48.65	48.65	48.65	48.65	194.60

Appendix A

Appendix A Minutes of Meeting on First Workshop

MINUTES AND CONCLUSIONS OF THE WORKSHOP ON SLUM

Date : 12th April 2004

Time : 17.00 to 21.00 hrs

Venue : Hindustan International, Maldahiya, Varanasi

A workshop was organized by Sulabh International Social Service Organisation (SISSO) in collaboration with Japan International Cooperation Agency (JICA) on 12th April '04 in Hindustan International Hotel on Feasibility Study of Non-Sewerage Scheme on Pollution Abatement of the Ganga river in Varanasi. The basic objectives of the workshop were to discuss with representatives of stakeholders, policy makers, opinion makers, Government departments, local bodies, etc. on the status of sanitation facilities - individual and community toilets, problems of open defecation, socio-economic conditions, infrastructure facilities, affordability for providing sanitary facilities, financial resources for operation and maintenance etc. in the sample slum areas and obtain views of participants for improvement of present unsatisfactory conditions and the solutions for abatement of pollution of Ganga river. Participants from the various sections of the society took part in the workshop and discussed the matter in details for abatement of pollution of the Ganga river and provide low cost sanitation systems in slum areas. The names of the participants are :

1. Mr. R. P. Arora, Nagar Commissioner, Nagar Nigam, Varanasi
2. Mr. K. P. Tripathi, Dy. Nagar Commissioner, Nagar Nigam, Varanasi
3. Mr. Hirotaka Sato, Dy. Team Leader, JICA
4. Ms. Shoko Yamada, Specialist, Public Health and Hygiene Education, JICA
5. Mr. Ajay Singh, Programme Coordination, JICA
6. Mr. Arvind Pandey, JICA Study Team
7. Mr. Shakti Singh, Corporator, Nagar Nigam
8. Mr. G.P.N. Singh, Project Officer, District Urban Development Authority (DUDA), Varanasi
9. Mr. S.P. Shukla, Assistant Project Officer, DUDA, Varanasi
10. Mr. H. P. Mamgoyee, Assistant Project Officer, DUDA, Varanasi
11. Md. Yajlak, DUDA
12. Ms. Safia Bano, Chairman, Community Development Society (CDS), Bajardiha
13. Ms. Shankuntala Jain, Chairman, CDS, Jyodhipur
14. Mr. Ajay Kumar Chauhan, Representative of Chairman, CDS, Baghwa Nala
15. Mr. Nizam, Stakeholder, Bajardiha
16. Md. Abdul Badud, Representative of Stakeholders from Bajardiha
17. Md. Jamir Ahmed, Representative of Stakeholders from Bajardiha
18. Mr. Laxman Prasad Kannaujia, Stakeholder
19. Mr. Parmod Kannaujia, Stakeholder Sonapura, Varanasi
20. Mr. Manoj Kumar Pandey, Stakeholder
21. Mr. Shalendra Kumar Tripathi, Stakeholder, Nagwa Nala
22. Mr. Ramyash Mishra, Journalist, Assi
23. Mr. U. C. Vuel, DUDA
24. Mr. Sanjay Kumar
25. Mr. Rayees Ali, DUDA
26. Dr. Arvind Kumar Joshi, Reader, Department of Sociology, BHU, Varanasi, Resource Person
27. Dr. Sanjay, Reader, Department of Social Work, M.G. Kashi Vidyapith, Varanasi, Resource Person

28. Ms. Archana Yadav, Group Leader of Surveyors, Student, MGKV
29. Ms. Anita Kumari, Group Leader of Surveyors, Student, MGKV
30. Mr. A. K. Dubey, Group Leader of Surveyors, Student, BHU
31. Mr. Kaushal Kishore, Group Leader of Surveyors, Student, BHU
32. Mr. Dileep Kr. Srivastava, Group Leader of Surveyors, Student, BHU
33. Mr. Rahul Kumar, Group Leader of Surveyors, Student, BHU
34. Ms. Susmita Shekhar, Sr. Vice President, SISSO, Key Person for Public Participation and Awareness
35. Prof. S. Tripathi, Chairman, Sulabh International Centre for Action Sociology (SICAS), Key Person (Sociology)
36. Mr. H. S. Chourasia, Adviser, Sulabh International Institute of Technical Research and Training (SIITRAT), Project Team Leader
37. Mr. Baleshwar Prasad, SISSO, Civil Engineer
38. Mr. J. P. Uniyal, SIITRAT, Member Architectural Team
39. Mr. Gopal Prasad, SIITRAT, Computer Expert

Mrs. Susmita Shekhar, Sr. Vice President, SISSO and key person for public participation and awareness welcomed the participants and explained the objectives of the workshop.

After the welcome address, Mr. Hirotaka Sato, JICA, welcomed the participants and briefly explained the objectives of the project. He also appreciated the efforts made by SISSO, resource persons and surveyors from BHU (Banaras Hindu University) and M.G. Kashi Vidyapith, Varanasi for conducting surveys and collecting relevant data necessary regarding sanitary conditions in slums which are sources for adding pollution to the Ganga river. Mr. Sato was very hopeful that with the help of expertise of SISSO and suggestions of stakeholders / concerned persons, suitable and sustainable plans and guidelines will be developed so as not only to improve the sanitary conditions in the slum areas but help in preparing guidelines and manuals for abatement of pollution of Ganga river.

Mr. Ajay Singh, Programme Coordinator, JICA, informed the participants that on the request of Government of India, Government of Japan had come forward to prepare a Feasibility Report of Non-Sewerage Scheme on pollution abatement of Ganga river at Varanasi prior to other three cities – Allahabad, Kanpur and Lucknow. The program was launched in March 2003 and scheduled for completion by February 2005. He told that the main aim and objectives of this Feasibility Study are to provide acceptable, appropriate and sustainable designs and systems to reduce the pollution Ganga river caused by open defecation and flow of toilet wastes from non-sewerage areas of slums.

Mr. Singh invited the suggestions, views of the stakeholders on the data collected by SISSO on the prevailing conditions of household and community toilets, open defecation and flow of waste from toilets into open drains, streets and ponds, which ultimately pollute Ganga river. He imphasized that the suggestions and opinions of stakeholders are very important as they are aware of the present conditions and also the existing problems. Mr. Singh desired that JICA, SISSO and stakeholders should join their hands in preparation and implementation of the Master Plan. Mr. Singh requested the participants to discuss the local needs, existing conditions, possible solutions and all aspects with open mind in regard to low cost sanitation so that a suitable, acceptable and sustainable plan can be worked out.

Prof. S. Tripathi, Sociology Expert of (SICAS) while again welcoming the participants, thanked JICA and Govt. of Japan for their interest, assistance and cooperation in preparing a Master Plan on abatement of pollution of Ganga and Yamuna rivers. He revealed that the preparation of Master Plan would be completed by the year 2005 and hopefully will be implemented with the assistance of Govt. of Japan. He was hopeful that water quality of Ganga & Yamuna rivers would be improved upto desired level by the year 2030.

Prof. Tripathi explained the reasons that create slums and informed that there is a great difference between rural and urban areas in regard to job opportunities and income levels which are very low in the countries of third world. People from villages rush towards the cities in search of jobs and settle around in clusters which after some years turn into slums. Prof. Tripathi defined slum as a habitat which lacks in roads, schools, hospitals, toilets, drainage, sewers, water supply etc. and the living conditions are unhealthy due to lack of space and over crowding. A family of 10 to 15 members is compelled to reside in a single room of about 10x10 sq. feet area.

Prof. Tripathi requested the participants to share their views, opinions, needs suggestions and play active role in preparation of plan so that an appropriate systems could be designed keeping in view the acceptability, sustainability, institutional set up and economical viability. He requested the stakeholders to take advantage from the experience and expertise of the JICA and SISSO.

PRESENTATION OF FINDINGS OF FIELD SURVEYS

Mr. H. S. Chourasia, Project Team Leader, SISSO presented the present scenario of slums and the findings of the sample surveys of the slum areas.

According to the data collected from the District Urban Development Authority (DUDA), Varanasi, there are 227 slum areas with a population of 4,57,568 which works out to about 35% of total population of about 13,00,000 in the urban area.

Sahara, daily Newspaper Agency, has published that increase in the number of slum areas has been 480% from the year 1994 to 1998.

In a meeting of representatives of relevant departments held on April 02, 2004 at the camp office of the Nagar Commissioner and chaired by him, the following slum areas were identified for sample surveys based on criteria of typical representation, sewered & non-sewered locations etc.

	Sewered		**Non-Sewered**
1.	Bajardiha – Population 3000	1.	Baghwa Nala – Population 1938
2.	Nagwa Nala - Population 3000	2.	Jyodhipur – Population 2000

Later on Alaipur was also selected in consultation with the Chief Medical Officer, Nagar Nigam and Programme Coordinator (JICA).

The survey was conducted by 45 post-graduate students and research scholars of BHU and Kashi Vidyapith University under the guidance and supervision of the resource persons of the above institutions and experts of SISSO.

The salient features, as revealed from the surveys are :

No of respondents (one from each family) 828

- Total members in the families of respondents 8485
- Average number of members in a family 10.25
  (the minimum & maximum being 3 & 36 respectively)
- Education
  - Illiterate51.57%
  - Literate 48.43%

- Status of employed
  - Self/daily labourers in unorganized sectors 85.00%
  - Government Service 7.00%
  - Service in private sector 8.00%
- Income (Per month/family) Groups
  - Upto Rs. 1000 19.00%
  - Rs. 1001 to Rs. 2500 34.00%
  - Rs. 2500 and above 47.00%
- Type of residences :
  - Pucca 43.00%
  - Semi-pucca 48.00%
  - Kutcha 19.00%
- Mode of defecation
  - Individual household toilets 62.00%
  - Usage of community toilets 9.00%
  - Open defecation 29.00%
- Disposal of excreta from IHLs
  - Pour Flush with pit 46.00%
  - Septic tank 5.00%
  - Sewer/drain 49.00%
- Willingness to construct IHLs 84.00%

The general observations during the field surveys are :

- People resort to open defecation due to
  - habits
  - lack of community toilets
  - lack of water and light in community toilets
  - unable/unwilling to pay users charges, which at present are Rs. 30 per month per family and Re. 1.00 per person for casual users.
  - locations of CTCs being inconvenient
  - most of the IHLs have one pit each and hence when it gets filled up, there is problem of cleaning the pit and as a result the excreta flows directly either on streets or land or in drains.
  - the householders who do not have IHLs, are either poor or do not have sufficient space to construct toilets
  - in general, the householders who do not have IHLs informed that they are willing to construct toilets but they do not have finances. They had shown willingness to construct IHLs, if part of the cost of construction is provided by Government / Local Body on soft loans and partly as subsidy.

- Revelations from the Focused Group Discussions conducted by resource persons and experts of SISSO, facilitated by group leaders of survey teams and monitored by Mr. Arvind Pandey of JICA are :

IHLs

  - Some households do not have IHLs
  - No priority for construction of toilets due to lack of knowledge and adverse effects on health caused by insanitary conditions, open defecation and disposal of excreta/sewage in the streets/drains.
  - People in general are poor and hence unable to construct individual toilets
  - Available space in dwellings is much less than the minimum requirement and hence over crowding.

- Wherever sewers exist, they are away from most of the dwellings and hence householders are unable to connect their toilets to sewer due to high cost involved.
- Difficulty in cleaning/desludging of single pit as no body wants to handle fresh/wet excreta
- No proper place to dispose the cleanings from soak pit.
- Inadequate & irregular supply of water

CTCs

- In some slums there are no CTCs
- The usage is poor due to
    - Distance
    - Habit for open defecation
    - Maintenance not upto the desired standards for want of funds and efficient supervision.
    - Potential users do not want to pay users charges either due to poverty or unrestricted open defecation.
    - Inadequate provision of water due to short supply of water distribution system and / or in-operation of tubewell for want of repairs or supply of electricity.
    - No proper lighting during night hours and hence people are forced to defecate on open space.

SUGGESTIONS FOR IMPROVEMENT – AS VISUALIZED BY EXPERTS OF SISSO

- create awareness among slum dwellers about health and sanitation
- educate people about construction of appropriate types of IHLs
- To provide technical details and facilitate availability of right type of fixtures for construction
- Impart knowledge about proper usage and maintenance of toilets
- Construct adequate number of CTCs with desired number of water closets at desirable places.
- Advance soft term loans for construction of IHLs/extension of sewers in lanes and bye-lanes to facilitate connections of IHLs at minimum costs.
- Evolve suitable system for operation and maintenance for CTCs. The agencies could be :
    - Non-Government Organisations
    - Committee of users/beneficiaries
- Fixation of users charges to make the operation and maintenance financially viable
- Motivate charitable organizations/individuals to donate money for proper upkeep.
- Government/Local body to frame policy clearly as regards to their obligations in O&M of CTCs.

ABOUT TYPES OF TOILETS

Mr. Chourasia, then with the help of drawings / sketches explained the details of common following types of sanitary IHLs which can be suitable and generally acceptable to the users :

- Ventilated Improved Pit (VIP)
    - Single pit
    - Double pit

- Pour Flush
    - Single pit

- Two pits

He also explained advantages and disadvantage of the above types of toilets.

The details of water closet (seat), water seal, leach pit etc. and their functions were also explained.

Mr. Chourasia emphasized the adoption of twin pit pourflush toilet due to the following merits :

i) less consumption of water (1-2 litres per user) due to steep slope of pan as against 12-15 litres in case of flush toilets.
ii) No smell as foul gases are observed in the soil through openings of honey combed brick work.
iii) Capacity of leach pit is for a minimum period of 2 years.
iv) Digested sludge gets dry and free from all living organisms, has no smell, is suitable for conditioning of soil and can be removed by hands.
v) Low cost of construction
vi) Suitable for both small and large family as pits are designed for the required number of users.
vii) Maintenance is easy

He told that twin pit model, designed and developed by Sulabh International Social Service Organisation is the best for on-site disposal of human excreta, considering acceptability, suitability, sustainability, low capital and operation & maintenance costs.

OBSERVATIONS OF RESOURCE PERSONS

Dr. Joshi who is a Reader in Sociology in BHU, guided the field survey and organized Focussed Group Discussions in selected slum areas. His observations and views are as below :

Nagwa Nala

About 80% householders have IHLs and remaining 20% do not have toilets because they are rented. Occupants do not pay sufficient rent and hence owners do not construct toilets. Some domestic waste gets into Nagwa Nala which ultimately terminates to the Ganga river and pollute its water.

This slum is a very densely populated. Number of family members in a house is more than 10. He described the following reasons for open defecation :

i) Lack of own toilet
ii) Lack of sufficient number of community toilets at suitable places.
iii) Habits
iv) Large number of family members in a house where there is one toilet, which can not meet the requirement of defecation during peak hours
v) Gathering of large number of devotees and tourists on occasions of festivals and cultural ceremonies.

Bajardiha

The sanitary conditions in the area are very alarming. He observed that though there is less open defecation due to lack of open space but excreta is being flushed in street/drains. Sewer lines exist only on main roads but not in narrow lanes. Poor people are unable to connect their toilets to long distance sewers due to paucity of finances. The basic demand of the people of this area is to lay branch sewers in all the streets so that they may connect the toilets. People of this are do not want community toilets.

Alaipur

This slum is located along railway track and there are no sanitary facilities. People go along railway track for open defecation. There is neither any CTC nor space for it. Slum dwellers demand laying of branch sewers connected to main sewer on the main road. If this is done, they would construct toilets inside their dwellings.

Jodhipur

The over all situation of sanitation in this slum is satisfactory. Most of the households have their individual toilets inside and there is no open defecation. Most of the residents are of service group and businessmen, having better incomes and sense of awareness towards sanitation.

Baghwa Nala

There is sufficient open space for defecation. Most of the households do not have toilets. People are interested in construction of household toilets but they need some subsidy for this due to low incomes.

Dr. Sanjay accompanied Dr. Joshi in field surveys and FGDs. He revealed that Govt. identify those clusters as slums where habitants are of schedule castes, but in fact many undeveloped habitats of other castes have grown up around such slums where the sanitary conditions are same as in areas of schedule caste settlements. The picture of sanitation in all the unauthorized settlements and under developing areas is also very alarming. On this concept, Sahara, a newspaper agency, conducted survey in year 1998 for identification of slums in Varanasi and found that there were 258 settlements that can be categorized as slums. He defined the slums as habitats, which are overcrowded and lack in basic needs like toilets, water, roads, electricity, hospitals, livable houses etc. Among the locations surveyed, water logging was reported. Ponds or depressions are disposal points for solid and liquid wastes. They over flow during rainy season and may cause epidemic any time. He suggested that household toilets either connected with sewer or twin leach pits and community toilets should be constructed to solve insanitary problems in slum areas and check open defecation.

OBSERVATIONS AND VIEWS OF PARTICIPANTS

Mrs. Susmita Shekhar, Expert, SISSO

It is shameful for all that women are being rapped, eve-teased and harassed only because they have to go for open defecation. So the construction of toilets is directly related to the human dignity.

Ms. Safia Bano, Chairman, CDS, Bajardiha

She agreed with the observations of Dr. Joshi in Bajardiha and told that people would agree to construct pour flush toilets with twin leach pits in their houses to get rid of the insanitary surroundings and diseases caused due to prevailing unhygienic conditions. She informed that at present, in the absence of household toilets and space for open defecation, female members defecate on floors and flush the excreta to open streets / drains. These drains terminate into local depressions where liquid and solid wastes get accumulated and ultimately result in polluting the water of Ganga river and spread of many diseases.

Smt. Shakuntla Jain, Chairman, CDS, Jyodhipur

She told that sanitary conditions are better in Jyodhipur. Most of the household toilets are connected to sewerage system.

Shri Abdul Wazood – Farukhinagar, Bajardiha

Mr. Wazood told that household liquid waste including human excreta is being disposed in a natural depressions through open drain or pipes, and at present they are full of garbage and silts. The nalas and pipes are chocked and waste water is accumulated on streets in front of houses. This is creating alarming conditions and unhealthy situations causing spread of various types of diseases. Mr. Wazood emphasized the need to lay branch sewers in the streets and connect them with main sewer, which is at about 200 m distance.

Shri Dhani Ram, Sarai Surjan, Bajardiha

Liquid waste from households is being disposed on open and low land which is private. When the owner fills it, the problem would reach to alarming stage due to accumulation of liquid waste on streets and nalas. He also mentioned that there is lack of space in most of the households, which restricts the possibility of construction of twin leach pit pour flush toilets. Mr. Chourasia suggested that in case of lack of space in house, pits can be constructed on streets. If it can be, Shri Ram agreed for construction of twin pit pourflush toilets.

Shri Ajay Kumar Chauhan, Baghwanala

People from 250 houses go to the bank of the Varuna river for open defecation as they do not have either individual household toilets or community toilets. If some grant or subsidy is given to them, they will construct their own toilets in houses. Since the area is non-sewered, on site disposal is only solution.

Shri Manoj Kumar, Nagwa Nala – Stakeholder and Social Worker – Sewa Bharati Organisation

- Nagwa nala carries all types of liquid wastes and discharges into the river.
- Sentimental and concerned about pollution of Ganga river
- Nagwa nala should be diverted
- Disconnect toilets which are discharging into Nala
- All toilets should be connected with existing sewers.

Mr. R. P. Arora, Nagar Commissioner, Nagar Nigam Varanasi

Mr. Arora agreed with the outcomes of field surveys and observations of the participants regarding problems in slums areas. He shared their concerns and expressed his views as below :

- Sewerage system in Varanasi, laid in 1917, is over loaded at present and is unable to carry further loads of liquid waste.
- A parallel additional sewerage system should be designed to carry the additional load of non-sewered, newly developed and slum areas.
- Fully accepted and advocated for construction of pour flush toilets with twin pits in non-sewered slum areas to get rid of the present panic and hazardous scenario.
- May work as a coordinating agency for providing loans from banks on easy installments and subsidy from Govt. to poor people for construction of their own toilets.
- Stated that density of population in Varanasi city is high as the expansion of the area of city has stopped since 1970, though population is increasing at an alarming rate. According to him this is the main reason for the insanitary conditions and poor infrastructure facilities in the city and particularly in slum settlements.
- He suggested that public awareness program should be organized to make the people aware of the ill effects of the above sanitary problems so that they may take their own initiatives in this direction.

- The financial status of Nagar Nigam Varanasi is very poor as it collects only Rs. 5 to 6.5 crores annually from property tax which is insufficient to meet the demands to the population of the city. Due to financial scarcity, Nagar Nigam is unable to provide all the basic amenities to the people. He emphasized to use low cost sanitation systems, which are much cheaper than sewerage scheme.
- Regarding operation and maintenance of community toilets in slum areas, he suggested to form community based organizations to manage and generate funds for operation and maintenance. He agreed that such community toilets should be maintained by SISSO and community based organizations.
- Mr. Arora answering the problems of solid wastes, expressed that Varanasi is lacking in space for disposal of garbage. That is why solid wastes are being dumped in unplanned way. He informed that Nagar Nigam has aquired a piece of land for garbage disposal but problem is so enormous and alarming that it can not be solved in one or two years. He emphasized to reform taxation laws to generate more revenues so that sufficient funds may be available to provide infrastructure facilities and better environment.

At the end of workshop, Prof. Tripathi thanked all the participants for their presence, comments, observations and suggestions, which will form the basis for preparing. Report on Feasibility Study on Abatement of Pollution Ganga River in Varanasi.

CONCLUSIONS

The following conclusions emerged from the workshop :

- All the participants were aware and concerned about the insanitary conditions prevailing in the slum areas and the result there-of pollution of Ganga river and spread of diseases.
- Open defecation is present in the slum areas due to lack of IHLs and CTCs.
- The excreta from a number of IHLs is discharged into streets and drains due to lack of extension of sewerage systems and cleaning of soakage pits.
- Most of the IHLs have only one pit which can not be cleaned as it is wet.
- When the pit is filled up and not cleaned, the waste from IHLs either overflows or diverted on the streets/drains which create insanitary conditions.
- The awareness about the situation and health among the slum dwellers is lacking.
- More inputs are required to educate people regarding right types of toilets to be constructed.
- There are problems of water logging, garbage disposal and chocking of drains / sewers in most of the areas of slums.
- The householders who do not have IHLs but are willing to construct, demanded part of the cost as loan on soft terms and part as subsidy due to the poor income.
- The demand was high for extension of sewers in lanes and streets so that the IHLs which are discharging into nalas/streets can be connected at minimum cost.
- Almost all the participants were unanimous about the adoption of two pits pourflush latrines for reasons of making the system working without interruption and ease in cleaning pits when it is left for the period of one year or so. The excreta when left for a period of about one year inside the pit, is completely composted, dry and free from germs and can be handled easily.
- Adequate number of the CTCs need to be constructed in places where slum dwellers either cannot afford to construct their own toilets or do not have space for cosntruction.
- The operation and maintenance of CTCs is not proper due to lack of finance and proper management.
- People are ready to pay users charges for CTCs provided they are maintained properly and remain open at all times.
- CTCs should be operated and managed by NGOs or CBOs and users must pay charges.
- The location of CTCs should be such that they are easily accessible to the users.
- Motivate and mobilize communities for increased utilization of CTCs.

Appendix B

Appendix B Survey Sheet (Toilet Facilities)

SURVEY SHEET FOR ABATEMENT OF POLLUTION (IN REGARD TO TOILET FACILITIES – IHT) IN THE RIVER GANGA IN CITY OF VARANASI

Locality (Mohalla/Slum) ☐☐☐☐☐☐☐☐☐☐☐☐
Household no. ☐☐☐☐☐☐☐☐☐☐☐☐
Name of Respondent ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
Father's Name ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

1.0 SOCIO-ECONOMIC

1.1 Education (Respondent Education)
1) Illiterate ☐ 4) Below High School ☐
2) Literate ☐ 5) Intermediate ☐
3) Primary to Middle ☐ 6) Graduation & above ☐

1.2 Total members in the household Adult Male ☐☐ Adult Female ☐☐ Children ☐☐

1.3 Monthly income of the household Rs. _____

1.4 Occupation
1) Service – Govt./Private ☐ 3) Daily Wagers ☐
2) Self-employed (Specify) _____ 4) Other (specify) _____

1.5 Nature of house
1) Pucca ☐ 2) Semi-pucca ☐ 3) Kutcha ☐ 4) Hut ☐

1.6 That is your own house Yes ☐ No ☐
If no, rent paid monthly
1) Upto Rs. 50 ☐ 2) Rs. 51 to 100 ☐ 3) Rs. 101 to 200 ☐
4) Rs. 201 to 500 ☐ 5) Rs. 501 and above ☐

1.7 Is the dwelling electrified Yes ☐ No ☐
If yes, average monthly payment on electricity
1) Below Rs. 50 ☐ 2) Rs. 51 to 100 ☐ 3) Above Rs. 100 ☐

2.0 WATER SUPPLY

2.1 Source of domestic water
1) Handpump (Private/Public) ☐ 4) River ☐
2) Piped water supply ☐ 5) Others (specify) _____
3) Open well ☐

2.2 If water source not available within house, specify distance from water source (in meters) ☐☐☐

2.3 Do you pay for your water supply Yes ☐ No ☐
If yes, average yearly payment on water supply
(i) Upto Rs. 10 ☐ (ii) Rs. 11 to 20 ☐ (iii) Rs. 21 to 30 ☐ (iv) Above Rs. 30 ☐

3.0 HOUSEHOLD EQUIPMENT

3.1 Do you have the following in your house :
1) Scooter/M. Cycle ☐ 5) Phone ☐
2) Bicycle ☐ 6) Cooking Gas ☐
3) T.V. ☐ 7) None of these ☐
4) Transistor/Radio ☐

4.0 SANITATION

4.1 Where do you and your family members take bath ?

		Male	Female	Children
1)	Bathrooms (own house)	☐	☐	☐
2)	Community bathrooms	☐	☐	☐
3)	River	☐	☐	☐
4)	Wells	☐	☐	☐
5)	Handpumps (Public)	☐	☐	☐
6)	Others, Specify	_____	_____	_____

4.2 Did any one of your children or other members of the household suffer from diarrhoea during the last year ?

Yes ☐ No ☐

If yes, how many members ? Number of family members ☐☐

4.3 Where do family members go for defecation?

1) Own toilet ☐
2) Community toilet ☐
3) Open defecation ☐
4) Bucket/dry latrine ☐

4.4 If own toilet, so mention what kind of

1) Flush latrine ☐
2) Pourflush latrine ☐
3) Septic tank ☐
4) Pit ☐
5) Sewer ☐

4.5 What period the pit is generally filled up _____

4.6 Who cleans the pit ?

1) Scavenger ☐ 2) Ordinary labour ☐ 3) Self ☐ 4) Any other (specify)_____

4.7 What amount is spent on cleaning ☐☐☐☐

4.8 Where the pit contents are disposed of _____

4.9 Are you satisfied with the one pit latrine ? Yes ☐ No ☐

If no, reasons for dissatisfaction

1) Inconvenient when pit is filled up ☐
2) Problem in cleaning of pit as fresh excreta is to be handled ☐
3) Any other (specify) _____

4.10 Will you like to construct another pit so that when one pit is full, the other could be used ?

Yes ☐ No ☐

If no, reason (i) Have no space ☐ (ii) Can not afford ☐ (iii) Any other (specify) _____

4.11 If the House has no latrine do you use the community toilet Yes ☐ No ☐

If no, reason for dissatisfaction

(1) far distance ☐
(2) do not remain clean or unclean ☐
(3) can not afford to pay user-charge ☐
(4) social habit ☐

4.12 Would you like to construct an individual toilet ? Yes ☐ No ☐

4.13 If yes, do you have space for its construction ? Yes ☐ No ☐

Can you afford it ? Yes ☐ No ☐

If yes, then what you can contribute is its construction ?
1) Money (Financially) Rs. _____
2) Labour ☐

4.14. Can water flush latrine be built within the house ? Yes ☐ No ☐
If yes, then its disposal ?
(a) existing sewer ☐
(b) proposed sewer ☐
(c) If yes, distance from sewer (in metres)_____

4.15 If community toilet is constructed nearby, are you willing to pay for its use ?
Yes ☐ No ☐

If yes, how much amount you can pay ?

Monthly per family Rs. _____
Per use per person Rs. _____

4.16 Are you aware of open-air defecation ills?
Makes neighbouring environment foul and dirty Yes ☐ No ☐
Injurious to health Yes ☐ No ☐
Any other (specify) _____

5.0 SHARING OF COST

5.1 Besides your contribution, would you like to take loan for construction of latrine ?
Yes ☐ No ☐

If yes, how much would you be able to pay per month to pay back the loan ? Rs. _____

Appendix C

Appendix C Population, Estimated Population to be Served by CTCs and Existing and Proposed CTC

Sr. No.	Name of Slum	Population	Populationa to be served by CTCs	Existing CTCs		Proposed CTCs			Name of CDS
				No. of CTCs	No. of WCs	5 seater	10 seater	20 seater	
	Dayanagar	1326	106	1	10				Manglam
1	Chhittupur	3000	240				1		
2	Sigra Harizan Basti	996	80			1			
3	Chandua	1000	80			1			
4	Madhopur	1928	154				1		
5	Shivpur Jaipraskash Nagar	2211	177				1		
6	Madhopur/Dhobiyana	1938	155				1		
7	Lahartarabaulia	4200	336			1	1		Wama
8	Lahartara Naibasti	3850	308	1	20				
9	Lahartara Misipur	2000	160				1		
10	Chhittupura Harizan Basti	3500	280				1		
11	Lakhrao	2100	168				1		Asdishakti
12	Chhoti Patiya	2600	208				1		
13	Bari Patiya	2400	192				1		
14	Tulshipur Harizan Basti	2500	200				1		
15	Shivratanpur	1500	120			1			
16	Goyanka Gali	1250	100			1			*1 Gyanwapi
17	Nariya Harizan Basti	6250	500	1	10		1		
18	Bhogabir	5000	400					1	
19	Bhikharipur	3400	272	1	10				*1 Alaknanda
20	Chitaipur	3300	264				1		
21	Newada	3100	248	1	20				
22	Bajardiha	3000	154				1		Varanasi
23	Murgiya	1000	80			1			
24	Sarai Surjan	1500	120	1	10				
25	Faruki Nagar	2000	160				1		
26	Jolaha	1500	120			1			
27	Maqdam Baba	1500	120			1			
28	Sunderpur	4000	320	1	10	1			Maa Sraswati
29	Sunderpur Harizan Basti	1800	144			1			
30	Batuapur	1420	114	1	10				
31	Sarainandan Khurd	1500	120			1			
32	Sarainandan Shukulpura	1800	144			1			
33	Gaddarpur	1450	116			1			
34	Jiwadhipur	500	40			1			
35	Tadiya	850	68			1			
36	Sarainandan	725	58			1			
37	Ranipur	3200	256	1	10				*2 Sabla
38	Tulshipur	3500	280	1	10				
39	Panchpedwa / Mahmurganj	2100	168	1	5	1			
40	Shivpura	3150	252	1	10				
41	Jaikkha	2500	200				1		
42	Adityanagar	7000	560					1	*2 Shivangi
43	Karamjitpur	2500	200				1		
44	Karaudi	1500	120	2	10				
45	Ghasiyari Tola	1325	106	1	20				Maa Durga
46	Durga Kund	1270	102	2	10				
47	Nawabganj	350	28			1			
48	Shukulpura	1290	103	1	10				
49	Nagwa Nala	3000	103	2	10	1			Lanka
50	Tahipur Nagwa	800	64	1	10				
51	Shanbhudra	500	40			1			
52	Bhadaini / Dawariyabir	1500	120	1	20				
53	Mallahi Tola	1000	80			1			
54	Birodpur	1000	80			1			Rani Laxmibayee
55	Bari Gaibi	2000	160	2	10				
56	Vinayak Harizan Basti	1000	80			1			
57	Shakuldhara	995	80	1	10				
58	Manikpur	1000	80			1			
59	Sudamapur	3000	240				1		
60	Khojawan	2000	160				1		
61	Jyodhipur	2000	98			1			

Sr. No.	Name of Slum	Population	Populationa to be served by CTCs	Existing CTCs		Proposed CTCs			Name of CDS
				No. of CTCs	No. of WCs	5 seater	10 seater	20 seater	
62	Tadiya Chakbihi	1500	120			1			Sarang Talab
63	Mabaiyan	1500	120			1			
64	Sarang Talab	3000	240				1		
65	Singhpur Harizan Basti	1000	80			1			
66	Khajuhi	1500	120			1			
67	Baraipur	1000	80			1			
68	Gadighat	885	71			1			
69	Pahdiya	2000	160				1		
70	Haweliya	1000	80			1			
71	Pagalkhana Post Chamrautiya	1100	88			1			Wamangi
72	Pandeypur	1500	120			1			
73	Lalpur / Pisanhariya	1000	80			1			
74	Ramrepur	1500	120			1			
75	Pandeypur Harizan Basti	1000	80			1			
76	Taktakpur	2000	160				1		
77	Daulatpur	1000	80			1			
78	Akatha	1215	97			1			
79	Parshurampur	1500	120			1			
80	Benipur	1500	120			1			
81	Saraiya North	1000	80			1			Vishal
82	Saraiya South	8000	640			1		1	
83	Saraiya Bharauti	4000	320			1	1		
84	Saraiya Malibag	5000	400					1	
85	Rajbhandar	2000	160				1		
86	Paharpur Pucki Bazar	2000	160				1		Gangotri
87	Gilat Bazar	1115	89			1			
88	Ambedkar Mahal	1000	80			1			
89	Pucki Bazar Khajuri	2000	160				1		
90	Suarbarba	500	40	1	10				
91	Kasayee Basti Pucki Bazar	3000	240				1		
92	Chamrautiya	3000	240	1	5	1			
93	Pulkohna	3800	304	1	10	1			Sarnath
94	Rasulgarh	1615	129			1			
95	Dayanagar	1500	120			1			
96	Deendayalpur	3100	248				1		
97	Roopanpur	2700	216	1	10				
98	Pulkohna Rabhar	1700	136			1			
99	Konia	2300	184				1		Konia
100	Konia Satti	6000	480					1	
101	Palang Shahid	5800	464					1	
102	Konia Mahmudpura	1715	137			1			
103	Dulhigarhi	1000	80	1	20				Chaman
104	Amanullapura	4000	320			1	1		
105	Kamalgadha	1000	80			1			
106	Oripura	2000	160				1		
107	Phulbariya Dhobiyana	3000	240				1		
108	Inderpur	800	64			1			Utthan
109	Inderpur Harizan Basti	700	56			1			
110	Kadipur	900	72			1			
111	Laxmanpur 976	2000	160				1		
112	Katbatiya	650	52			1			
113	Shivpur Harizan Basti	600	48	1	10				
114	Chuppepur	500	40			1			
115	Usharpurba	300	24			1			
116	Tarna	500	40			1			
117	Chhatripur	600	48			1			
118	Shivpur Kot	450	36			1			
119	Bharlayee	1600	128			1			
120	Shuddhipur	1800	144			1			
121	Bhagatpur	500	40			1			

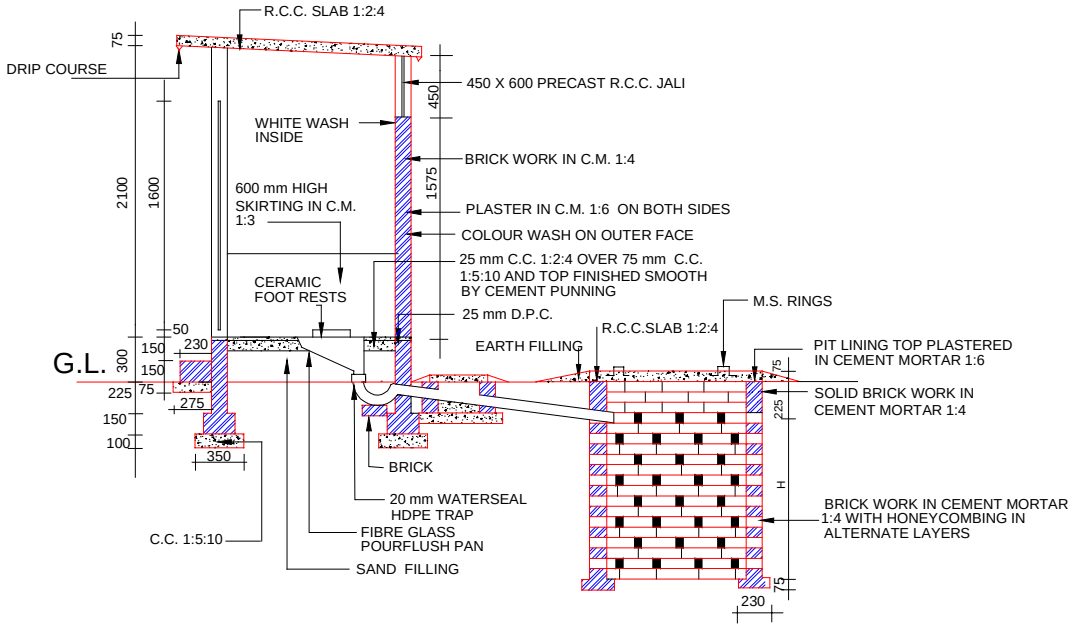
Sr. No.	Name of Slum	Population	Populationa to be served by CTCs	Existing CTCs		Proposed CTCs			Name of CDS
				No. of CTCs	No. of WCs	5 seater	10 seater	20 seater	
122	Hukulganj	750	60			1			*3 Akshay
123	Delwariya	8691	695	1	10	1	1		
124	Lachhipura	1250	100			1			
125	Ghausabad	1130	90			1			
126	Mallahi Tola	250	20			1			
127	Amarpur	1000	80			1			*3 Aman
128	Nakkhi Ghat	6000	480	1	10		1		
129	Amarpur Batlohia	1000	80			1			
130	Shakkar Talab	2000	160				1		
131	Shailputri	2000	160				1		
132	Sarsauli	1800	144			1			Kaliyan
133	Anaula	2200	176				1		
134	Narayanpur	2300	184	1	5	1			
135	Meerapur Bashi	2550	204				1		
136	Nawalpur	1600	128			1			
137	Paramanandpur	990	79			1			
138	Maheshpur	1300	104			1			
139	Gilat Bazar	890	71			1			
140	Kuspalpur	680	54			1			
141	Bashi	2655	212				1		
142	Nai Basti Hukulganj	5118	409					1	Jagriti
143	Baghwanala	1938	247				1		
144	Ruppanpur	1750	140			1			
145	Nanhupur	1074	86			1			
146	Paigamberpur	1276	102			1			
147	Bakarabad	3000	240				1		Nari Sewa
148	Rasulpura	3000	240				1		
149	Kajishah Dulhapur	4000	320			1	1		
150	Raja Bazar	1267	101			1			Navjyoti
151	Telyabag	1550	124			1			
152	Jagatganj	557	45			1			
153	Telyana Chetganj	1680	134	1	20				
154	Laxmighat	832	67			1			
155	Bari Maldahiya	1954	156	1	10				
156	Varunapool	2221	178				1		
157	Nadesar	2975	238				1		
158	Pathani Tola	6839	547					1	Azad
159	Alampura	2768	221				1		
160	Soga Gadahi	4255	340			1	1		
161	Chandupura	990	79			1			
162	Ansarabad	4010	321			1	1		Sagar
163	Kajjakpura	1031	82			1			
164	Jallalipura	4000	320	1	20				
165	Latbhairav	1800	144	1	20				
166	Alaipura	4322	3242				1	5	
167	Kajipura Khurd	4692	375			1	1		kal Bhairav
168	Matakund	3800	304				1		
169	Pitarkunda	1200	96	1	10				
170	Lalalapur Musalman Basti	1850	148			1			
171	Sonia West	1380	110			1			
172	Amarnagar H.B.	1500	120			1			
173	Matakund H.B.	1150	92			1			
174	Trilochan Bazar	980	78			1			Maa Ganga
175	Prahalad Ghat	2175	174				1		
176	Fatak Tali Ali Khan	1394	112			1			
177	Naya Mahadev / Bhaisasur	3176	254				1		
178	Rajmandir	1000	80			1			
179	Rajghat / Khirkiyaghat	1180	94			1			
180	Bhadau	777	62	1	10				
181	Teliyanala	1050	84			1			
182	Golaghat	1506	120			1			
183	Bachuyi Lalghat	940	75			1			

Sr. No.	Name of Slum	Population	Populationa to be served by CTCs	Existing CTCs		Proposed CTCs			Name of CDS
				No. of CTCs	No. of WCs	5 seater	10 seater	20 seater	
184	Manikarnika g	540	43			1			Vishwanath
185	Rewri Talab	521	42			1			
186	Saraigobardhan	1965	157				1		
187	Lahangpura / Aurangabad	1256	100	1	10				
188	Jangambari	1500	120			1			
189	Rmapura	1450	116			1			
190	Sonarpura	1000	80			1			
191	Shivala	980	78	1	20				
192	Meerbag Khatikan	967	77			1			
193	Beniyabag Harizan Basti	545	44	1	10				
194	Faridpur	536	43			1			
195	Amarnagar Sonia	1420	114			1			Vindhaybasini
196	Lallapura Musalman Basti	3750	300				1		
197	Sonia	1284	103			1			
198	Kajipura Sonia	1315	105			1			
199	Machhodri Park	1428	114	1	20				Baba Shekh
200	Salimpura	3376	270				1		
201	Hasanpura	2783	223				1		
202	Kudman Shahid	2394	192				1		
203	Katuapura	1878	150			1			
204	Koyala Bazar	1503	120			1			
205	Kameshwarmahadev	1110	89			1			
206	Ausanganj	2000	160				1		Maa Dhupchandi
207	Piyaria Pokhari	839	67			1			
208	Bunkar Colony	1489	119			1			
209	Senpura	1115	89	1	10				
210	Telyabag	1357	109	1	20				
211	Chhoti Maldahya	998	80	1	10				
212	Nawapura (Daraganj	1383	111			1			
213	Sonarpura H.B.	800	64			1			
214	Nai Basti Nati Emali	1500	120	1	10				
215	Narharpura	1500	120			1			
216	Labour Colony	1367	109			1			
217	Adampura	2676	214				1		Benjeer
218	Om Kaleshwar	4829	386	1	20				
219	Chhitanpura	4915	393			1	1		
220	Nawapura	3604	288				1		
221	Phoolwaria	950	76			1			
222	Bandhu Kachibag	1029	82			1			Kashi
223	Ushmanpura	1633	131			1			
224	Bakariyakund	2325	186				1		
225	Khwajapura	3489	279				1		
226	Jainpur Chhohra	2192	175	1	10				
227	Salarpura	1265	101			1			
		457568	39309			127	65	13	33

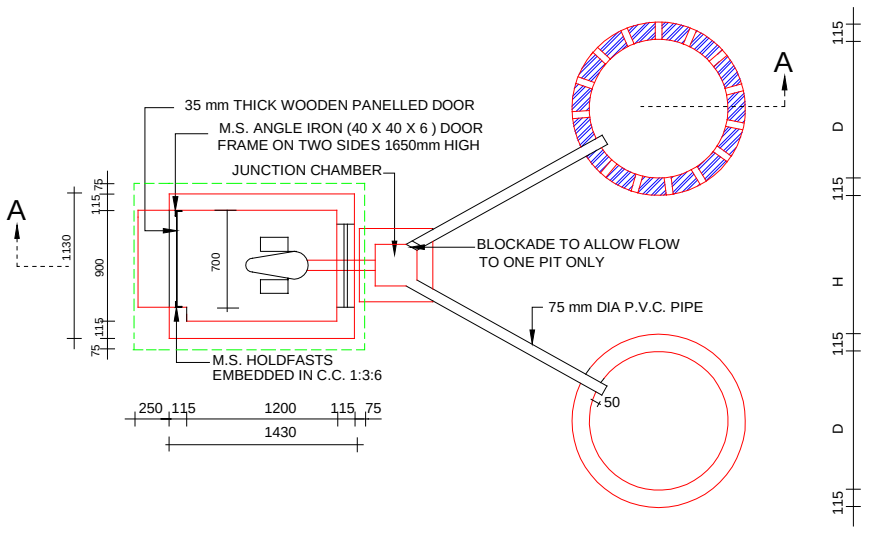
*1 Gyanwapi and Alaknanda have been combined into one for CTC programme
*2 Sabla and Shivangi have been combined into one for CTC programme
*3 Akshay and Aman are already combined into one group

Appendix D

Appendix D Twin-pit Pour-flush Toilet



SECTION A-A



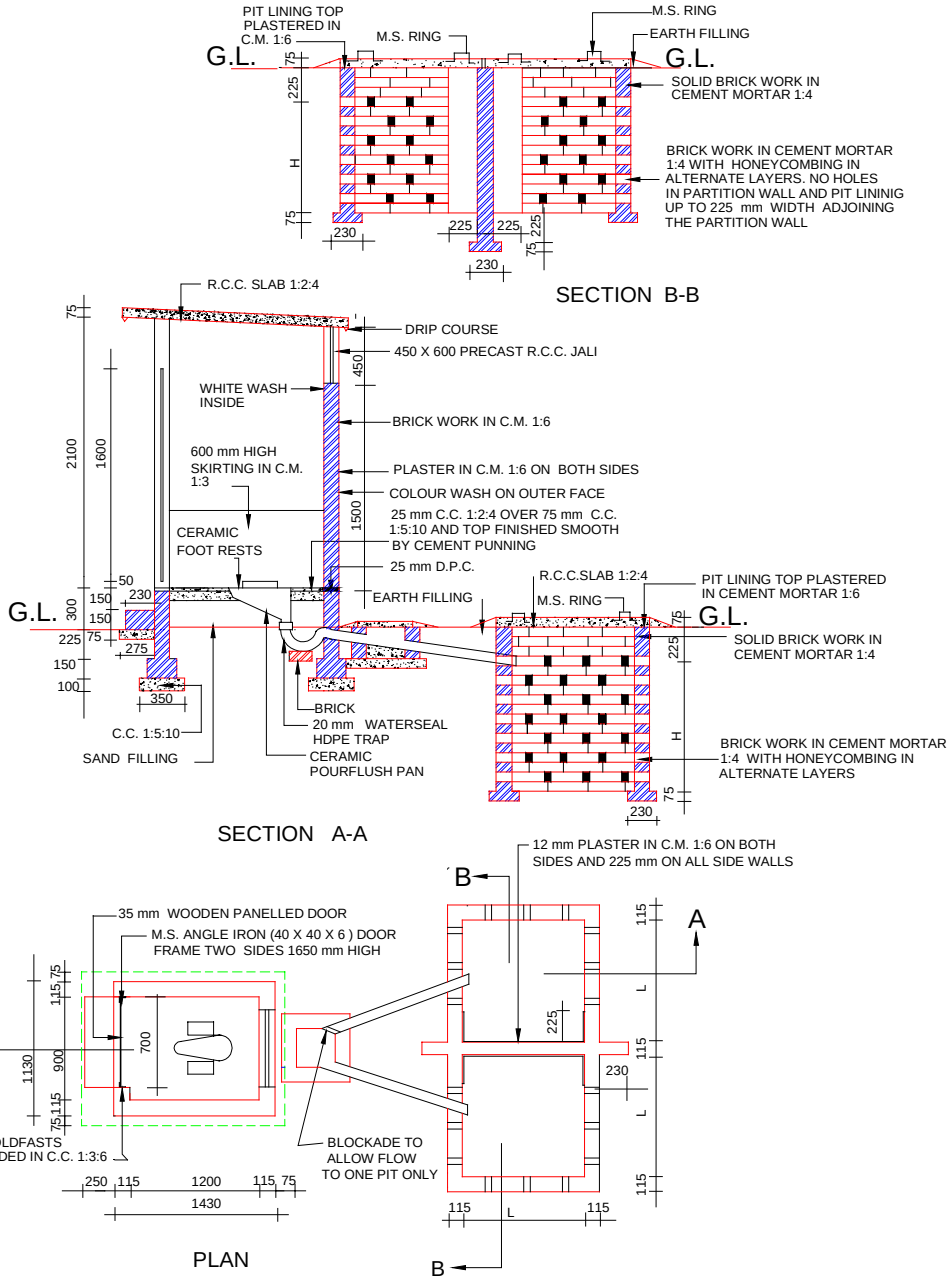
PLAN

USERS	D	H
5	1000	1000
10	1300	1200
15	1500	1200

NOTE:

THE SIZE OF HOLES IN HONEYCOMBING SHOULD BE 50 mm .
IN SANDY SOIL OR WHERE SAND ENVELOPE IS PROVIDED OR WHERE THERE ARE CHANCES OF DAMAGE BY FIELD RATS, THE WIDTH OF HOLES BE REDUCED TO 12 TO 15 mm OR VERTICAL JOINTS IN ALTERNATE BRICK LAYERS BE WITHOUT MORTAR

POUR FLUSH LATRINE WITH CIRCULAR LEACH PITS



USERS	L	H
5	950	1000
10	1200	1100
15	1400	1200

NOTE:

THE SIZE OF HOLES IN HONEYCOMBING SHOULD BE 50 mm . IN SANDY SOIL OR WHERE SAND ENVELOPE IS PROVIDED OR WHERE THERE ARE CHANCES OF DAMAGE BY FIELD RATS, THE WIDTH OF HOLES BE REDUCED TO 12 TO 15 mm OR VERTICAL JOINTS IN ALTERNATE BRICK LAYERS BE WITHOUT MORTAR

POUR FLUSH LATRINE WITH RECTANGULAR LEACH PITS

Appendix E

Appendix E Minutes and Conclusions of Workshop on Slums and Dhobighats

Venue : Hotel Taj Ganges
Date : 11th May 2004
Time : 4.30 p.m. to 9.00 p.m.

Final workshop was organized by SISSO in collaboration with JICA on May 11, 2004 at Hotel Taj Ganges, Varanasi on Feasibility Study of non-sewerage schemes on pollution abatement of the Ganga river in Varanasi. The main objectives of the workshop were to discuss various issues and problems with representatives of stakeholders, public leaders, social organizations Govt. Departments, local bodies, CBOs etc. and the status of sanitation practices in individual and community toilets, of open defecation, infrastructure facilities, affordability for providing sanitary facilities, financial resources for O&M of IHLs, CTCs and dhobighats. The objective was also to obtain views and suggestions of participants for improvement of unsatisfactory conditions and the solution for abatement of pollution of the Ganga river. Participants from various sectors of society took part in the workshop and discussed the matter in details.

The names of the participants are as under :

1. Mr. Amar Nath Yadav, Mayor, Nagar Nigam, Varanasi
2. Mr. R. P. Arora, Nagar Commissioner, Nagar Nigam, Varanasi
3. Mr. G.P.N. Singh, Project Officer, DUDA - Varanasi
4. Mr. S.P. Shukla, Assistant Project Officer, DUDA, Varanasi
5. Mr. H. B. Mamgoyee, Assistant Project Officer, DUDA, Varanasi
6. Mr. H. R. Rizvi, Accountant, DUDA, Varanasi
7. Ms. Shouko Yamada, Specialist, Public Health and Hygiene Education, JICA
8. Mr. Ajay Singh, Programme Coordination, JICA
9. Mr. Arvind Pandey, JICA Study Team
10. Mr. Anurag, Press Reporter, Times of India
11. Mr. Sanja Gupta, Press Reporter, Times of India
12. Mr. Sanjay Singh, Field Officer, Labour Deptt., Varanasi
13. Dr. Arvind Kumar Joshi, Reader, Department of Sociology, BHU, Varanasi, Resource Person
14. Dr. Sanjay, Reader, Department of Social Work, M.G. Kashi Vidyapith, Varanasi, Resource Person
15. Dr. U. S. Lal, Dy. Health Officer, Nagar Nigam, Varanasi
16. Mr. Arvind Kumar Singh, Social Worker
17. Mr. Abdul Wadud, Stakeholders, Bajardiha
18. Mr. Neyaludin, Stakeholder, Barjardiha
19. Kumari Kiran Bharti, President, CDS, Jagambari
20. Mr. R. P. Kushwaha, Stakeholder
21. Mr. Ajay Kumar, Stakeholder and President, Dhobi Maha Sangh, Daranagar
22. Mr. Sonu, Stakeholder
23. Mr. Ajay Kumar Chauhan, DUDA, Varanasi
24. Mr. Keshav Kumar, Stakeholder
25. Mr. Rakesh Kumar, Stakeholder, Darnagar
26. Mr. Jay Shankar Singh, Stakeholder, Roadways
27. Mr. Kishore Kumar, Stakeholder, Teliyabag
28. Mr. Bansidhar, Stakeholder, Nadesar
29. Mr. Shatrughan Singh, Stakeholder, Kabir Chaura
30. Ms. Papu Singh, Stakeholder, Bhelupur
31. Mr. G. P. Khare, Project Engineer, Ganga Pollution Control Unit, Varanasi
32. Mr. Sanjay Singh, Stakeholder, Cantonment Board
33. Mr. Virendra Sahani, Stakeholder, Nadesar

34. Mr. Deepak Kanaujia, Stakeholder, Nadesar
35. Mr. Mohan Lal, Stakeholder, Raja Bazar
36. Mr. Muna Lal, Stakeholder, Raja Bazar
37. Mr. Jiya Lal, Stakeholder, Nadesar
38. Mr. Ram Prasad, Stakeholder, Nadesar
39. Mr. Devendra, Stakeholder, Nadesar
40. Mr. L. P. Kanaujia, District President, Dhobi Association
41. Mr. Chandu Lal Kanaujia, Stakeholders, Kashiraj
42. Mr. Lalan Kanaujia, Stakeholder, Kashiraj
43. Mr. Manjhagee Rai, Stakeholder, Hanuman Ghat
44. Mr. P. K. Kanaujia, Stakeholder, Sonarpura
45. Mr. Rejesh Singh, Stakeholder, Nai Basti
46. Mr. Dinesh Kumar, Stakeholder, Sonarpura
47. Mr. Bhaiya Lal Kanaujia, President, U.P. Dhobi Welfare Association
48. Mr. Nizam, Stakeholder
49. Mr. Geeta Shastri, Stakeholder, Assi
50. Mr. Vinod Kumar Dubey, Assi
51. Mr. S. L. Kanaujia, Stakeholder, Hanuman Fatak
52. Mr. Ramji Kanaujia, Stakeholder, Hanuman Fatak
53. Mr. A. K. Kanaujia, Stakeholder, Baluwa Dih
54. Mr. L. K. Kanaujia, Stakeholder, Hanuman Fatak
55. Mr. C. L. Kanaujia, Stakeholder, Sigra
56. Mr. B. L. Kanaujia, Stakeholder, Madhopur
57. Mr. Sakti Singh, Student, Nagar Nigam Colony
58. Mr. Durga Bati, President, CDS
59. Mr. Kishan Chaudhary, Stakeholder, Nadesar
60. Mr. Kailashjee, Stakeholder
61. Mr. Shivjee, Stakeholder, Madhopur, Sigra
62. Mr. Sahavi Lal, Stakeholder, Madhopur, Sigra
63. Md. Allid, Stakeholder, Nadesar
64. Md. N.P. Siraz, Stakeholder, Dhausabad
65. Mr. R. K. Kanaujia, President, Publicity Dhobi Association, Daranagar
66. Mr. Vijay Kanaujia, Treasurer, Dhobi Association, Daranagar
67. Ms. Sarita Bano, President, CDS, Bajardiha
68. Mr. Samsuddin, Stakeholder, Bajardiha
69. Mr. Sailendra Kumar Tripathi, Stakeholder, Nagwa Nala
70. Mr. Govind Kumar Ranjan, Stakeholder, Nagwa Nala
71. Mr. V. K. Kanaujia, Stakeholder, Daranagar
72. Mr. Rajesh Mukh, Press Report, Amar Ujjala
73. Prof. S. P. Srivastava, Sociologist, Lucknow University
74. Ms. Susmita Shekhar, Sr. Vice President, SISSO, Key Person for Public Participation and Awareness
75. Prof. S. Tripathi, Chairman, Sulabh International Centre for Action Sociology (SICAS), Key Person (Sociology)
76. Mr. H. S. Chourasia, Adviser, Sulabh International Institute of Technical Research and Training (SIITRAT), Project Team Leader
77. Mr. R. P. Mathur, SISSO, Varanasi
78. Mr. Baleshwar Prasad, SISSO, Civil Engineer
79. Mr. J. P. Uniyal, SIITRAT, Draftsman
80. Mr. Gopal Prasad, SIITRAT, Computer Operator

Ms. Susmita Shekhar, Senior Vice President, SISSO, conducted and articulated the discussions.

Mr. S. Tripathi, Chairman, SICAS, Key Person (Sociologist) welcomed the participants and distinguished guests on behalf of Japan International Cooperation Agency and Sulabh International Social Service Organistion study team. Mr. Tripathi praised the Mayor, Nagar Nigam Varanasi for his concern with the problems of sanitation in the city and efforts made to get rid of them. Mr. Tripathi, welcoming the Nagar Commissioner, expressed his pleasure on commitment and contribution shared by him in regard to the problems. Mr. Tripathi congratulated JICA for taking up the study and selecting of SISSO to complete this assignment. Further, he welcomed all the participants for sparing their precious time for workshop and hoped that the program launched by JICA would prove as a successful and symbolic story of public participation in solving the problems and issues of sanitation and river pollution.

Mr. Ajay Singh, Project Coordinator, JICA welcomed and informed the participants that JICA is preparing a Master Plan to solve the problems of sanitation and river pollution in four cities in India viz. Varanasi, Allahabad, Kanpur and Lucknow through sewerage and non-sewerage activities. He briefly described the aims and objectives of the workshop and various factors related to non-sewerge activities, like open defecation, dry latrines, dhobighats, solid wastes etc. He invited the comments, suggestions modifications and requested cooperation from all the participants to give their views and suggestions on the findings of the study conducted by Sulabh on the basis of surveys and FGDs at grass root level in sample areas/locations.

Mr. Amar Nath Yadav, Mayor, Nagar Nigam Varanasi, appreciated the role and efforts of JICA in preparation of feasibility study in regard to cleaniners of Varanasi, prevention of pollution of Ganga river caused due to open space defecation and wastes from dhobighats and improvement of environment. He also emphasized that the plan and its implementations should be according to the needs and demands of beneficiaries, sustainable and affordable to the communities. He expressed displeasure on inadequate coordination between executing agencies and Nagar Nigam in the past and helped that JICA would put an extra ordinary example in handling and improving the present insanitary scenario of Varanasi.

Mr. H. S. Chourasia, Project Team Leader, SISSO, presented the contemporary socio-economic scenario of slums and dhobighats and the outcomes of sample surveys. According to the data collected from DUDA, Varanasi, there are 227 slums with population of 4,57,568 which is about 30% of the total population of Varanasi city. Regarding dhobighats there exists 3 pucca dhobighats and 29 traditional dhobighats along the bank of the Ganga and Varuna rivers. Mr. Chourasia also displayed different models of proposed dhobighats, IHLs and CTCs as per the requirement of the community. The salient features as revealed from the surveys are :

1. Slums

Total Population of Varanasi Town (Cencus Year 2001)	-	13,25,167
Nos. of Slums	-	227
Population of Slums (35% of total Population)	-	4,57,568

Names of Sampled Slums :

Baghwa Nala (Non Sewered Area)
Alaipur (Non Sewered Area)
Bajardiha (Sewered Area)
Nagwa Nala (Sewered Area)
Jyodhipur (Sewered Area)

Nos. of respondents	-	832

Average no. of members in a family	-	10.25

Per month Income of a family

❑ Upto Rs. 2,500	-	65.00%
❑ Above Rs. 2,500	-	35.00%

Type of House

❑ Pucca	-	44.00%
❑ Semi Pucca	-	38.00%
❑ Kutcha and Jhuggies	-	18.00%

Water Supply

❑ By Jal Sansthan	-	29.00%
❑ Hand Pumps	-	51.00%
❑ Other sources (Wells, River)	-	20.00%

Availability of Toilets (on the basis of households)

❑ Individual Toilets	-	62.00%
❑ Community Toilets	-	08.00%
❑ No Toilets (Defecate in open)	-	30.00%

Disposal of excreta from Individual toilets

❑ Sewers	-	48.00%
❑ Septic tanks	-	03.00%
❑ Single Pits	-	35.00%
❑ Drains	-	14.00%

From Single Pit Toilets

❑ Dissatisfied	-	94.00%
❑ Satisfied	-	06.00%

Reasons for Dissatisfaction

❑ Difficulty in using toilet when pit is full	-	67.00%
❑ Difficulty in Desludging pit	-	27.00

Willingness to construct another pit with single pit toilets

❑ Yes	-	51.00%
❑ No	-	49.00%

Reasons for not constructing second pit

❑ Lack of space	-	17.00%
❑ Lack of finance	-	24.00%
❑ Others	-	08.00%

Willingness for constructing individual toilets

- Houses having no toilets (30%) - 21.50%
- Houses with toilet with disposal in drains - 08.50%

Willingness to use community toilets

- Houses having no toilets (30%) - 08.50%
- No. of families willing to construct individual toilets (50%) - Due to time taken in construction - 15.00%

Proposals

Nos. of twin pit pour flush toilets (For 5, 10 & 15 Users) - 13,152

Total No. of Community Toilets - 284

- 05 seated - 59 Nos.
- 10 seated - 123 Nos.
- 15 seated - 102 Nos.

Financial source for cost of construction

- For Individual house hold toilets
  - Central & State Governments (Jointly)
  - State Government
  - Other Financial Institutions
- For Community toilets
  - Central & State Governments (Jointly)
  - State Government
  - M. Ps/M.L.As Fund
  - Other Financial Institutions

Model of Individual Toilets and Unit Cost

Drawings and Costs were displayed on screen

Operation and maintenance of individual toilets

- By Beneficiaries

COSTS OF COMMUNITY TOILET COMPLEXES

No. of seats in CTC	Cost Per Complex		
	Disposal through Septic tank	Disposal in Sewer	Disposal by Biogas Digester
5	3,75,000	3,25,000	-
10	7,00,000	6,00,000	-
15	13,00,000	11,00,000	17,00,000

Construction period for implementation - 3 years

OPERATION AND MAINTENANCE COSTS OF COMMUNITY TOILET COMPLEXES

In Rupees

No. of seats in CTC	No. of household	O&M cost per month					Total O&M cost per month	Charges to be paid by household
		Workers	Electricity and water	Cleaning material	Repairs	Cleaning of Septic Tank		
5	15	4900	800	500	350	850	7,400	493
10	30	4900	1150	1000	450	1650	9150	305
20	60	4900	1900	2000	600	3200	12600	210

Average : 336

1. Dhobighats

- Population of Dhobis (Estimated) 40,000
- Present Status of Ghat

  Pucca Ghats

  - Konia - 152 Cubicles - Maximum no. of cubicles in use - 50
  - Nadesar - 92 Cubicles - Maximum no. of cubicles in use - 50
  - Bhawania Pokhari - 30Cubicles - Maximum no. of cubicles in use - 30

  Temporary Dhobighats - 29
- Dhobighats surveyed
  - Pucca - 3
  - Temporary - 23
- Respondents
  - At Pucca Ghats - 91
  - At Temporary Ghats - 163
- Average quantity of cleaning materials used/dhobi/use
  - Soda - 0.7 Kg.
  - Detergent - 0.30 Kg.
  - Soap - 0.20 Kg.
- Average use of water / dhobi/use - 1500 Litre
- Disposal of Waste water
  - Konia - Pond/Sewer
  - Nadesar - Drain
  - Bhawania Pokhari - Drain
  - Temporary Ghats - River
- Problems

Pucca Ghats

- In adequate water supply
- Lack of space for drying clothes and resources
- In Security
- Lack of basic amenities – Toilet, Drinking water, rest house, Shed, Bhatti, Tub Boundry wall etc.
- Operation and maintenance
- Lack of sanitation
- Uncertaintity of responsibility
- Distance from residing places

- Awareness about pollutions and conservation of environment - Almost all

- Willingness for construction of new pucca ghats

  - Yes - 79%
  - No - 21%

- Willingness for financial contribution for operation and maintenance

  - Yes - 55%
  - No - 45%

- Selection of proper organization for operation and maintenance

  - Dhobi Association - 79%
  - Nagar Nigam - 19%
  - Others - 02%

- Financial contribution for construction of new ghats

  - Yes - 92%
  - No - 08%

- Willingness for construction of pucca ghats at suitable locations for dhobis working at temporary ghats

  - Yes - 100%

Proposals

- Development of Pucca Ghats

  - Konia
  - Nadesar
  - Bhawania Pokhari

- Construction of New Pucca Ghats

  - Models were displayed on screen

- Proposed location of pucca ghats for the rehabilitation of temporary ghats along the river and no. of cubicles at each location

1.	Shivpur Pond	-	30
2.	Pandey Pur	-	30
3.	Benia Bagh	-	30
4.	Khajuri (Sarnath)	-	30
5.	Madhopur Sigra	-	60
6.	Bhelupur	-	90
7.	Raj Mandir (Near Sulabh Shauchalaya)	-	30

- Cost of construction

  - New Pucca Ghats Rs. 177.5 Lakhs
  - Renovation of old Pucca Ghats Rs. 32.5 Lakhs

- Financial source for construction cost

  - Central/State Government (Jointly)
  - M.Ps/M.L.As. Fund
  - Other Financial Institutions

- Construction of new pucca ghats – repayment of cost (Estimated cost 17.75 lakhs for one unit of 30 cubicles)

  - Per Dhobi per month (In eight years) Rs. 100.00

- Operation and maintenance charges of new and old pucca ghats (For one unit of 30 Cubicles)

Item	Annual Expenditure (Rs.)
Repair works (2% of cost)	35,500
Electric Charges	70,000
Guard – one	36,000
Sweeper	26,400
Cleaning materials	36,500
Total	**2,04,400**

Per Dhobi per month charge $= \frac{2,04,400}{180 \times 12} \cong$ Rs. 100.00

After presentation of finding from surveys and display of various proposed models, Mr. Chourasia invited suggestions and views of the stakeholders on the data collected by SISSO on prevailing conditions of households, community toilets and household toilets and dhobighats and proposals prepared to improve the same.

Mr. R. P. Arora, Nagar Commissioner, Nagar Nigam Varanasi agreed with the outcomes of the field surveys and observations made by the participants regarding the problems in slums areas and dhobighats. He advocated for the construction of pour-flush twin pit latrines in non-sewered slum areas. He suggested that PP and PA programme should be organized to make the people aware of the ill effects, so that they may take their own initiatives in this direction. Regarding O&M of CTCs and

dhobighats, he suggested to form CBOs to manage and generate funds for the same. He requested participants to express their views and suggestions freely and frankly to solve their problems and prepare the plans which will be acceptable to them and sustainable.

Suggestions and views of representatives of stakeholders/stakeholder :

Mr. Bhaiya Lal Kanaujia, President, U.P. Dhobi Welfare Association expressed his suggestions and views as :

i) Locations recommended for construction of new dhobighats are suitable and acceptable to the dhobi commuity.
ii) Newly constructed dhobighats should be within a distance of 2 km from settlements of dhobis.
iii) Locations and areas of dhobighats should be registered in the book of Property Department of Nagar Nigam Varanasi to avoid misuse of land for other activities or encroachments in future.
iv) Boundary wall should be constructed around dhobighats to check theft of clothes or avoid inconvenience faced by dhobis.
v) Any type of taxation on the use of electricity and water should not be imposed on dhobis
vi) Nagar Nigam is legally bound to the construct dhobighats and provide electricity and water free of cost.

Ms. Gita Shastri suggested to remove electricity transmission wire passing over Bhawania Pokhari, dhobighat, otherwise it can cause a disastrous accident if it falls.

On the recommended options to IHLs and CTCs, the stakeholders and their representative articulated as :

- Subsidy should be provided for the construction of IHLs as most of the beneficiaries are poor.
- Govt. should arrange for loans from banks on soft terms for the construction of IHLs
- Location of CTCs should be chosen in consultation with local bodies and beneficiaries.
- PP/PA programme should be organized prior to the implementation of LCS schemes to promote and generate civic sense, create awareness and get participation from the communities concerned.
- CTCs should be operated and maintained by NGOs/CBOs but the monitoring should be done by the construction agencies.
- Users card should be made on the basis of members in a family one card for every five members.

Prof. S. P. Srivastava, Lucknow University and Advisor to SISSO proposed a vote of thanks to all the distinguished guests and participants for making the workshop a great success. He expressed the gratitude to media-persons and whole study team of the project, who worked day and night for the completing the objectives and preparation of the study report.

Appendix F

Appendix F Survey Sheet (Dhobighats)

SURVEY SHEET FOR ABATEMENT OF POLLUTION (IN REGARD TO DHOBIGHATS) IN THE RIVER GANGA IN CITY OF VARANASI

INTERVIEW SCHEDULE

The following information is proposed to obtain from the respondents regarding the present status of sanitation conditions, facilities provided, the prevalent practices and suggestions to improve the institutional and operational mechanism for their maintenance of Dhobighats.

1. Name of the respondent : ----------
   Address : ----------
   Tel. No. : ----------
2. Location : ----------
3. No. of persons/family members engaged in washing : ----------
4. Average no. of clothes washed everyday : ----------
5. Materials used for washing clothes :
   - Type of materials : ----------
   - Quantity in Kgm/day consumed : ----------
6. Sources of Water :
   - Source : ----------
   - Quantity in litres consumed per day : ----------
7. Disposal of Wastewater :
   - Is any treatment done : (Yes / No)
   - Disposal point :----------
8. Appropriate / sufficient place for drying clothes is available (Yes / No)
9. Are you a member of any association : (Yes / No)
   If yes, give details of Association : ----------
   ----
10. How much amount charged per item of Clothing : ----------
11. Are you satisfied with the present system for carrying out the washing practices (Yes / No)
    If 'No' give reasons : ----------

    ----
12. What do you think are the most important requirements for a Dhobighat (Mention in order of priority) ?
    - Water ----------
    - Platform ----------
    - Drying area ----------
    - Distance from home ----------
    - Provision for bhatti ----------
13. Do you think that the present system of washing clothes is polluting water of river Ganga (Yes / No)
    If 'Yes' what are your suggestions to check the pollution :
    1.
    2.
    3.

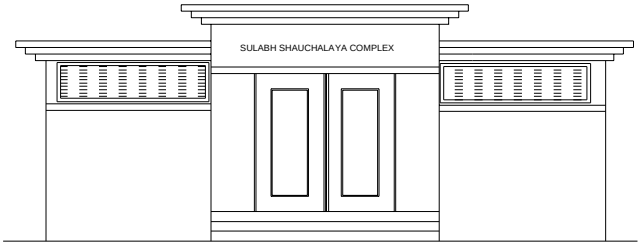
14.(a) Is there any need to re-design the Dhobighats in view of prevention of water pollution (Yes / No)
    If yes, what are your suggestions :
    1.
    2.
    3.

14.(b) Are you willing to contribute for the construction of Dhobighats (Yes / No)
    If yes, 1. In cash
    2. Shramdan
    3. Any other _____

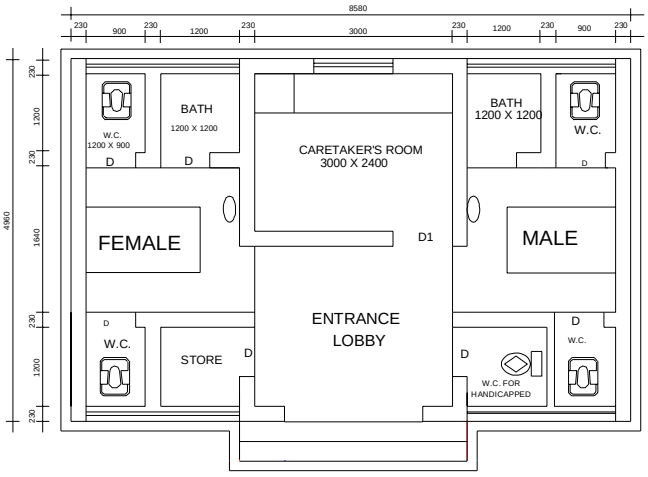
15. Would you like to pay extra charges for in facilities to be provided for improving dhobighats (Yes / No)
    If yes, indicate the amount per month which you can pay : ----------
16. How would you like to manage the ghats :
    1) Nagar Nigam : ----------
    2) Own Associations : ----------
    3) By partnership of Govt. & other agencies ----------
    4) Any other : ----------
17. Do you think the rate of washing need to be enhanced to meet the extra burden (Yes / No)
    If yes, indicate the revised rate of washing ----------
18. Any other suggestion/comments : ----------

Appendix G

Appendix G CTC Design

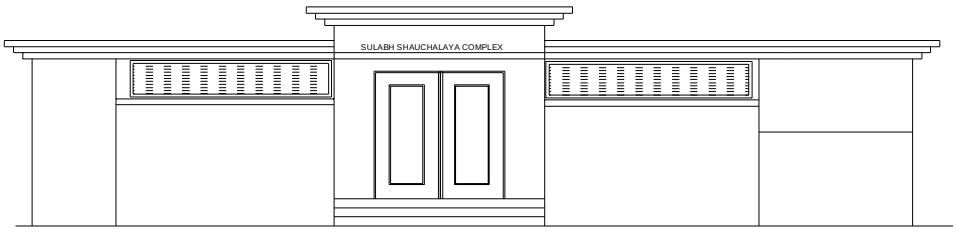


FRONT ELEVATION

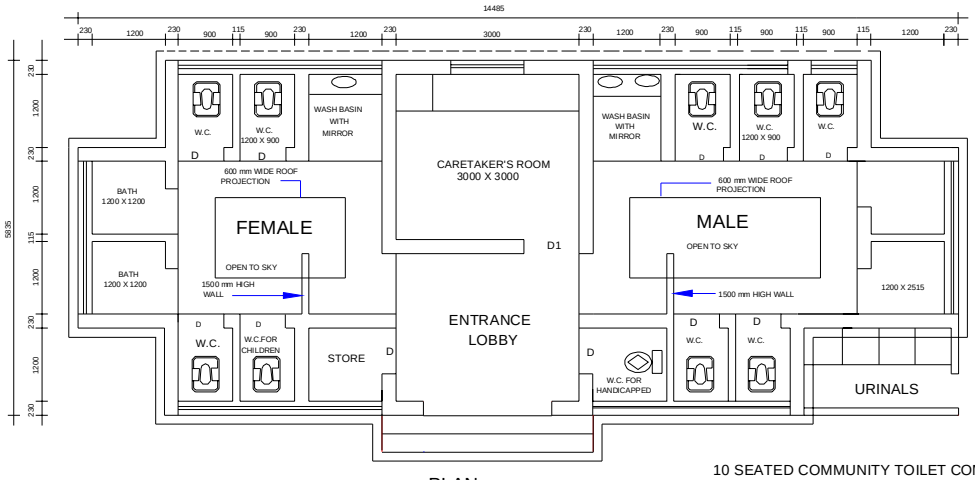


PLAN

5 SEATED COMMUNITY TOILET COMPLEX

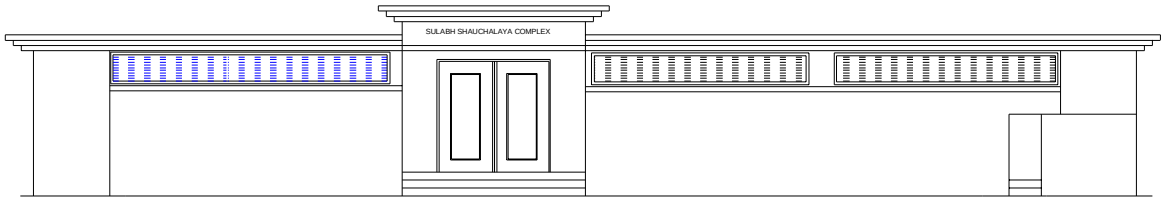


FRONT ELEVATION

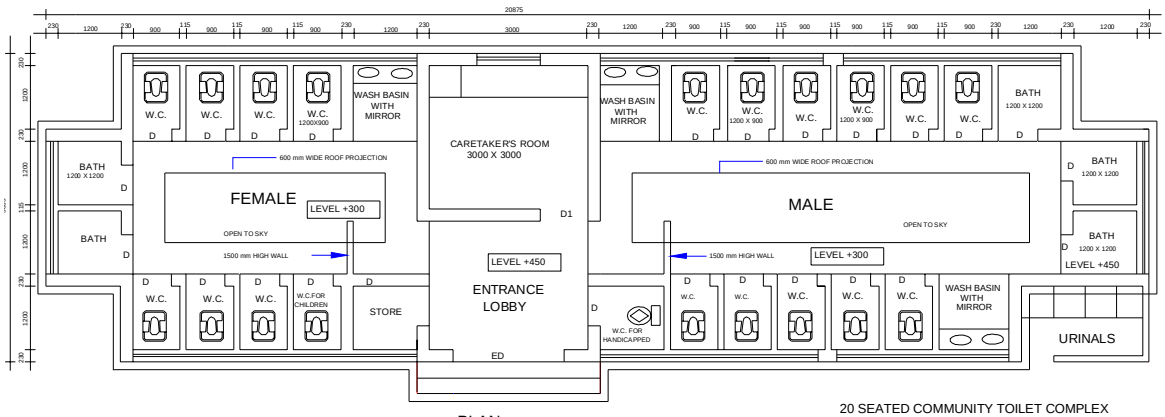


PLAN

10 SEATED COMMUNITY TOILET COMPLEX



FRONT ELEVATION



PLAN

20 SEATED COMMUNITY TOILET COMPLEX

Appendix H

Appendix H Guidelines for Supervising the Construction

1) Water supply, sanitary and electricity fixtures and other materials used should be of the quality specified in the design or of relevant standard specifications.

2) Prescribed specifications and drawings should be adhered to. The work should be neat and workmanship should be good.

3) If the work done departmentally or through labour contract, quantities of various materials used should be as per the specified requirements.

4) Cement should be used in specified proportion in the concrete, brick work and plaster.

5) RCC work has been provided with specified reinforcements. Pinning is to be carried out in such a manner that there are no voids.

6) Flooring and the dado have been laid as per the specifications, rubbed and polished well.

7) Flooring should have a slight slope towards the squatting pan in the case of latrine cubicle. In the case of other areas the slope should be towards the drainage points.

8) Curing of all cement works should be done as per the specifications.

9) Door frames for hanging the doors should be fixed firmly and the doors should be provided with bolting arrangement, inside and outside. .

10) Tube well should be bored upto the required depth.

11) Water reservoirs should be water tight.

12) There should not be leakage in the water pipe lines and drainage pipes.

13) i) Squatting pans and traps installed should be of designs specified for a pour flush toilet and these should be fixed properly so as to provide 20 mm water-seal.
ii) In case the community toilet block is connected to the city sewer, master trap should be provided before the connection of the sewer.

14) Foot-rests should be fixed at the proper place and at an angle to make them slightly away from the squatting pan in the front.

15) Invert of the outlet pipe in the septic tank should be 50 mm below the invert of the inlet pipe.

16) Ventilating pipes of at least 100 mm diameter should be provided in each septic tank.

17) For commissioning, the septic tank should be filled with water upto outlet level and seeded with a small quantity of sludge from some other septic tank in operation or digested cow dung.

18) If the community toilet block has been provided with septic tanks, only the toilets and urinals connected to the tank. Other wastewater should be disposed of separately.

19) Proper gradient should be provided in sewers and the drains. Inside surface of the drains should be made smooth.

20) Manholes and drains for carrying sewage should be well covered to prevent emission of foul odour.

21) Adequate electric light points should be provided inside and outside the community toilet.

22) All surplus materials should be removed and the site cleared and dressed.

Appendix I

Appendix I Guidelines For Looking After Operation And Maintenance By Supervisor

Name of Community Toilet Block _____

Name of the Supervisor _____

Date of visit _____

Time of visit _____

Daily Check Points	**Yes**	**No**
Is everyone on duty at the time of the visit?	☐	☐
Have the instructions given earlier been complied with?	☐	☐
Have the deficiencies noticed in the earliest visit been removed?		
Are the latrine seats, urinals, wash hand basins, tiles, mosaic dado, floors, etc. clean?	☐	☐
Are they not becoming yellow or getting coated?	☐	☐
Have all the doors proper bolting arrangement?	☐	☐
Do the building and doors/windows etc. need any repairs?	☐	☐
Is there adequate quantity of water available during all the 24 hours?	☐	☐
Does the pumping plant functioning properly?	☐	☐
Is there any leakage of water or seepage at any place?	☐	☐
Is there any chokage or obstruction in the flow of excreta or waste water?	☐	☐
Are the septic tanks or soakage pits were over flowing?	☐	☐
Are all light points in working order?	☐	☐
Do the electric wiring, boards, switches, etc. need any repairs?	☐	☐
Have soap powder and cleaning materials available at the community toilet block?	☐	☐
Has soap powder being given to users for washing their hands?	☐	☐
Is the community toilet block clean (both inside and outside)?	☐	☐
Are there any cob-webs in the community toilet block?	☐	☐

Are there any scribbling on the walls, doors. etc.?	☐	☐
Is there any foul smell at any place?	☐	☐
Has the plantation done in the premises of the community toilet block being looked after well?	☐	☐
Has the box with locking arrangement for collecting the user charges been available and placed at the appropriate place?	☐	☐
Is ,the daily income from user-charges was as per target?	☐	☐
If not, give reasons for shortfall?	_____	
Have the complaint and suggestion book and complaint box been available at the community toilet block?	☐	☐
Have the complaints and suggestions recorded in them been attended to?	☐	☐

Monthly Check Points

1.	Does the community toilet block need white/colour washing and painting?	☐	☐
2a.	Have the sign boards and boards displaying use-instructions been fixed at the appropriate places properly?	☐	☐
2b.	Do they need re-painting	☐	☐

Appendix J

Appendix J GUIDELINES FOR USERS OF THE COMMUNITY TOILET

1. Stand in queue if other users are waiting

2. Ask the attendant to clean the toilet before use, if it is not clean.

3. Sit in such a position for defecation, that the human waste falls, as far as possible inside the squatting pan and does not foul the sides.

4. Fill the mug provided in the latrine with water for ablution and flushing.

5. Before use, pour a little quantity of water to wet the pan so that excreta slide smoothly into the pit.

6. Use water or toilet paper for anal cleansing. Do not use any other material like stone, mud, thick paper, grass etc. for anal cleansing.

7. Pour water from the mug to flush the excreta after use.

8. Wash hands, using soap powder after defecation at the assigned place.

9. Do not throw lighted cigarette butts in the pan.

10. Take bath quickly, if others are waiting.

11. Do not wash clothes in the bathroom. Use the washing area.

12. Do not make any scribbling on the walls or doors of latrine.

13. If you have any complaints or suggestions, enter them in the complaint register available with the caretaker or drop them in the complaint box.

Appendix K

Appendix K Guidelines for Local Body to check Operation & Maintenance

1. Is the toilet block being operated and maintained well? Have water and electricity been available?

2. Are users satisfied with the service?

3. (i) Are all the intended users availing the facility? If they are not, which section of the community is not using and why?

   (ii) Do health and sanitation education programs need to be stepped up to motivate those who are not using the facility?

   (iii) If 'per person per use' payment system is a deterrent, are the users willing to pay on a monthly basis for the facility?

   (iv) Any suggestions for use of the facility by all the targeted users?

4. If the toilet block is not functioning due to any reason like chokage of sewer, non-availability of water supply etc., have the deficiencies been removed expeditiously?

5. (i) Is round the clock attendant service (where applicable) ensured?
   (ii) Is the staff posted adequate?

6. Has the complaint book been available at the toilet block? Are there any complaints about the operation and maintenance of the toilet block and whether these are being attended to quickly?

7. Are there any problems or constraints? Are there any suggestions to resolve them or for improving the functioning of community toilet block?

Appendix L

Appendix L Typical Agreement Between the Local Body and Construction/O&M Agency

MEMORANDUM OF UNDERSTANDING BETWEEN
(Name of Municipality or Utility)
AND
(Name of Construction/O&M Agency)

This agreement made on this _____day of *(month and year) between (Name and designation of person authorized to Sign on behalf of the local body or utility organization and name and address of the organization),* (hereinafter called the First Party) of the one part and (name and address of the contractor), (hereinafter called the second party) of the other part. The terms, the 'FIRST PARTY' and the 'SECOND PARTY' wherever used or occurring in these presents shall always, unless expressly or by necessary implication excluded by or contrary to the subject and context, mean and include their respective successors and assignees.

WHEREAS the First Party has decided to get a Community Toilet Complex constructed in *(location of toilet and name of the town)* to provide facility to the public, and has approached the Second Party to construct, operate and maintain them.

WHEREAS the Second Party at the instance of the First Party has agreed to undertake the construction, operation and maintenance of the aforesaid community toilet complex.

WHEREAS the parties hereto are desirous and have found it necessary and expedient to record the terms and conditions in respect of the aforesaid work into an agreement and the First party has obtained the necessary approval of the competent authority as required by law/rules for the purposes.

Now, these presents witness and it is hereby and between the Parties hereto as follows:

1) The Second Party shall construct a public toilet complex comprising of water flush toilet with urinal, bathing and washing facilities at *(location of toilet)* for the First Party as per detailed plans and estimates which are to be considered as part and parcel of this MOU.

	W.C.	**Urinal**	**Bathroom**	**Washing Platform**
Gents	-	-	-	-
Ladies	-	-	-	-
Children	-	X	X	X

(Fill in the number of facilities to be provided in spaces (-) *in the table above)*

2) At the site of the toilet complex, the Second Party shall also construct a Caretaker Room of appropriate size required for the operation and maintenance of the toilet complex.

3) The First Party has provided to the Second Party the detailed site plans where the toilet complex is required to be constructed.

4) The Second Party, after receipt of the site plans has prepared the detailed drawings of the toilet complex and got them approved by the First Party.

5) After the drawings have been approved, the Second Party prepared the estimates to determine the cost, and these estimates and specifications were submitted to the First Party, which has given its approval. The approved drawings, estimates and specifications are deemed to be the part of this agreement.

6) The aforesaid cost estimates have been based on the current PWD or Municipal Schedule of Rates applicable in *(name of town/city)* and items not included in the Schedule of Rates have been analyzed as stated below in this para. Current Schedule of Rates means the Schedule of Rates applicable on the date of submission of the estimates by the second party to first party for the construction of the complex. For items for which no rates exist in the aforesaid PWD or Municipal Schedule of Rates, the rates will either be derived from market rates of labour and materials.

7) The work will be executed as per the plans and estimates prepared by Second Party and approved by the First Party. The payment shall be made as per the current schedule of rates and rates sanctioned by the First Party. No increase in rates will be given and Second Party agrees to carry out the work at these rates.

8) The Second party shall be entitled to get a payment of 20% of the estimated cost as implementation and management charges including fee for the architect and also fee for the preparation of detailed estimates and drawings, and to meet promotion, education, publicity, implementation and establishment costs and other overhead expenses. The total estimated cost of the toilet complex has been fixed as per para (6) & (7) above and implementation charges as Rs. ……. *(cost in words also).* The 20% implementation charges will be also payable to the Second Party on costs/ enhanced cost of additional or extra works. The first party shall make an advance payment of 20% to the second party as a mobilization advance which shall be adjusted while making the payment against the running bills.

9) The First Party shall have the right to change the site, number of latrines seats and urinals, bathrooms and washing platforms in the toilet complex. However, the First Party shall pay to the Second Party to cover fully all the extra expenses with 20% implementation and management charges as described in para 8 above incurred by the Second Party due to changes made by the First Party.

10) The Second Party shall arrange all materials including cement and M.S. rods/bars to construct community toilet complex as per approved estimates and drawings to the satisfaction of the First Party.

11) After approval of the drawings and estimates (as pera 7 above), receipt of the first advance as mentioned in para (8) above and handing over undisputed site where the complex is to be built, the Second Party shall take up the construction and complete the construction of toilet complex/toilet complexes within …….. months from the date of the First advance, approval of drawings and estimates and handing over of site and sites whichever is later.

In the event of failing to complete the work within the stipulated period, the Second Party shall be liable to pay as compensation an amount equal to one percent of the estimated cost of the whole work for every week of delay provided always that the entire amount of compensation to be paid under the provisions of this clause shall not exceed ten percent of the estimated cost of the whole work.

12) It is hereby agreed that any change in the design and specifications of toilet complex for which drawings, specifications estimates have been approved by the First Party can be made with the

mutual consent of both the parties. If any extra work or works is or are to be done at toilet complex the same shall be carried out by the Second Party as desired by the First Party. The payment due to change in design and specifications and for extra work or works will be made by the First Party to the Second Party at the current PWD or Municipal Schedules of Rates and market rates of labour and materials as described in para (6) and (7) above. The Second party shall also be entitled to get payment of *(indicate percentage)* of the cost as implementation charges as mentioned in para (8) above.

13) The land where the toilet complex is to be constructed will be handed over to the Second Party by the First Party free of all disputes. In case any dispute regarding its title, ownership arise, the First Party will be fully responsible for it. Dismantling of existing structure if any and shifting of underground cables, pipe lines, sewers, etc. if obstructing the construction of the complex will be the responsibility of the First Party.

14) The First Party shall pay 20% of the total estimated cost of the project as advance after signing the Memorandum of Understanding. The balance to be paid stage wise is as follows:

15) Mode of payment :

First Party agrees for paying the running bills as per following stages :
Running payments shall be made based on stage-wise *(four stages to be identified clearly)* progress of the work within 15 days from the date of receipt of the running bills and twenty percent advance shall be recovered from the four running bills on a *pro-rata* basis. Five percent of the running bill amount will be deducted from each remaining bill. This will be released at the time of final payment.

The final payment will be made by the First Party to the Second Party within 30 days of the commissioning of the complex.

If advance payment and payments on running bills are not made in time as mentioned above, the second party will have the option to stop the work. The First Party in such a case will have to pay compensation to the Second Party for idle labour and establishment cost etc. maintained by the Second Party.

16) If the Second Party fails to complete the work described in para (1) above, the First Party shall have the right to recover the balance amount of advance, i.e. the amount arrived at after deducting the value of work done with 20% management charges from the amount advanced by the First Party to the Second Party under this agreement.

17) It is hereby further agreed that in case, the work could not be completed within the time specified in para (11) above, due to natural calamity, litigation or any other cause beyond the control of the Second Party, then time of completion of work shall be extended by the First Party on mutual consultation.

18) The First Party shall extend all necessary cooperation, assistance and facilities to the Second Party in the construction, completion of work, operation and maintenance of toilet complex specified in this agreement.

19) All rights, title of interest or ownership with regard to the toilet complex constructed by the Second Party shall vest in the First Party except that the toilet complex after the construction, will be handed over to the Second Party for operation and maintenance as agreed to in this Agreement.

20) The Second Party will motivate and educate people, through publicity and promotional

activities, for using the toilet complexes constructed, operated and maintained under this agreement.

21) The Second Party shall regularly clean, maintain and repair, if necessary the aforesaid toilet complex for a period of ….. years from the date of commissioning of complex at its own cost and through its own establishment. Subject to the satisfaction of the First Party, this period can be extended for another ….. years on mutually agreed terms. The Second Party shall maintain the standard of sanitation and use necessary disinfectants at its own cost.

22) The Second Party shall provide plants, trees as per space available and maintain them for aesthetic beauty.

23) The First Party shall make available adequate quantity of water at suitable pressure and for the purpose of construction light connection will be provided by the first party. After commissioning of the toilet block, First Party shall make available adequate quantity of water at suitable pressure. Water and Electricity will be provided by the First Party at their own cost for construction and maintenance of the complex.

(a) The Second Party shall be fully responsible to keep the whole arrangement of the sanitary block for 24 hours service.

(b) The Second Parry shall provide a complaint book at the Care-taker room to be filled in case of complaints by the users.

24) The Second Party shall be entitled to impose and charge such reasonable sum as may be necessary from the users of the said toilet complex, after obtaining prior approval of the First Party for meeting the operation, maintenance, repair and establishment costs of the said complex. The Charge to be recovered from the users shall be as follows :

(i) Gents shall have to pay Rs …… and ladies Rs. ……. per use. Children below 10 years and physically handicapped persons will not be charged. In case of monthly family pass the fee shall be Rs. …… per month/family. No charge to be paid for use of urinal. The above charges will be increased by (indicate percentage) at the end of every 3 years or any amount mutually agreed upon.

(ii) Each user will be supplied a tea-spoonful soap powder without any additional charge by' the Second Party for washing hands after defecation.

25) The First Party shall allow the Second Party to display signboards on each toilet complex indicating rules and regulations to educate the users. The First Party shall also allow the Second Party to put up their sign board at the toilet complex. The text for display shall be approved by the First Party.

26) It is hereby agreed that any neglect or lapse on the part of the Second Party to clean, maintain and repair regularly the said complex shall entitle the First Party to terminate this agreement, after giving reasonable opportunity to the Second Party by a show cause notice to make necessary amends as per Terms and Conditions of this agreement to the satisfaction of the First Party.

27) The First Party shall have the right to inspect the said toilet complex during construction, operation and maintenance period and may issue such orders and directions as may be considered necessary in conformity with this agreement to the Second Party. The Second Party shall ensure that such orders are complied with.

28) The Second Party shall not at any time transfer or sublet the rights given under this agreement

to the Second Party to any other Party or parties without written permission of the First Party.

29) If any time after the commencement of the work, the First Party for any reason whatsoever decides not to carry out the whole of the said work, the First Party shall give to the Second Party at least two months notice in writing of the fact, and the Second Party shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which the Second Party might have derived of by the First Party by not getting whole of the work done. However, full payment including management charges will be made by the First Party to the Second Party for all the constructions done and materials procured by the Second Party.

30) The First Party shall provide protection to the Second Party in the event of any threat arising out of illegal activities of persons of vested interests.

31) For desludging the soakage pits and septic tanks, the tanker with desludging pumping plants will be made available by the First Party to the Second Party, whenever need arises, free of charge. All operation charges of the equipment for desludging and discharging the sludge and sewerage at the appropriate place will be borne by the First Party.

32) Any matter not covered by this agreement will be mutually settled by the Parties to this agreement.

33) In case any dispute, difference or question between the two parties arising out of this agreement remain unsettled, the matter shall be referred to a mutually agreed arbitrator, whose decision shall be final and binding on both the Parties.

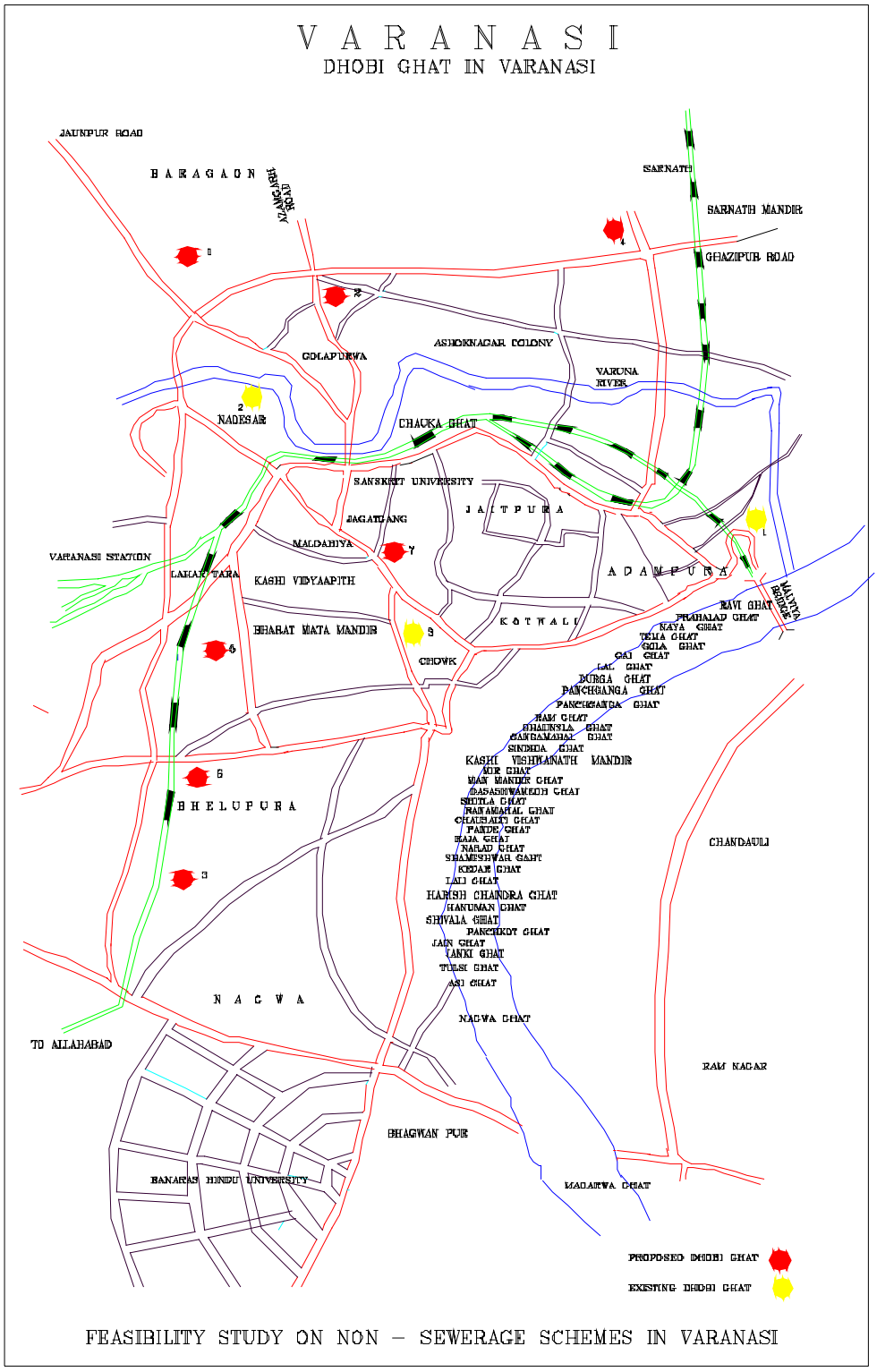
34) All type of repairing works required to be done during first 3 years shall be borne by the Second Party.

In witness where of both the Parties here to have signed this agreement deed on this _____ day of _____ (*enter date, month and year*) in the presence of witnesses :

Signature of the Parties	**Signature of the Witness**

Appendix M

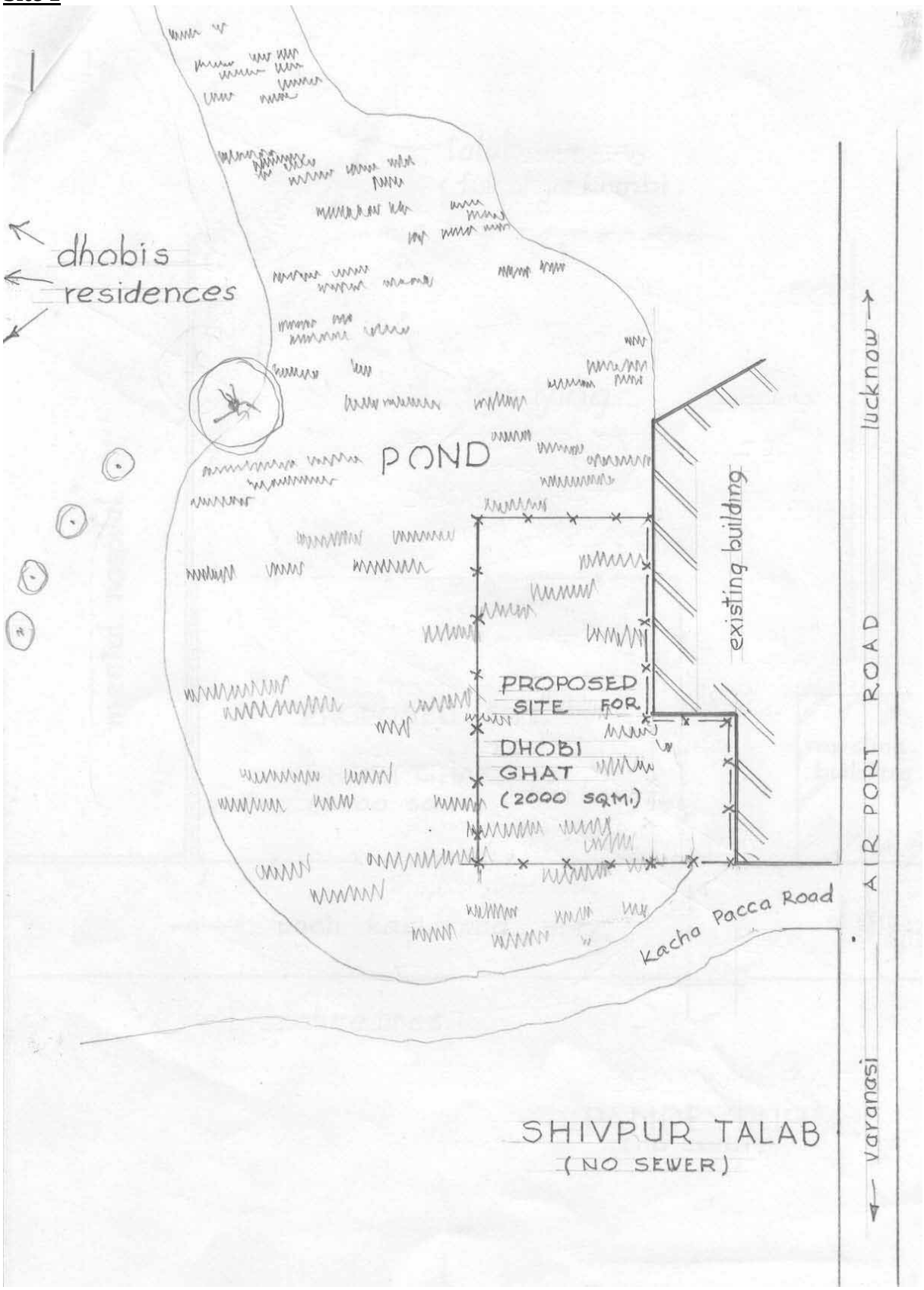
Appendix M Map of Varanasi Showing Sites of Dhobighats



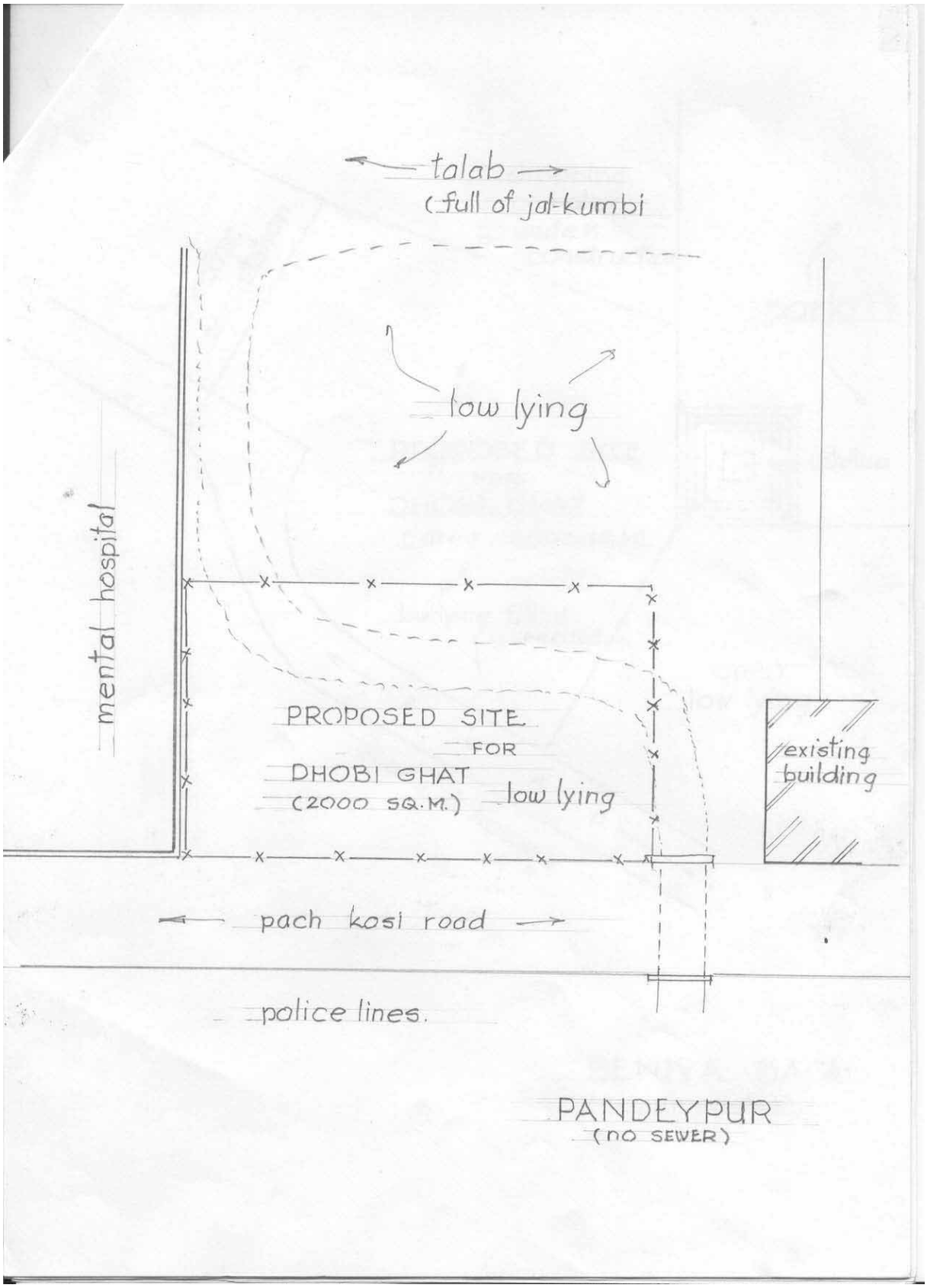
Appendix N

Appendix N Proposed Sites of Dhobighat

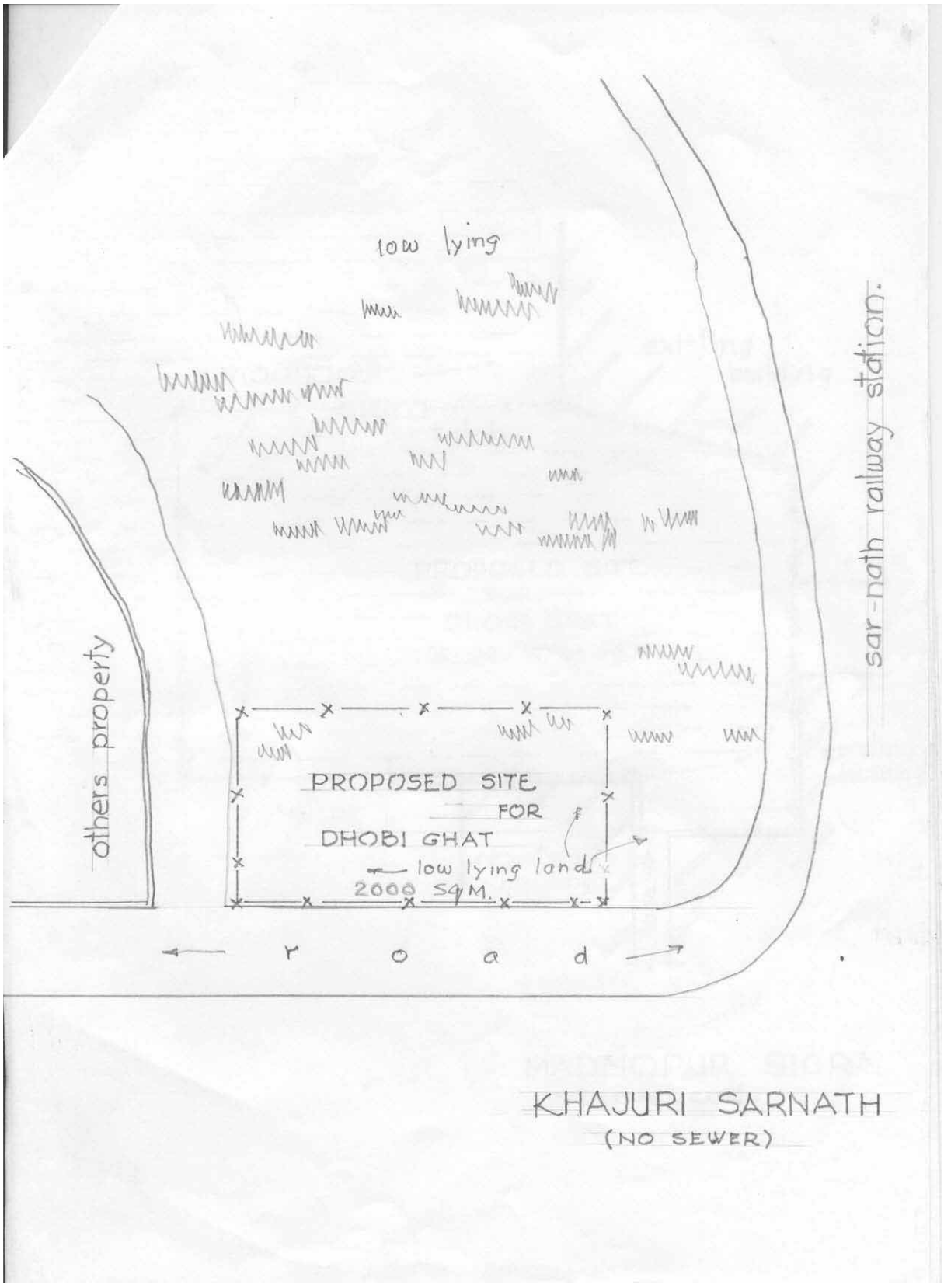
Site 1



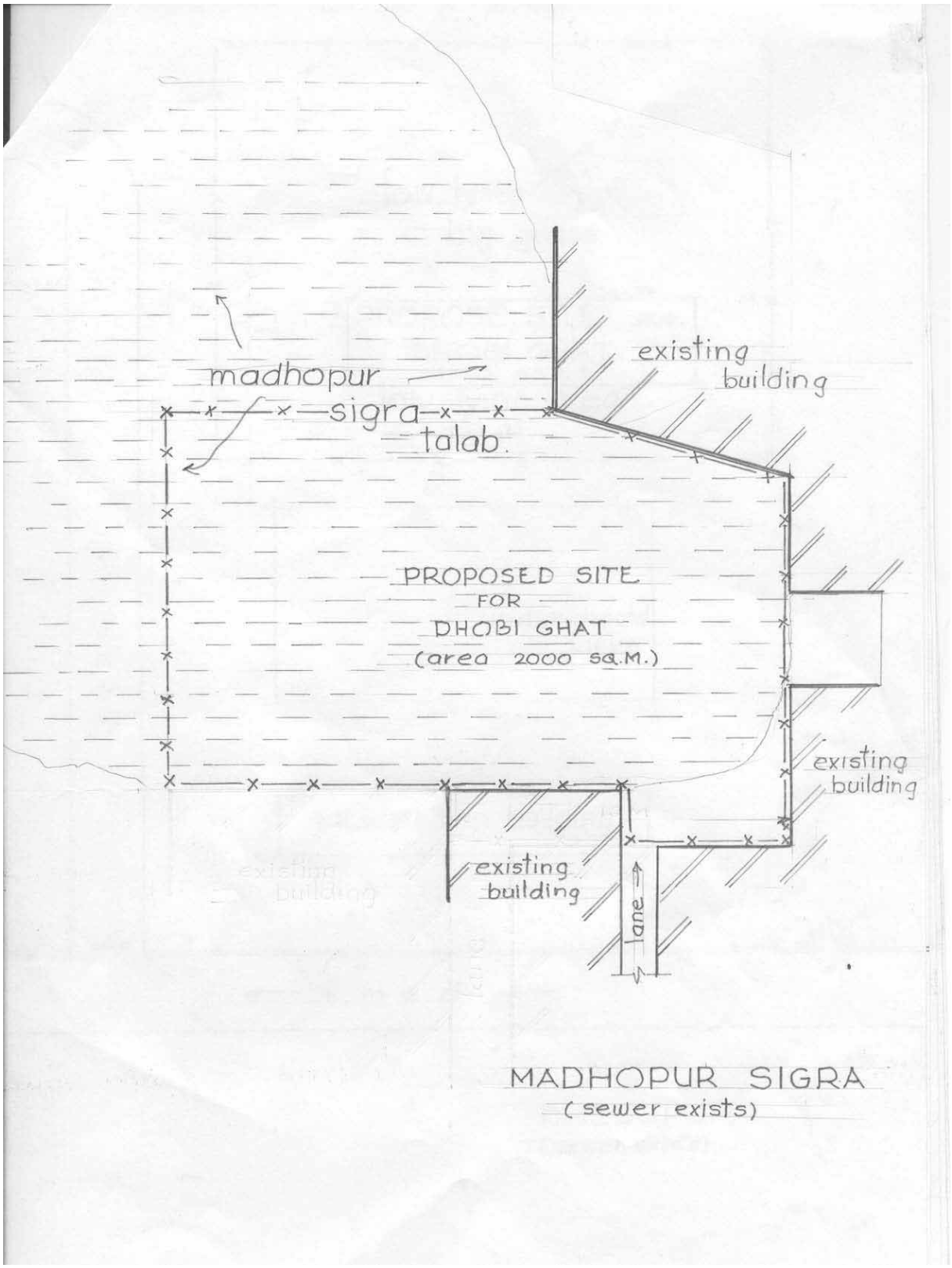
Site 2


talab
(full of jal-kumbi
low lying
mental hospital
PROPOSED SITE
FOR
DHOBI GHAT
(2000 SQ.M.)
low lying
existing
building
pach kosi road
police lines.
PANDEYPUR
(NO SEWER)

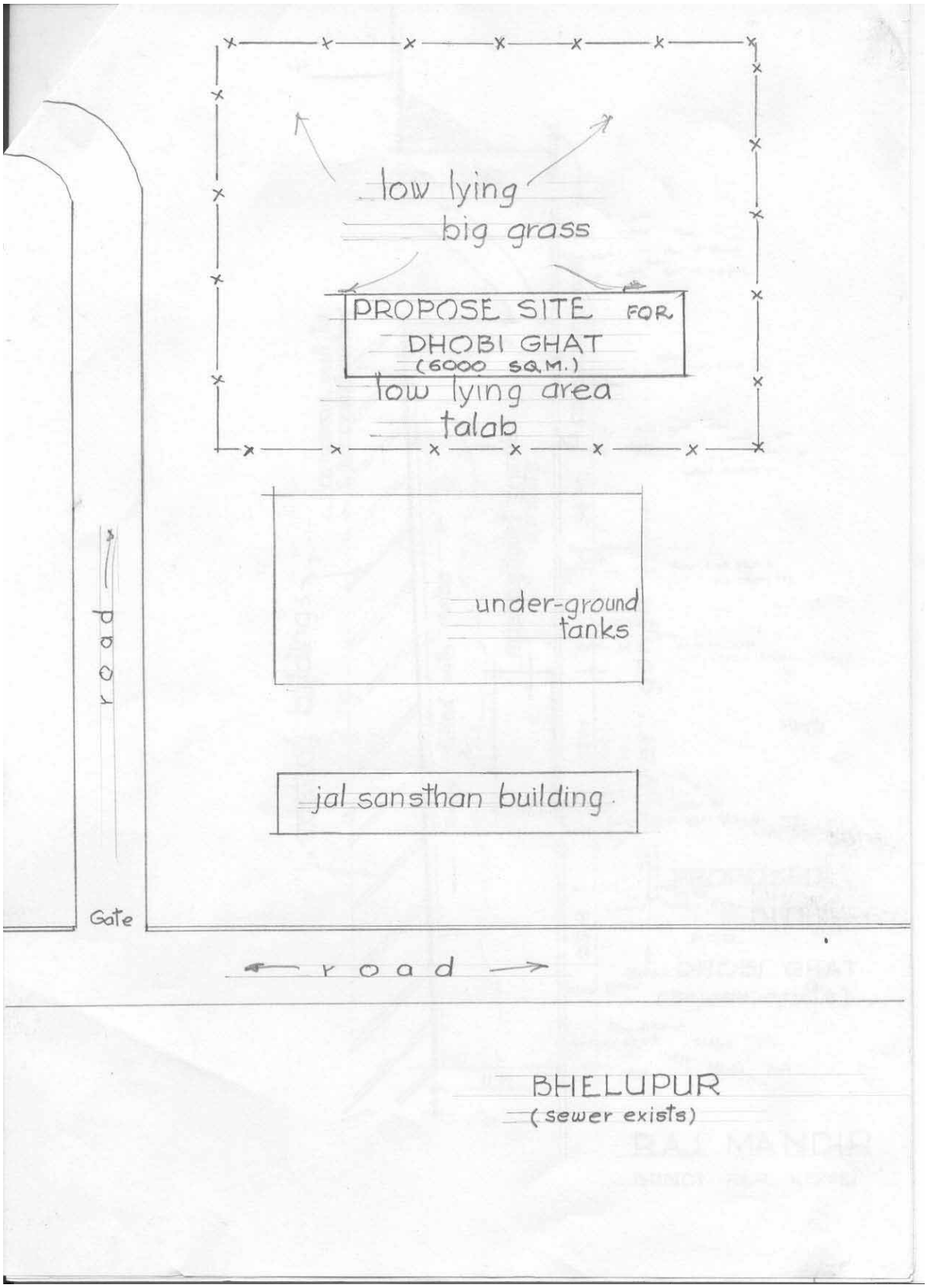
Site 3


low lying
sar-nath railway station.
others property
PROPOSED SITE
FOR
DHOBI GHAT
low lying land
2000 SqM.
road
KHAJURI SARNATH
(NO SEWER)

Site 4

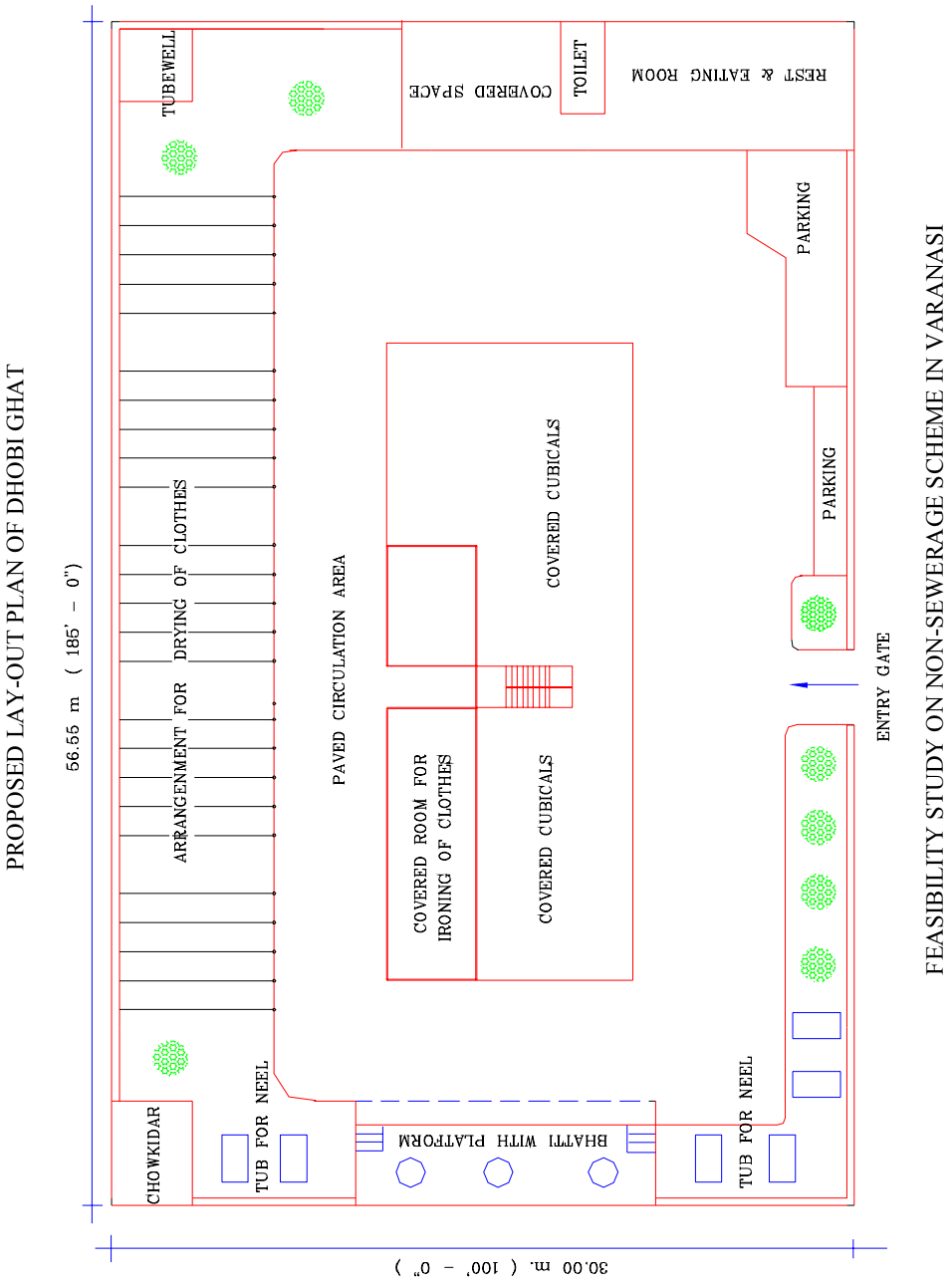

madhopur
sigra
talab.
existing
building
PROPOSED SITE
FOR
DHOBI GHAT
(area 2000 sq.M.)
existing
building
existing
building
lane
MADHOPUR SIGRA
(sewer exists)

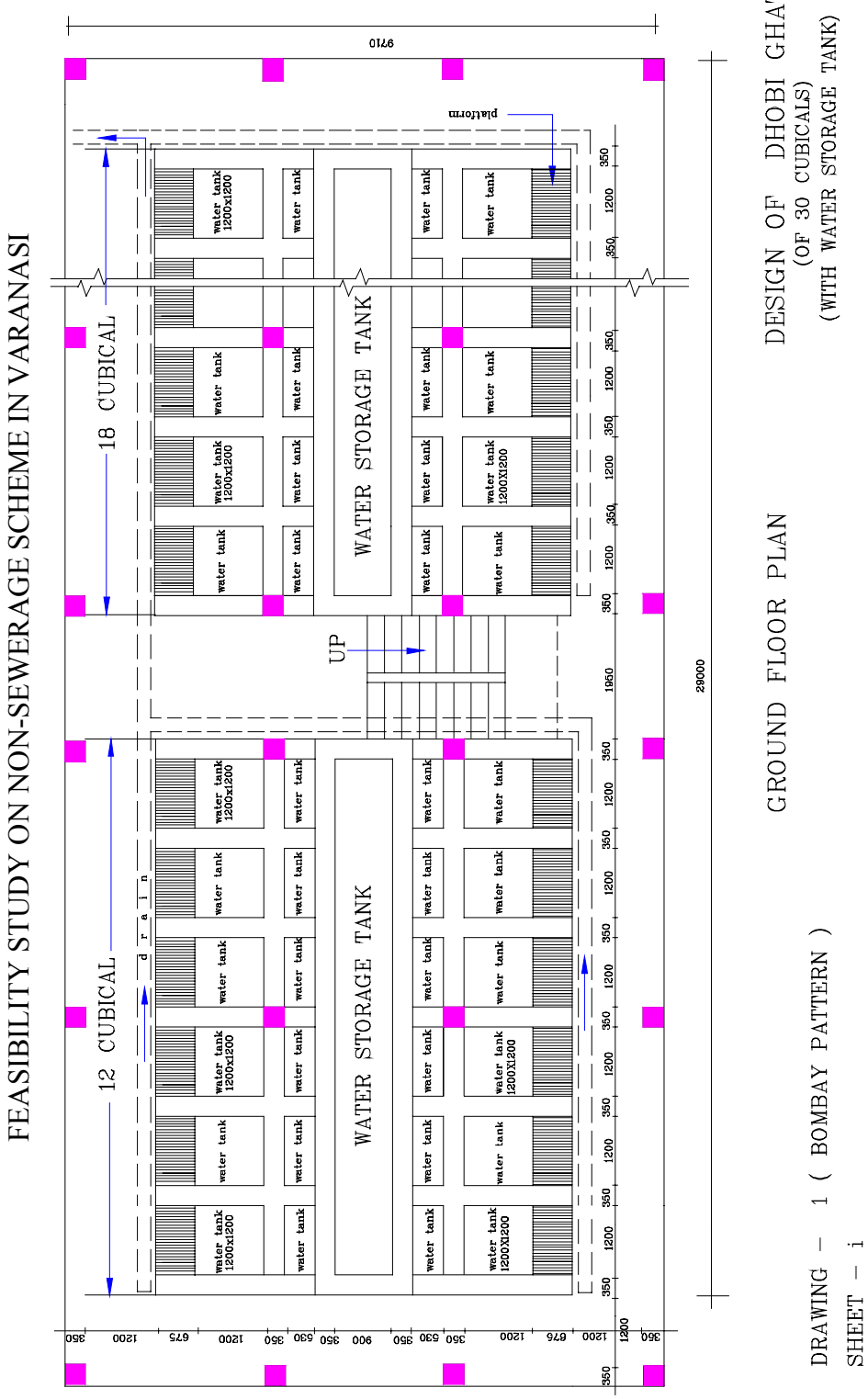
Site 5


low lying
big grass
PROPOSE SITE FOR
DHOBI GHAT
(6000 SQ.M.)
low lying area
talab
under-ground
tanks
jal sansthan building
road
Gate
road
BHELUPUR
(sewer exists)

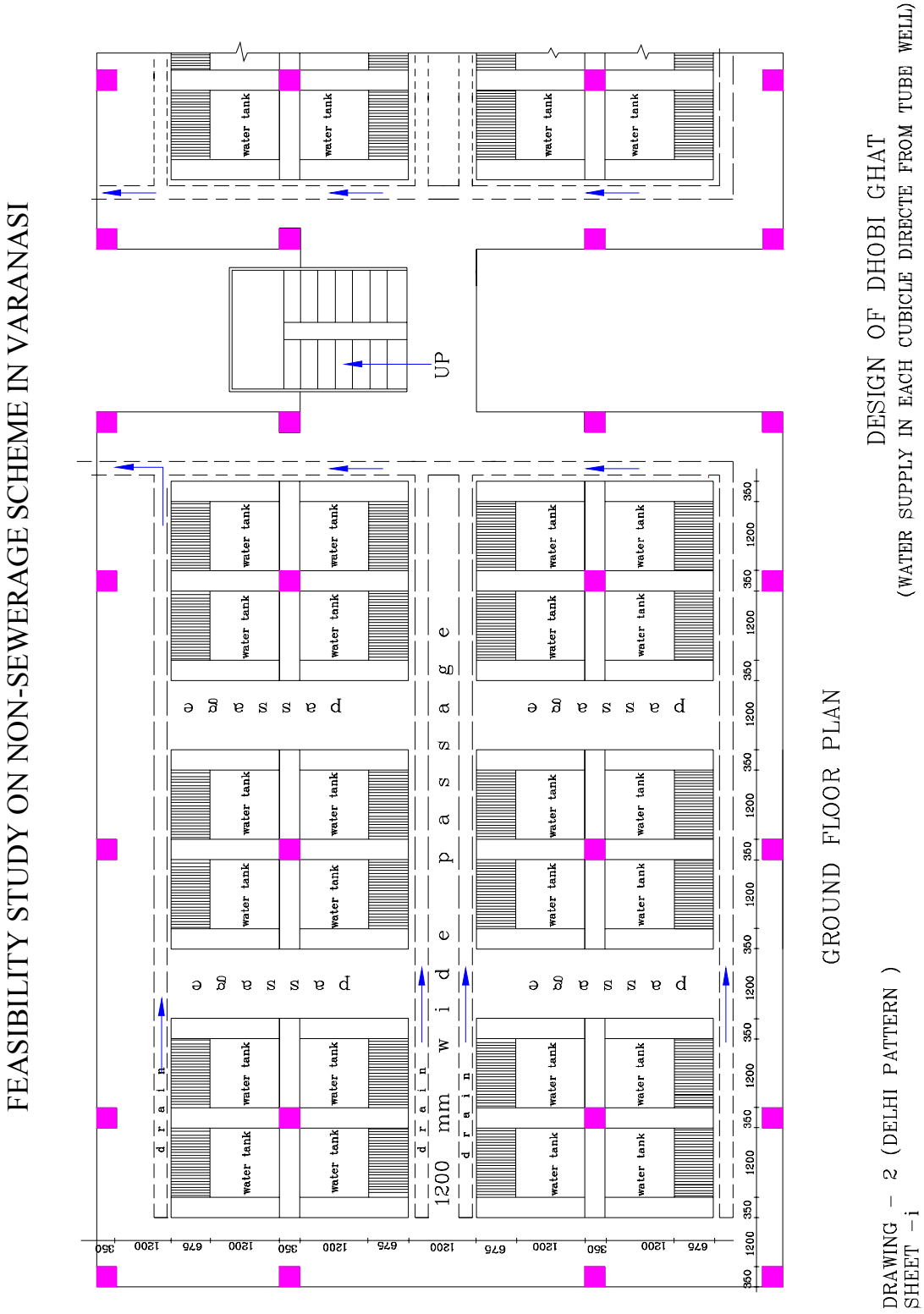
Appendix O

Appendix O Drawings of Proposed Dhobi Ghats




FEASIBILITY STUDY ON NON-SEWERAGE SCHEME IN VARANASI
DESIGN OF DHOBI GHAT
(OF 30 CUBICALS)
(WITH WATER STORAGE TANK)
GROUND FLOOR PLAN
DRAWING – 1 (BOMBAY PATTERN)
SHEET – i
18 CUBICAL
12 CUBICAL
WATER STORAGE TANK
WATER STORAGE TANK
UP
drain
platform
water tank
water tank 1200x1200
water tank 1200X1200
9710
29000

FEASIBILITY STUDY ON NON-SEWERAGE SCHEME IN VARANASI
DESIGN OF DHOBI GHAT
(OF 30 CUBICALS)
FIRST FLOOR PLAN
DESIGN – 1 (BOMBAY PATTERN)
SHEET – ii
PIPE / G.I. WIRE FOR DRYING OF CLOTHS
IRONING PLATFORM
DN
900 mm HIGH RAILING DRYING OF CLOTHS
PIPE / G.I. WIRE FOR DRYING OF CLOTHS
TERRACE

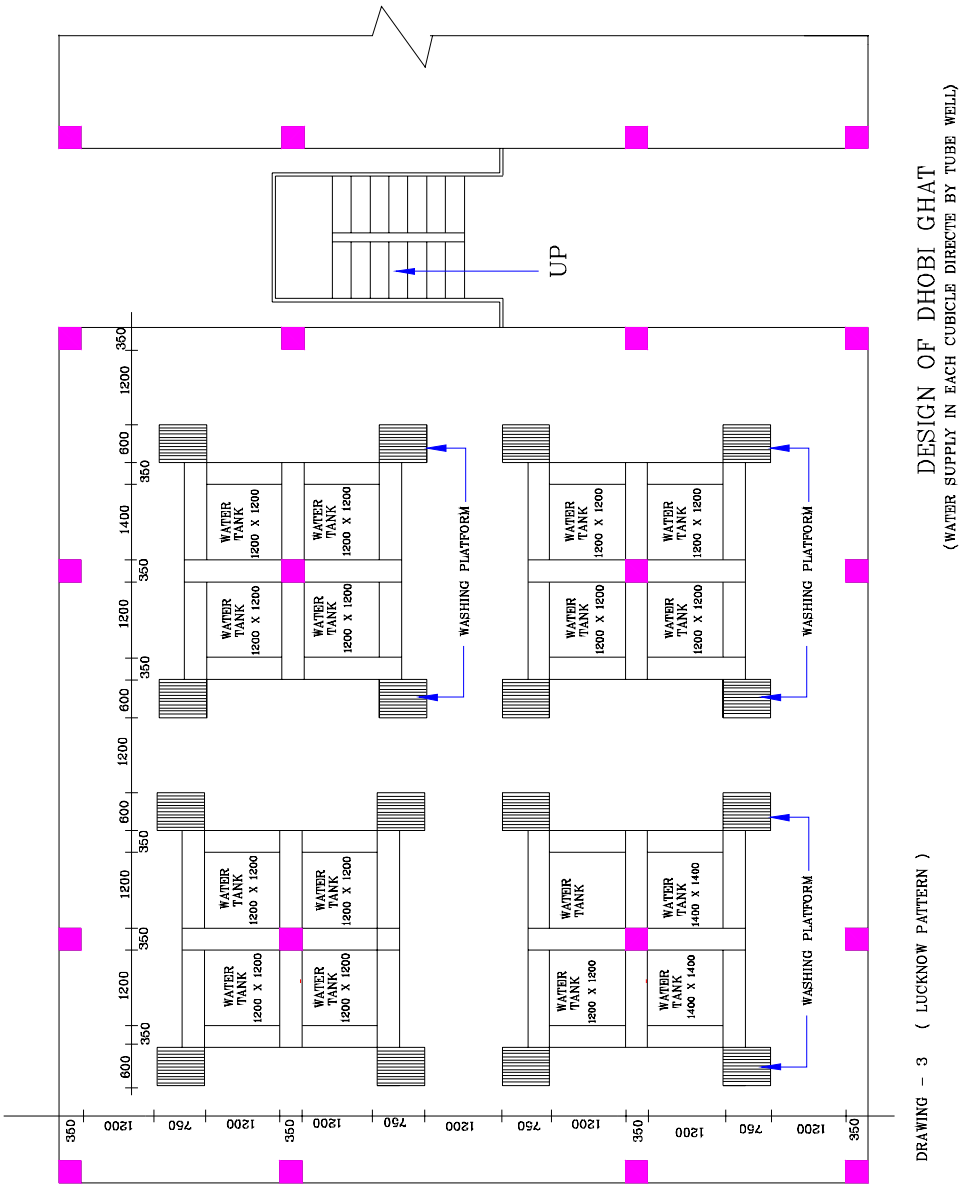

FEASIBILITY STUDY ON NON-SEWERAGE SCHEME IN VARANASI
DESIGN OF DHOBI GHAT
(WATER SUPPLY IN EACH CUBICLE DIRECTE FROM TUBE WELL)
GROUND FLOOR PLAN
DRAWING - 2 (DELHI PATTERN)
SHEET -i
UP
water tank
1200 mm wide passage
drain
passage
350
676
1200

FEASIBILITY STUDY ON NON-SEWERAGE SCHEME IN VARANASI

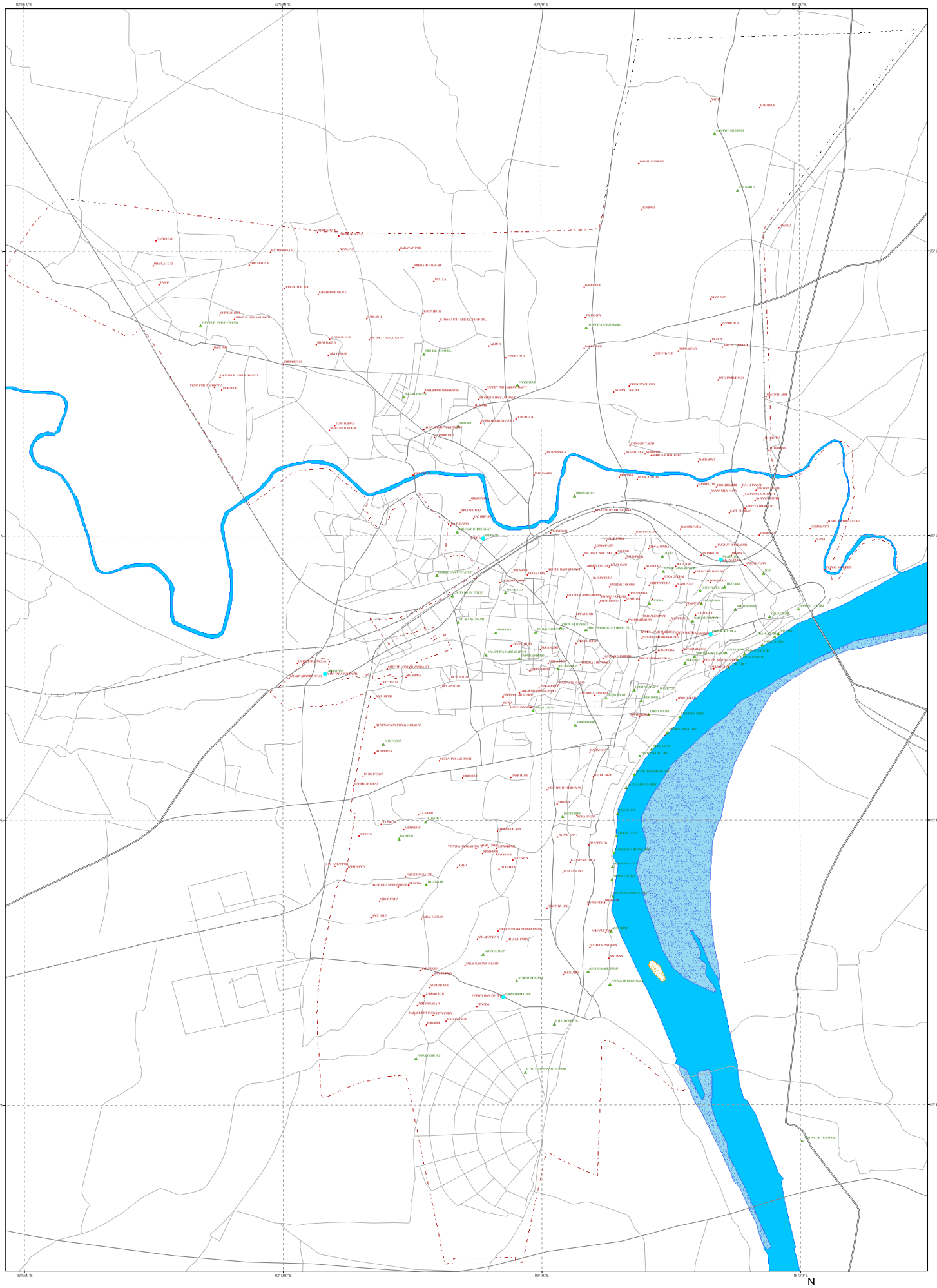
FIRST FLOOR PLAN

DESIGN OF DHOBI GHAT
(WATER SUPPLY IN EACH CUBICLE DIRECTE FROM TUBE WELL)

DRAWING – 2 (DELHI PATTERN)
SHEET – ii


UP
WATER TANK 1200 X 1200
WATER TANK 1400 X 1400
WASHING PLATFORM
DESIGN OF DHOBI GHAT
(WATER SUPPLY IN EACH CUBICLE DIRECTLY BY TUBE WELL)
DRAWING - 3 (LUCKNOW PATTERN)

Appendix P



Legend

- LCS
- Slum

VARANASI CITY

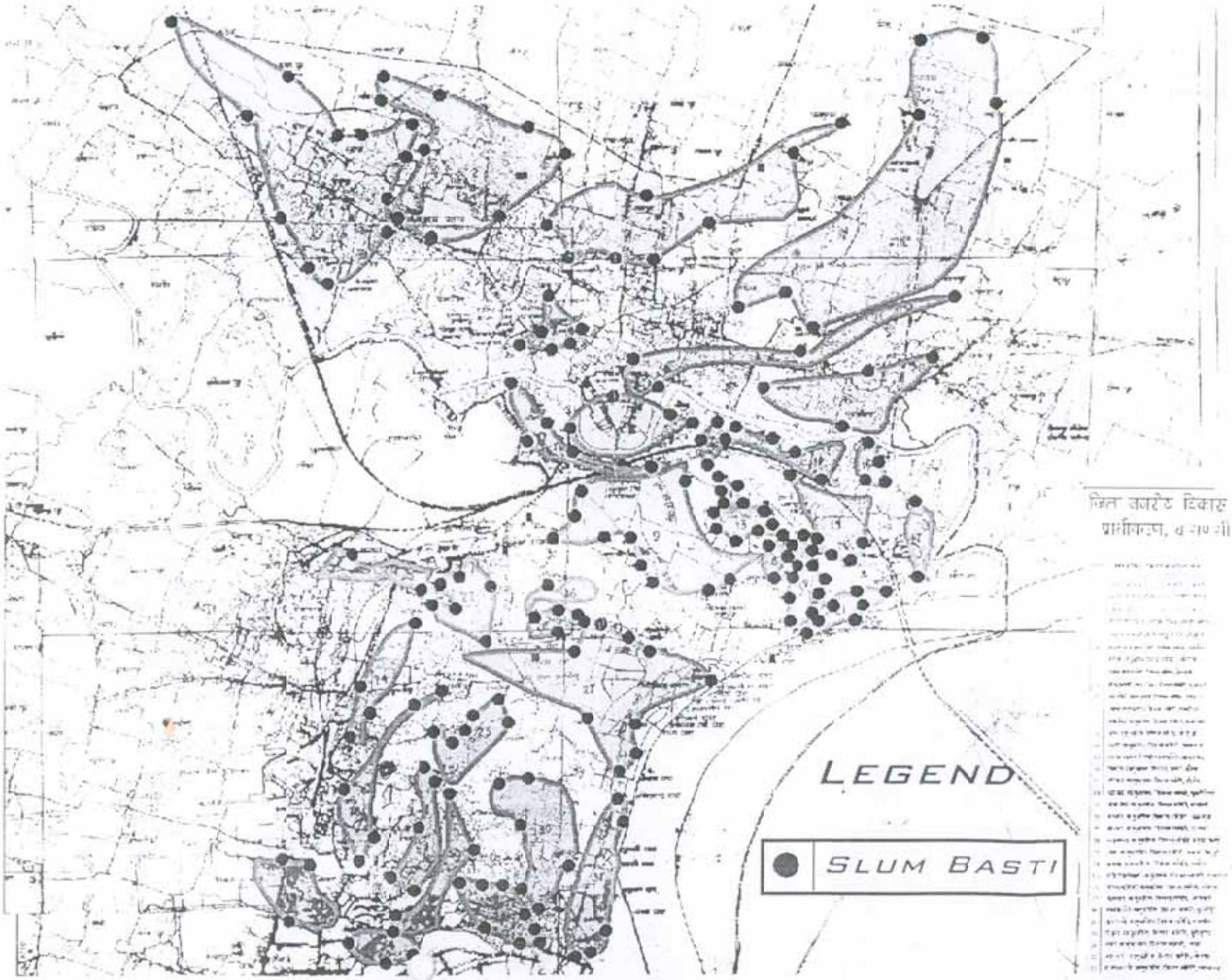
Slums and LCS Location Map

N

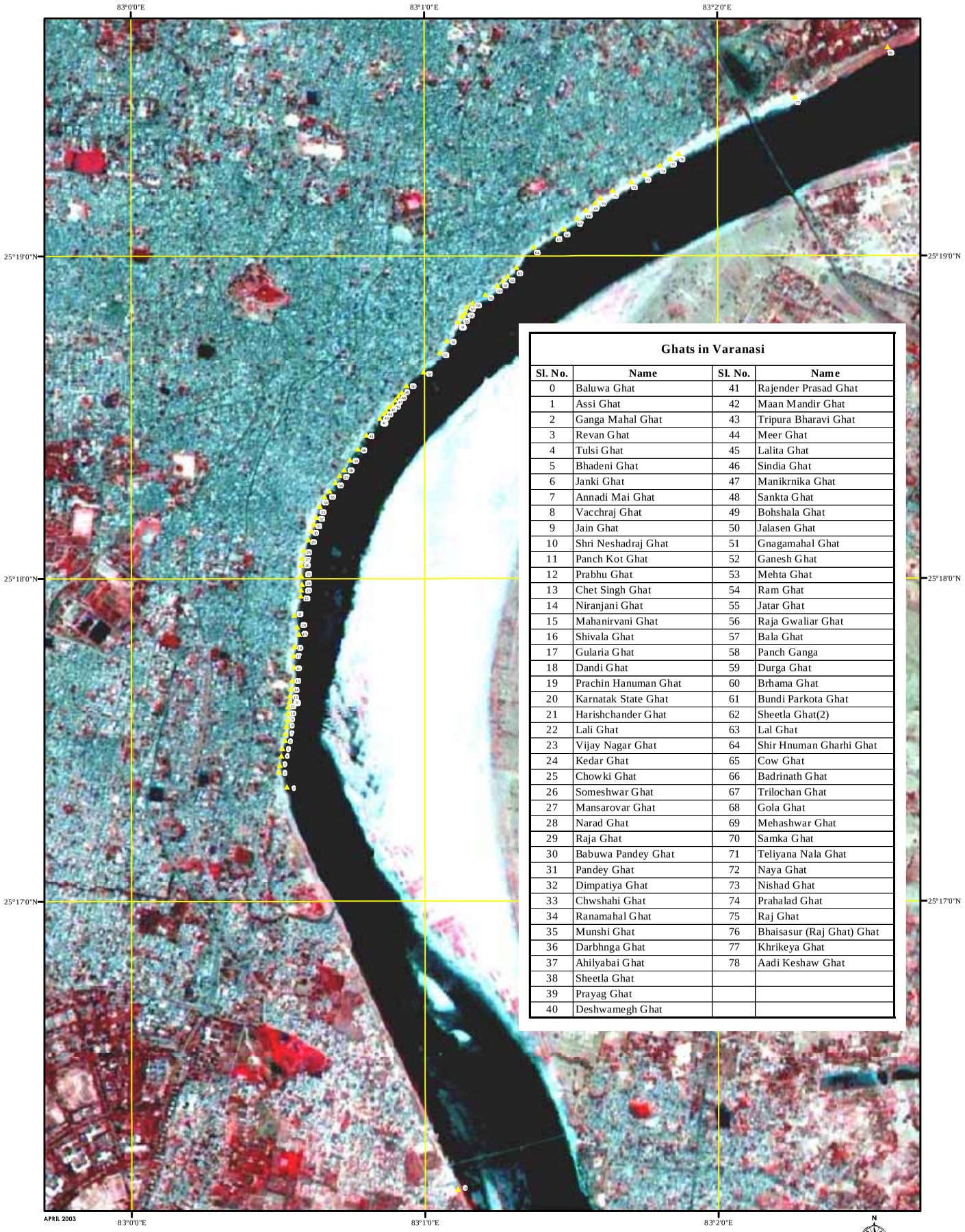
1:15,000

0 0.25 0.5 1 1.5 Kilometers

P - 1


LEGEND
SLUM BASTI

Appendix Q



Ghats in Varanasi

Sl. No.	Name	Sl. No.	Name
0	Baluwa Ghat	41	Rajender Prasad Ghat
1	Assi Ghat	42	Maan Mandir Ghat
2	Ganga Mahal Ghat	43	Tripura Bharavi Ghat
3	Revan Ghat	44	Meer Ghat
4	Tulsi Ghat	45	Lalita Ghat
5	Bhadeni Ghat	46	Sindia Ghat
6	Janki Ghat	47	Manikrnika Ghat
7	Annadi Mai Ghat	48	Sankta Ghat
8	Vacchraj Ghat	49	Bohshala Ghat
9	Jain Ghat	50	Jalasen Ghat
10	Shri Neshadraj Ghat	51	Gnagamahal Ghat
11	Panch Kot Ghat	52	Ganesh Ghat
12	Prabhu Ghat	53	Mehta Ghat
13	Chet Singh Ghat	54	Ram Ghat
14	Niranjani Ghat	55	Jatar Ghat
15	Mahanirvani Ghat	56	Raja Gwaliar Ghat
16	Shivala Ghat	57	Bala Ghat
17	Gularia Ghat	58	Panch Ganga
18	Dandi Ghat	59	Durga Ghat
19	Prachin Hanuman Ghat	60	Brhama Ghat
20	Karnatak State Ghat	61	Bundi Parkota Ghat
21	Harishchander Ghat	62	Sheetla Ghat(2)
22	Lali Ghat	63	Lal Ghat
23	Vijay Nagar Ghat	64	Shir Hnuman Gharhi Ghat
24	Kedar Ghat	65	Cow Ghat
25	Chowki Ghat	66	Badrinath Ghat
26	Someshwar Ghat	67	Trilochan Ghat
27	Mansarovar Ghat	68	Gola Ghat
28	Narad Ghat	69	Mehashwar Ghat
29	Raja Ghat	70	Samka Ghat
30	Babuwa Pandey Ghat	71	Teliyana Nala Ghat
31	Pandey Ghat	72	Naya Ghat
32	Dimpatiya Ghat	73	Nishad Ghat
33	Chwshahi Ghat	74	Prahalad Ghat
34	Ranamahal Ghat	75	Raj Ghat
35	Munshi Ghat	76	Bhaisasur (Raj Ghat) Ghat
36	Darbhnga Ghat	77	Khrikeya Ghat
37	Ahilyabai Ghat	78	Aadi Keshaw Ghat
38	Sheetla Ghat		
39	Prayag Ghat		
40	Deshwamegh Ghat		

GHATS IN VARANASI CITY

IRS 1D (Merged PAN + LISS III)

STUDY ON WATER QUALITY MANAGEMENT PLAN FOR RIVER GANGA

N
W E
S

SCALE 1:20,000

0 125 250 500 Meters

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-4 FEASIBILITY STUDY FOR VARANASI CITY
PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME

JULY 2005

TOKYO ENGINEERING CONSULTANTS CO., LTD.
CTI ENGINEERING INTERNATIONAL CO., LTD.

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-4

PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME

Table of Contents
List of Tables
List of Figures
Appendix
Abbreviations

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX

ABBREVIATIONS

BOD	Biochemical Oxygen Demand
CBO	Community Based Organisation
CMO	Chief Medical Officer
CPCB	Central Pollution Control Board
CTC	Community Toilet Complexes
DUDA	District Urban Development Authority
FGD	Focus Group Discussion
GUP	Government of Uttar Pradesh
HIG	High Income Group
HRD	Human Resources Development
JICA	Japan International Co-operation Agency
VJS	Varanasi Jal Sansthan
VNN	Varanasi Nagar Nigam
LCS	Low Cost Sanitation
LIG	Low Income Group
MC	Municipal Corporation
MIG	Middle Income Group
MLD	Million Litres per Day
MPS	Main Pumping Station
NGO	Non-Governmental Organisation
NRCD	National River Conservation Directorate
PCM	Project Cycle Management
PIC	Project Implementation Committee
PLA	Participatory Learning and Action
PMC	Project Management Consultant
PP/PA	Public Participation/Public Awareness
PRA	Participatory Rural Appraisal
PS	Pumping Station
RRA	Rapid Rural Appraisal
SCC	State Co-ordination Cell
SPS	Sewage Pumping Station
STP	Sewage Treatment Plant
TOR	Terms of Reference
UP	Uttar Pradesh
UPJN	UP Jal Nigam
YAP	Yamuna Action Plan

CHAPTER 1

INTRODUCTION

PART III PUBLIC PARTICIPATION AND AWARENESS PROGRAMME

CHAPTER 1 INTRODUCTION

For the sound operation and maintenance of sanitation facilities, generally, 'Public Participation' is indispensable. The construction and operation of such systems alone will not attain desired improvement in environmental sanitation, public health, surrounding environment and abatement of pollution of river water bodies. Therefore, greater public awareness on the health and environmental impacts, importance of those systems and facilities among communities, and the encouragement of their positive participation in the share of the obligation is essential. This would help work out problems related to operation and maintenance and long term sustenance of these systems and facilities.

Therefore, in this study, the JICA Study Team shall elaborate programmes on related activities and campaigns to promote public participation and heighten public awareness (PP/PA) for the four cities. This has been based on participatory techniques and the concept of the hygiene education which has been prepared by the study team earlier, specifically responds to each event proposed in the 'Feasibility Study of Sewerage Scheme' in the four cities.

Based on the above, the JICA Study team discusses the programmes on PP/PA for Varanasi City is elaborated in the document.

CHAPTER 2

PROFILE OF VARANASI CITY

CHAPTER 2 PROFILE OF VARANASI CITY

2.1 BACKGROUND

Situated in the south-eastern part of Uttar Pradesh, Varanasi is known for its Ghats and the river Ganga. The Ganga is one of the greatest attractions of Varanasi. Devout Hindus make pilgrimages from all parts of India to bathe in Ganga, whose water they believe to be sacred. Every year, over a million pilgrims visit the city. Varanasi is also known for its large temples and its monasteries and palaces. Buddhist Stupa at Sarnath, few kilometres away from Varanasi, erected by King Ashok in the third century BC is a major attraction for Buddhist Pilgrims from all over the world.

Varanasi receives average rainfall of 11.1 cm. Urban population as per 1991 census is 1,057.97 Lakh. A pilgrim population of 125,000 to 2,50,000 pours into the city everyday. Surging millions who every year use and misuse the Ganga in every way possible have also contributed to the pollution load of the river that frightens and challenges environmentalists, health and municipal authorities.

Varanasi City is also a seat of learning. It has several universities and colleges teaching varied subjects from engineering and medicine to dance and music.

2.2 SOCIO-ECONOMIC SITUATION

2.2.1 Social and Cultural Features

Social and Cultural Features of Varanasi City are summarized as follows.

- There are two major religious communities: Hindu and Muslim. Hindus are 87% of the total population while Muslims are 10% of the population. Other religious communities like Sikhs, Christians and Buddhists are also present but their percentage is insignificant.
- Hindus are divided into different castes and these caste identities are very strong. Important castes are Brahmin, Thakur (Kshatriya), Bhumihars, Vaishya, Yadava and Scheduled Castes and OBCs.
- Muslims are divided into two sects: Shias and Sunnis but *Varanasi* does not have significant Shia population.
- In Hindu tradition rivers in general and Ganga in particular is regarded as sacred.
- In Varanasi there are few very important religious places. Among them Viswanath Temple, Sankat Mochan temple, Durga Mandir, Tulsi Manas Mandir and Ganesh Temple of Hindus and Gyanvyapi Mosque, Alamgir Mosque of Muslims are important.
- It has a total of 80 ghats all along the stretch of the river.
- At all the ghats evening prayers *(Aarati)* is done which is attended by several hundred people. *Aarati* done at *Dasashwamedh Ghat* is most popular and spectacular.
- Akharas (local gyms) are also run near rivers catering mainly to youth of the city.
- *Varanasi* serves as a wholesale market for several districts of U.P. and Bihar around it.
- Majority of the population speak Hindi and Bhojpuri (a dialect spoken in eastern U.P. and Bihar)
- There are several institutions in Varanasi instructing pupils in music, Sanskrit and theology. This coupled with Bharat Kala Bhavan, a famed repository of art and antiquarian treasure, makes Varanasi a centre of art, culture and learning.
- The life in Varanas*i* starts early in the morning. People in general have a carefree attitude. They prefer simple living and are frugal in their expenditure.
- Varanasi, more than hundred festivals, small and big, are celebrated. Important among them are: Mahashivratri in the month of February, Holi in the month of March, Navratri in the months of March-April culminating in Ramnavami and in month of October, Rath Yatra in the month of June-July, Krishna Janmashthami in August-September

2.2.2 Social Stratification

As has been mentioned in the interim Report of JICA study there are three main classes along which the society is divided into any city i.e. High, Middle and Low income classes better known as HIG, MIG and LIG. The sewerage facilities and programmes targeting the same will mainly influence the MIG and HIG classes and to some extent the LIG classes that live in authorised settlements. The rest of the city people, which will mainly comprise the LIG living in slums and unauthorised settlements will be targeted under the non-sewerage component.

On Consultations with Officials and some prominent person's in the city some general Behaviours that are observed among the various sections of society towards infrastructure being provided by the government and their willingness to contribute to efforts for further up-gradation of these facilities as follows.

- It has been observed that the lower sections of the society are easier to influence and more willing to pay than their richer counterparts, even though their resources are limited.
- The upper and middle income group (MIG) people are the strongest lobby against government officials and any programme that has to have an impact on their mind sets has to be routed through these official agencies.
- The upper (HIG) and middle income group (MIG) people are though most vociferous in commenting against government officials.
- The slum inhabitants are seen as the group that is most interested in paying if the facilities are provided adequately and are properly maintained. These people have also lost faith in the government functionaries but are not a vociferous group because they are unaware of their rights.
- In the parallel there is also a need for capacity building of the government agencies so that the credibility with people can be restored and a relationship of faith is established.
- It has also been observed that adequate and safe water supply is the first priority among service for all the income groups in the society.
- Sanitation inside the household is perceived to be the responsibility of individuals provided government fulfils its duties.
- Solid waste and drainage are considered to be externalities that the public agencies have to deal with.

In addition, the pubic awareness survey, which was conducted by the JICA Study Team, identifies people's perception as follows.

- People in all the income groups show an interest towards participating (80.4%) in the public campaigns and perceive them to be useful but till date they have not participated in any of the activities (76.6%) that have been happening in the past.
- The largest ratio of people willing to participate is among the MIG class (87.1%), though a very few (23.1%) have actually participated till date
- The reasons to this fact that they have not been participating have not been inquired for.
- The people feel a need to be involved in awareness programmes but the preferred theme is not environment but "Sanitation", "Solid waste and Cleanliness" and "Health and Sanitation".
- As sensitivity to the issue is concerned the situation in *Varanasi* is far better than the other cities where 48.1% people have been complaining about sanitation and other problems to the authorities so sensitivity to the issue may be perceived to be higher in the city. The survey also tried to look into people's perception towards infrastructure being provided by the government and their willingness to contribute to efforts for further up-gradation of these facilities as follows.

2.3 ENVIRONMENTAL HEALTH AND SANITATION SITUATION

2.3.1 Health Risk

The perceived health risk in the city has been estimated by looking at the data that are collected at the CMO's (Chief medical Officer) office, which is responsible for the collection of data from various areas (hospitals, urban family welfare centres, and voluntary organizations) for communicable diseases. Table 2.1 shows the number of reported cases of communicable diseases in Varanasi.

Table 2.1 Number of Reported Cases of Communicable Diseases in Varanasi

Year	Gastroenteritis		Diarrhoea		Jaundice		*Khasra* (measles)		Food Poisoning	
	A	D	A	D	A	D	A	D	A	D
2000	14	0	2125	7	112	0	0	0	0	0
2001	3	0	1501	2	48	0	0	0	0	0
2002	5	0	347	0	0	0	0	0	30	0
2003	2	0	2064	6	28	0	18	0	0	0
2004	14	0	2159	3	82	1	0	0	0	0

Source: Health Directorate, *Varanasi*
A- Affected, D – Deaths

It is evident from looking at the table above that diarrhoea is a major problem, which has constantly being resulting in deaths over the past year. Along with that Jaundice and Gastroenteritis are also being reported constantly. All of these are the result of contamination of water and such huge numbers point to some serious problem.

2.3.2 Water Supply and Environmental Sanitation Situation [1] [2]

(1) Pollution in River Ganga

The principal sources of pollution in the Ganga are domestic and industrial wastes. Conservative estimates put the effluents flowing into Ganga at approximately 1.7 billion litres each day out of which 1.4 billion litres is untreated.

Recent water samples collected in Varanasi revealed fecal-coliform counts of about 50,000 bacteria per 100 millilitres of water, 10,000% higher than the government standard for safe river bathing. The result of this pollution is an array of water-borne diseases including cholera, hepatitis, typhoid and amoebic dysentery. An estimated 80% of all health problems and one-third of deaths in India are attributable to water-borne diseases.

(2) Water Supply

Present situation of water supply in Varanasi can briefly be described as follows.

- Total Population served by municipal system is 1,415,000 (year 2003) and water demands by this population is 232 MLD.
- Water supply treatment capacity is 310 MLD.
- Total water drawn from a combination of sources that include river, Municipal Wells, and private bore wells amounts to 340 MLD.
- 36.1% (123 MLD) of total water supplied is from River

[1] Ganga River Pollution Control Project at Varanasi; Urban Environmental Services Master Plan for Varanasi 1996 – 2021; PMU, Deptt. Of Urban Development, Govt. of UP; NRCD, MOEF, Govt. of India; Overseas Development Administration, Govt. of UK

[2] JICA Study Team; Water Quality Management Plan for River Ganga in Republic of India, Sewage Master Plan for Varanasi; NRCD, MOEF, Govt. of India; 2003

- Nearly 45% of supply is from private bore wells i.e. large dependence on ground water, but future management of this source is expected to become more difficult due to declining well yields.
- Possible contamination by on site sanitation and uncontrolled dumping of solid waste in water bodies. There is a plan to eventually switch over to the river water supply for most of the city in future.
- At present intermittent system of water supply is being followed in the city, which puts the consumers to considerable risks due to contamination with raw sewage and waste water in rains.
- A very particular problem in the city is the presence of old pipes for supply of water.
- Water supply, at places, passes through drains and in old city areas are laid very close to the sewage lines.
- In times when the water supply lines are empty the sewage and wastewater is likely to flow in these through weak joint and corroded areas, thus contaminating the entire water system.
- While such epidemics are dramatic, the regular endemic toll of such diseases is also high as is evident from the CMO reports.

(3) Sewerage and Sanitation

Present situation of sewerage and sanitation can briefly be summarized as follows.

- Presently the entire Trans-Varuna areas and some part of CIS-Varuna is unsewered
- In total only 32% city's population is connected to sewers and network covers over 315 kms in the city.
- Of he total generation of 289 MLD only 210 MLD is intercepted and of this also only 88 MLD (30%) can be treated.
- Though sewerage system has been designed exclusively to carry domestic sewage, storm water finds its way into the system during monsoon.
- Sewer blocks at many places results in discharge of sewage into surface drains, which at present have taken the form of open sewers.
- The problem in sanitation sector seems to be very severe. In the areas that are already connected to sewers, the existing system does not work and the waste finds ways into surface drains via direct pumping or the increasingly popular flushing of waste into Nalas or local surface drains.
- In areas that are not connected to sewer system, leaching pits and septic tanks are being increasingly used. These systems are less of a hazard but only if proper design specifications are followed and they are emptied hygienically.
- The location of water extraction pumps also in the vicinity of such systems poses another problem because people end up drinking contaminated water.

(4) Solid Waste

- The amount of waste discharge is 631 t/d and waste including Sweeping Waste (10 t/d)
- It is dumped daily into the drainage canals (Nala) and directly discharge into the Varuna and Ganga rivers.
- Waste collection is 6 Times week.
- Waste generation per capita is 425g/capita/day.
- According to the Hearing survey, the quantity disposed is 550 t/day. Waste of around 50t/day different from the amount of discharge is discarded in open spaces (vacant lots and squares), old buildings without tenants, gutters, drainage canals, the Varuna River and the riverbed of the Ganga River.
- The disposal site has no fence and compartment signs, and there is no management of vehicles for the carrying in waste and the entry of people.
- The landfill system is the open dumping system in gentle slopes. The leach ate from the waste at the disposal sites is directly discharge into the surrounding Nalas.
- Total budget for the management, collection and disposal of waste is 231 million Rs./year and out of which 82.3% budget goes to collection alone.

2.4 SLUMS AND DHOBIGHATS

2.4.1 Slums in Varanasi

According to DUDA currently there are 227 different slum areas in the city with a population of 4,57,568, which accounts for 35% of the total population (1325167) of the city. The growth rate for slum population in the city is very high, with city experiencing more than 134 percent growth rate per decade. The high growth of slum population in Varanasi is attributed to the large influx of migrants not only from within the state but also from adjoining areas which increased pressure both on housing and land.

Most of the slums in Varanasi are characterised by low socio economic conditions, low level of literacy and low access to urban services. Hand pump is the major source of water for most of the slum dwellers. In the absence of individual piped water connection, slum dwellers spent a considerable time per day in collecting water, which could have been used for other economically productive activities.

General sanitary conditions prevailing in slums within the city are appalling. Although some slums have sewerage facility, the coverage is very low, connecting only the peripheral areas or houses on the main road. Study of slums revealed that 29 percent residents in slums of Varanasi have no access to appropriate sanitation facility and practice open defecation. Open defecation was found higher in non-sewered area than sewered area of the city. It was found that sewerage is a major pull factor for households for constructing IHLs in slums. Study conducted on Varanasi indicates that number of resident having toilet facility in sewered area is 4 to 5 times higher than the number available in non-sewered area. Factors that influence sanitation habits of the residents include social characteristics of the community, availability of infrastructure, availability of space, households' affordability and willingness to pay for improved services

2.4.2 Dhobighats

The population of washer men is scattered in different areas of Varanasi city. However, there are few pockets they have concentrated. The total numbers of population is 40,000. Most of them come under poverty line. The family unit consists of four to five members. The 10% are literate and 90% are illiterate. The occupational mobility is negligible. Therefore, most of the family members are engaged in washing clothes. The payment for washed cloths (per item) is very low and has not been increased much in the last two generations. Hence, their socio-economic status is poor. Their life style is traditional and most of the families spend their income on social customs and ceremonies. The social life of dhobis is community oriented and caste panchayat plays an important role in controlling the social norms of the community. The younger generation is exposed to new consumerism and struggles for fulfilling their aspirations. Therefore, they are restless and tension ridden. They are keen to bring about social transformation in their community.

The protection of health of the washer men does not seem to have been a matter of concern to any one, compared to the way concern has been shown by the government and the non-government organizations to the health hazards faced by the scavengers. The washer men collect soiled cloths from households, hotels, hospitals and other establishments for cleaning. These clothes may be soiled with pathogenic bacteria and other hazardous stuff.

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 bhatti (steam vessel). The practice is giving way to the use of detergents for soaking the dirty linen but it is still persisting.

At the dhobi ghats, whether constructed or temporarily, there is no protection against sun, rain or wind and no arrangement also for storing dirty or cleaned linen and ironing the clothes. The facilities for supply of clean water and electricity, drying of clothes and application of whiteners are either

inadequate or absent. Since the temporary ghats are along the river or some water body, adequate quantities of water is usually available but its quality may leave much to be desired. Often, the clothes have to be dried on ground that may itself be soiled with dirt and even excreta.

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 available of more convenient alternatives of temporary ghats along the river.
No principle of conservation of water is followed and environmental considerations do not guide the activities related to dhobighats.

In India, generally no specific attention has been given for the problems related to dhobis and proper designs and construction of dhobighats. No specific data, standards designs, guidelines etc. are available and there is no uniform practice.

CHAPTER 3

INSTITUTIONAL ARRANGEMENTS FOR PP/PA PROGRAMMES

CHAPTER 3 INSTITUTIONAL ARRANGEMENTS FOR PP/PA PROGRAMMES

3.1 EXISTING IMPLEMENTATION STRUCTURE FOR PP/PA IN VARANASI

3.1.1 Present official Institutional Situation for PP/PA Activities

Table 3.1 summarizes present official institutional aspects of the sewerage scheme and related PP/PA activities in Varanasi.

Table 3.1 Present official institutions related with works in the sewerage scheme and PP/PA activities

Entities	Activities on Sewerage and Non-Sewerage Schemes	Activities on PP/PA
State Urban Development Authority (SUDA)	- The apex, policy making and monitoring agency for the urban areas of the UP - Provides overall guidance to DUDA for implementation of community development programmes related to water and sanitation.	- No activity for PP/PA
District Urban Development Authority (DUDA)	- Development of slum communities - Construction of community toilets in slums - Assistance in construction of IHLs. - Construction of drains and small bore sewers in slums; - Up-gradation of streets and roads	- Coordination with Community Development Societies (CDSs) for awareness building and community participation
UP *Jal Nigam*	- Construction of water supply and sewerage networks. - Maintenance of Pumping Station and Treatment Plants.	- Human Resource Development Cell is in charge of PP/PA related programmes in the field of water supply and sewerage schemes, which consists of CP wing and HRD wing as follows. - Community Participation Wing (CP) conducts IEC Programmes for creating awareness among the population. - Human Resource Development Wing (HRD) conducts Training Programmes for Capacity Building, but not for general public
Varanasi Jal Sansthan	- Ensuring potable water supply - Operation & Maintenance of Water Supply and Sewerage Networks - Collection of water and sewerage charges	- No PP/PA activities are undertaken.
Varanasi Nagar Nigam (Health Department)	- Cleaning of the sewage lines in case of blockage - Water quality Checks at consumer point - Cleaning of Ghats - Team of three persons (one each from CMO, Jal Sansthan and Health department) check water daily at 10-15 points (stand posts) for presence of chlorine between 6 – 8 pm	- There is no specific department/section handling public awareness and education on hygiene and health issues in VNN. - The Health Department of VNN is in charge of sanitation in the city, protection of citizens from epidemics, and protection of food handling. - It ensures portable water is delivered to the people. - Participate in Swasthya Camps organised by CMO

Entities	Activities on Sewerage and Non-Sewerage Schemes	Activities on PP/PA
	- In wards sanitary inspector and Jal Sansthan JE perform 15 – 20 tests at user points	- Team of 2 doctors education in slums
Varanasi Nagar Nigam (Engg. Department)	- Repair and Maintenance of the Branch Sewers	- No activity for PP/PA
Health Directorate (UP)	No related activities for sewerage scheme but is a state level agency responsible to care for the health of citizens	- Some public awareness programme on hygiene practices is coordinated through the district CMO's in the state.
Chief Medical Officer (Distt. Varanasi)	No related activities for sewerage scheme but are a District Level agency responsible to care for the health of citizens.	- Assistant CMO (urban) is responsible for conducting the awareness programme in the city as per the directions of the health directorate. - Programmes mainly concentrating in slum areas through health workers

Sources: Interim Report, UP Jal Nigam, Varanasi Jal Sansthan, Varanasi N.N, Health Directorate, CMO

In addition, Table 3.2 summarizes problems and difficulties to be overcome for effectively implementing the PP/PA activities, which are perceived by those official entities.

Table 3.2 Problems and Difficulties for PP/PA associated with the Sewerage works Perceived by the Official Entities

Entities	Problems and Difficulties
- UP Jal Nigam	- Age-old traditions, habits such as open defecation on riverbanks and religious faith like disposal of dead bodies and animal carcass into the rivers are the biggest hurdle in having desired effects of mass awareness campaign. - The problem can be overcome by extensive IEC methods for awareness on a regular basis, which is not possible at present due to non-availability of adequate funds. - At present the Jal Nigam does not have any expert staff on matters of PP/PA.
Varanasi Jal Sansthan	- They have till date not coordinated any PP/PA activity so are unable to comment on the difficulties faced.
Varanasi Nagar Nigam	- Lack of vision and strong leadership in the municipal staff - Lack of funds and expert staff - Lack of equipments - Need of authoritative power to impose rules for cleaner surroundings - The presence of large tourist population puts pressure on resources at certain points in time.
Chief Medical Officer	- General awareness is not a regular activity because of the lack of funds - The funds are not adequate enough to sustain projects consistently for a certain time period

Sources: Interim Report, UP Jal Nigam, Varanasi Jal Sansthan, Varanasi N.N

On the parallel the feelings of people in Varanasi on the execution of PP/PA activities are reflected in the Appendix A1. In addition to that it is felt by people that the awareness programmes are more in the form of instructions given either in written or dictated at the time of outbreak of some epidemic. These information are distributed in the most uneventful and uninteresting way that people are unable to perceive them as being important enough.

It may thus be inferred that:

- The programme has to build a two way dialogue so that the faith of people can be restored on the government bodies and they have security of the fact that the services being promised will be delivered to them.

- Also the campaigns need to be interesting enough to attract attention and leave some impact on the minds of the people.
- The government bodies need to be strengthened to be able to carry out these programmes (in terms of provision of funds, new competent staff, capacity development of existing staff etc)

The observations on institutional aspects (as per Interim Report of JICA study team) show that there seems to be lack of vertical integration among the different government structures in the hierarchy. The UP Jal Nigam at the state level has the power to control the funds and management of the project. At city level then there may be conflicts between Jal Sansthan and Nagar Nigam. Interaction among the different government agencies whatsoever for the purpose of implementation of the programmes is recommended to effect higher levels of coordination. To create public awareness about the 'Water Quality Management Plan for River Ganga in the Republic of India' and its sustainability, a project officer has to be able to network with different government departments such as health and others, so that the idea can be approached as an integrated effort.

For the public awareness programme the lowest level relevant structure may be the Health department of the Nagar Nigam. The Health department has two major functions – sanitary and health services in the municipal area. The sanitary wing is responsible for collection and disposal of garbage. The health wing provides free medical service to the people. The male and female health workers of the health wing of the municipality work in close contact with the people and that too at a vulnerable time (i.e. spread of epidemic etc) when a message regarding health will seem to be most sensible. They have the potential to encourage public participation with the respect to programmes relating to health.

Apart from that there are other sets of problems that can be identified with respect to the construction maintenance of Community facilities in low-income settlements. They are:

- Lack of availability of space for construction of CTCs and/or IHLs
- 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 Present Situation of Community and Private Sector for PP/PA Activities

Here it becomes important to look at the existing informal setups because these have a potential to become the backbone of the whole project. Routing an idea for public participation becomes a lot easier if it is through such agencies. The selection of target groups to reach the population thus shall be based on observations made in this section and presented in Table 4.6 later.

(1) Community Structures in Varanasi

It has been identified that at present there does not exist any Community structure in the city that is strong enough and can be taken as a base to spread the message.

1) Resident Associations

Some individual efforts are made at the level of residential associations where people are coming together to pool in money and employ sweeper at the society for regular cleaning and collection of solid waste. But these systems have not been institutionalised in any form and operate at a very miniscule level. Examples of these are very few and the existing ones are also only in the areas with recent development and not in the core (old) city.

2) Durga Puja Samities

Durga Puja is an important festival for the Hindus and is celebrated with lots of Vigour. Each resident society organises celebrations at this festival time for which they have Durga Puja Samities.

The main function of samities is to collect money and organise the function. They are otherwise inactive for the whole of the year and become active only during Puja time.

3) Bhajan Mandalies

Bhajan Mandalies are generally strong ladies groups found almost in residential areas of the city but with high concentration in old city areas near the river. One Bhajan Mandali will have representatives from one colony. These are strong groups that get together every week and sing Hymns (songs to praise the Lord). To initiate the programmes in the city they can be potential groups.

4) Akharas

It is a form of institution under a Guru (religious teacher) and many such Akharas may be found around the river. They exist especially in the city because of the presence of Ganga river in its vicinity. They have a large following and it does not restrict itself to city limits but are spread all over India.

These institutions have a potential to be utilised for routing the programmes to the people but have their sensitive points as well. The systems are very rigid and there is always a tendency to establish their supremacy. In this effort is included totally in the programmes there is a chance that they may come up as strong groups lobbying for their own interests and thus mar the essence of the actual programmes. Thus a sensitive situation analysis will be required if they are to be included and to what level this inclusion is desired.

(2) Tourists

The city has a large number of people visiting it for religious purposes and this community is the one that is most responsible for the bad condition of Ghats and river banks. It also adds on considerable load on to the city sewer systems that is not constant.

There is a need to affect the mindsets of this population as well so that they behave when they are visiting the city.

Apart from that other thing that is very important is to involve the hotel operators because they are the ones that cater to tourist needs in the city. Special programmes for giving incentives to this sector to link to the sewer system are required.

A large section of Buddhist population also visits the city on its way to Sarnath, which is approx. 15 – 20 kms from the city. A message to this effect can also be routed from the institution at Sarnath.

(3) NGOs and CBOs in Varanasi

1) NGOs' in Varanasi

It is estimated that several hundred NGOs exist in the city but a comprehensive list of the same could not be obtained.

Though the need for co-operative relation is felt by the authorities as well as by the NGOs/CBOs there does not seem to exist any at present. A few NGO's known in the city and working in the fields of Environment and Sanitation are thus listed in Table 3.3.

Table 3.3 NGO's Working in Varanasi and their Areas of Expertise

Name of NGO	Areas of Expertise
National environmental conservation association	- Environmental education and training - Conducting survey and research on environmental related topics - Encouraging use of renewable sources of energy
Saghan Kshetra Vikas Samiti	- Environment education for the school children - Encouraging use of renewable sources of energy
Swachchha Ganga Mahila Samiti	- Organizing seminar, rallies, exhibitions, and discussions to create awareness on the environment - Submitted to memorandum to the government with regards to monitoring the Ganga Action Plan
Women in need institute (WINI)	- Environmental education for women - Tree planting - Rural development - Promotion, utilization and traditional herbal medicines
Centre for Social Research	- Women Empowerment - Livelihood - Reproductive Child Health (RCH) - Unorganised Urban Poor
Mahila Sahbhagita Sansthan	- Empowerment of Muslim Women
Nirman	- Child Rights - Education - Civic Consciousness - Art - International Exchange
Parivartan	- Organising unorganised working men and women - Health needs of Urban poor - Income generation - Capacity building
Dastkar Sewa Kendra	- Entrepreneurship - Income generating activities
Bharat Vikas Parishad	- Rehabilitation of Physically challenged persons
Ganga Sewa Nidhi	- Ghat Cleaning - Advocacy - Informing people on better practices to keep surroundings clean
Sankat Mochan Foundation	- Cleanliness of river Ganga - Activist group advocating the cause of clean Ganga

Source: Information gathered through discussions in the city

2) CBOs' in Varanasi

At the community level, local government has facilitated the formation of Community Development Societies. These CBOs are grass root level organisation constituted solely of women from poor families and work for the availability of basic services including water supply and sanitation.

Structure of CDS

CDS is an existing formal community level organisation, which is involved in community development activities and can be used as a part of LCS programme. The community development Society has a three tier organisational structure.

- 1 Neighbourhood Groups (NHG)
- 2 Neighbourhood Committee (NHCs)
- 3 Community Development Societies (CDS)

Community Development society: CDS consists of 10 or more NHCs representing about 2500 families. The duties include:
- Identification of beneficiaries
- Preparation of community plans and mobilizing resources
- Monitoring of repayment and recovery
- Liaise with Governmental and non- governmental agencies
- Creation of community assets and maintenance of the same.

Neighbourhood Committee: NHC consists of 10 to 12 Resident Community Volunteers (RCVs) representing about 250 families. The responsibilities include:
- Identification of local problems
- Motivating neighbourhood groups
- Developing community based credit thrift society
- Identification of training needs and capacity building programmes

Neighbourhood Group: Consists of women from 10-40 households with a Resident Community Volunteer (RCV) as its head. The responsibilities of RCVs include:
- Planning, implementation and monitoring of activities at the cluster level
- Formation of credit and thrift Society
- Collection of Household data

Inefficiency of the Urban Local Bodies in providing the basic services and lack of inter departmental coordination is the main reason for low level of service in the urban slums. Hence the suggested institutional framework tries to define the roles and responsibilities of the involved stakeholders. The suggested institutional framework includes experimenting by changing the role and relationship of the different stakeholders. In the new role state limited itself to being enabler and facilitator while community acquired a major proactive role in the provision and maintenance of infrastructure.

(4) Ward Committees

At the present there do not exist any Ward Committees that are functional in Varanasi. Area representatives known as Ward Councillors are elected every 5 years that represent a particular ward but the residents complain that these councillors can be seen in the area only at the time of the elections, and work more to their own benefit.

Ward Committees may be considered for involvement in the PP/PA programmes but there will be a need to initially create the setups before a programme or activity can be routed through them. Ward committees are the grass root bodies that have been vested with the financial and administrative powers after 74th Constitutional Amendment Act. The elected representatives of the ward committees shall be members in the Municipal Council. The committee is an important elected body that will interact with the people at the grass root level and also has members nominated by the State government.

The constitution of ward committees in urban areas has a great potential to empower women and other weaker sections of the society who otherwise find it difficult to voice their opinion in any public forum. However, it must be pointed out that except for Ahmedabad the Ward Committee is not been working effectively in any other city, town or urban area in the country. The problem lies with the State government and the municipality who have not been able to delegate both administrative and financial powers to the Ward Committees. There is an urgent need to harness the potential of the Ward Committees to help urban governance particularly with grassroots participation.

(5) Mass Media in Varanasi

There exist several mass media in Varanasi and play important role in information dissemination.

Various Regional Newspapers and those that have local additions for the city are:

Table 3.4 Local Newspapers in *Varanasi*

Status	Number	Name	Language
Daily	6	Aj	Hindi
		Dainik Jagran	Hindi
		Nishpaksha samachar Jyoti	Hindi
		Sanmarg	Hindi
		Dainik Gandiv	Hindi
		Navbharat Times	Hindi

Various local Electronic Media popular in the local masses are:

- TV Channels – Doordarshan, Rashtriya Sahara (UP), Etv Uttar Pradesh
- Radio - Akash Vani, FM radio

(6) Organisations having influence on Religious communities

Because Hindus and Muslims are the two major religious communities in the city so the influential groups being identified are:

1) Hindu
   - Vishva Hindu Parishad (VHP)
   - Rashtriya Swam Sewak Sangh (RSS)
   - Bajrang Dal
   - Mahants and priests of Temples, Ashrams and Akharas

2) Muslim

   Muslim community, though very small, can be reached through Madarsas, Mosques and Clerics.

(7) Clubs

Lions and Rotary are the two famous clubs of the city that attend to the elite class. These clubs have their separate Women's wings and are involved in social activities like health camps and workshops with school children etc.

(8) Others

1) Priests Sitting along the Ghats

In Varanasi many people take morning bath at Ghats and get their tilak done by priests sitting along the Ghats of Ganga. These priests can be a good means to reach these bathers who are directly related with the Ganga.

2) Educational Institutions

The city has a rich culture in literature, which has been influenced by the Islamic tradition. The presence of various well reputed educational institutions supports the fact. A large number of people living in the city are directly or indirectly related to these institutes or have their children studying in them so programmes routed through the institutes may have a mass appeal.

There are several institutions in Varanasi instructing pupils in music, Sanskrit and theology. This coupled with Bharat Kala Bhavan, a famed repository of art and antiquarian treasure, makes Varanasi a centre of art, culture and learning.

The various reputed institutes are
- Banaras Hindu University
- Kashi Vidyapeeth
- Vasant Kanya Mahavidyalya
- Agrasen College
- Arya Mahila Maha Vidyalya
- Vasanta College for Women

Kala Commune and Vishva Jyoti Communication are two famous institutions in the city that have been involved with performing plays especially street plays (Nukkad Nataks) to change people's perception on various issues.

3) Health Institutes

The main government hospitals in the city that can be roped in the programme are

- BHU Hospital and Medical College

There are several nursing homes in the town.

Table 3.5 Analysis for Community and Private Sector Institutes

Institution (non- Govt.)	Present Status	Can it be used in PP/PA		Reason	Perceived role and Required Effort
		Yes	No		
Resident Associations	Exist in very few areas		X	Will take effort to creating and may not have a long term sustenance need	-
Durga Puja Samities	Exist		X	There are other religious cantered groups that are more strong	-
Bhajan Mandalies	Exist	√		Strong women's groups that meet regularly – some meet daily and some weekly	Effective to reach the idea to households and can be developed as strong propagators of the campaign. Effort required shall only be to contact them.
Akharas	Exist		X	Strong religious groups that propagate their own thinking and philosophy	Maybe to a very small extent because these may end up propagating themselves in shadow of the cause and it may harm the overall movement
Tourists	Exist		X	They visit the city only for a very short period	They shall but remain an important target group for publicity on river pollution
NGOs	Exist	√		Organisations directly linked to the people	As Grassroot implementing agencies
CBOs	Exist	√		Are involved in community development activities	As agencies or groups for operation and maintenance of the constructed community facilities Capacity building programmes will be required
Ward Committees	Do not Exist	√		They have a legal status, and formation if these is mandatory for every city municipality	The lowest level in hierarchy, the community representatives from these ward committees may link with the implementing agencies and the people, informally a part of the implementing structure They have to be formulated in each of the 100 wards of the city
Clubs	Exist	√		Are popular in the high income groups which are otherwise difficult to capture attention of	To get the HIG people interested in the idea. The club organisers have to first agree with the idea
Religious Organisations	Exist	√		Religious leaders have say in their respective communities	Initially to reach people in various communities. First they themselves have to be convinced with the idea, but care must be taken that we do not breed competition among various leaders and help them formulate separate lobbies for their own interest.
Priests Sitting along the Ghats	Exist	√		They perform rituals, the remains of which flow in Ganga	Training sessions have to be held separately to inform them about river pollution and how they can help control thro' use of other materials and practices
Media	Exist	√		Best way to reach the people	For the publicity campaigns to reach the people.

Institution (non- Govt.)	Present Status	Can it be used in PP/PA		Reason	Perceived role and Required Effort
		Yes	No		
Educational Institutes	Exist	√		Are centres of Youth activity	Spreading into children and Youth Special programmes targeting them.
Health Institutes	Exist	√		Can best propagate the idea of Hygiene Education	To spread the idea Doctors have to be committees so that imparting hygiene education becomes a part of their routine

3.2 PROPOSED INSTITUTIONAL STRUCTURE

3.2.1 Basic Concept and Approach for the Structure

(1) Constraints and the Concept to Overcome those Constraints

In the preview of the Present Institutional Situation for PP/PA Activities, the problems and difficulties mentioned above, which can be referred to as "constraints", a concept to overcome those constraints which was discussed in the Hygiene Education Plan by the JICA Study Team mentions the need for a specific function among the official sector and private sector to have a holistic approach for the PP/PA programmes. The concept to overcome those constraints discussed in the Hygiene Education Plan is as follows:

The Concept to Overcome the Constraints:

- *The best use of competence, expertise and ability of each actor*
- *A multi-sectoral cooperation*
- *The full utilization of available equipment and tools at present*
- *Positive introduction of the public participation approach*

(2) Approach of Intermediation by Local Bodies

As discussed in the Hygiene Education Plan by the JICA Study Team, an "Approach of Intermediation by Local Bodies" shall in principle be employed for considering the function. The approach is as follows.

Approach of Intermediation by Local Bodies: *In order to efficaciously implement the 'Public Participation', intermediation of local governmental bodies is necessary. The Constitution (74th Amendment) Act 1992 has empowered the Urban Local Bodies as self-governing local institutions. Therefore, their active involvements in the Public Participation are expected as follows.*

- *The intermediation of the Human Resource Development (HRD) cell at UP Jal Nigam, Nagar Nigams, as Project Implementing Agencies (PIA) in the four cities is required for the approach, which may be the basic idea of PP/PA activities of YAP-I, proposed institutional arrangements for YAP II by NRCD as discussed section of 'Multi-Sectoral Cooperation'.*
- *Because these local authorities are placed between the related ministries/agencies at the central government level, and the private sector including individuals so as to be able to work as the intermediate actors for connecting and communicating between them.*
- *As well, local functions of each Ministry such as the Hospitals, Health Posts, Health Centres, elementary and secondary schools, and public mass media like the national TVs are expected to work as the intermediate actors.*

(3) Role of *Nagar Nigam*

In addition to the approach, considering the nature of PP/PA programmes, for effective and direct communication with the communities and population of *Varanasi* City, *Varanasi Nagar Nigam* needs

to play a critical and central role in the function to be proposed for PP/PA programmes. Relation with other entities is discussed in the following sections.

(4) Horizontal Cooperation

In accordance with above noted concepts and the Hygiene Education Plan by the JICA Study Team, the institutional arrangements as well as the experiences from PP/PA activities of *Varanasi Nagar Nigam* can be referred as example and utilized for other three municipalities, termed as *'Nagar Nigam –Nagar Nigam Cooperation'*. The horizontal cooperation system should be adopted for effective implementation of the PP/PA programmes in *Varanasi Nagar Nigam* as well as other three municipalities.

3.2.2 Proposed Structure

A review of the existing situation reveals that there is no structure at present that takes care of the PP/PA activities in the state. There is only one Human Resources Development wing in the Jal Nigam that manages some IEC activities.

The need of time is to have an agency that can lead to a coordinated effort in all the four cities. The idea of creating a new structure at city level for a short period of five years may not be very feasible because this would add on to the complexity of existing functions. Thus the proposal looks at the State Co-ordination cell to be the nodal agency for monitoring and co-ordination of the work in four cities.

For implementing the works Health officer in the Nagar Nigam will be the main authority answerable to the Municipal Commissioner and provided with additional technical staff to support on the programme. This addition of technical staff is very important because at present the Nagar Nigam does not have a qualified person to deal with the PP/PA issues and monitor its progress.

The hierarchy of the implementation structure is as explained in figure 1. The emphasis at the implementation level shall be on the Nagar Nigams of the four cities. The details functions of the various divisions shall be as described

(1) NRCD

NRCD is the nodal central entity to deal with river water quality management. As has been reviewed in the 'Hygiene Education Plan' prepared by the JICA Study Team, NRCD has proposed organizational arrangements of 'Suggested Institutional Framework for YAP II' and 'Proposed National Public Participation & Coordination Cell (NPPC)' for the implementation of PP/PA activities under the YAP II.

1) New Organizational Arrangement for NRCD PP/PA Cell

The basic idea of those organizational arrangements can in principal be supported for the effective implementation of the PP/PA programmes for the priority projects of the sewerage scheme of Varanasi City. However, those organizational arrangements are at a proposal stage and there does not exist any such a function in NRCD at present. Therefore, a PP/PA Cell, which tentatively may be referred to as NRCD PP/PA Cell (NPPAC) shall be exclusively set up for overseeing and advising PP/PA programmes in Varanasi City as well as in other three cities of Allahabad, Kanpur and Lucknow which are the study area.

In accordance with the priority projects' schedules, NRCD shall constitute NPPAC to enforce necessary actions as shown in Table 3.6.

Table 3.6 Organizational Arrangement for NRCD

New Section	Position	People	Establishment Year
NRCD PP/PA Cell (NPPAC)	Under the 'Joint Secretary (project)'	3	2006

2) Necessary Staff

In accordance with the construction of the priority projects in Varanasi City as well as other three cities, NPPAC section will advice and coordinate with related official entities to oversee PP/PA programmes in Varanasi City, as well as other cities.

As discussed in the 'Hygiene Education Plan', the following expertise and disciplines shall be in any event incorporated into those arrangements (NPPAC) to be upgraded as a new function of NRCD for sound implementation of the 'Hygiene Education' and heightening public awareness on hygiene, mutual understanding among actors, burden sharing and urban river environment through the PP activities and other approaches.

- Public Health and Environmental Sanitation
- Public Education
- Environmental Education as a Whole

Therefore, three people in charge of NPPAC are required to implement the related activities as summarized in Table 3.7.

Table 3.7 Necessary Staff for NRCD

Position	No.	Expertise	Main Activities
Chief	1	Public Health Expert or Sanitary Engineer	Management and Planning
Staff A	1	Public Education Expert or Social Science Expert	Coordination on related activities
Staff B	1	Environmental Education Expert including Social Environment Consideration Expertise	Coordination on related activities
Total	3	-	-

(2) Committees

Two committees shall be formed in 2006 to vertically and horizontally overlook each related actor and entity from the state level and the community level, the programme implementation and the success.

Based on above discussion, the committees are proposed as shown in Figure 3.1.

1) State Co-ordination Cell

This shall be the committee through which works in the four cities will be coordinated. The cell shall consist of members of the Sanitation Promotion Committee of the four cities and representatives from Ministry of Urban Development, NRCD and the central level Project Management Consultant.

The main functions of the cell shall be

- Overall supervision of the PP/PA programmes in the four cities.
- Consultation and coordination with other relevant Ministries and other official entities like Health & Family Welfare, Human Resource Development, CPCB and etc. to get necessary technical advices and information to be required to perform technical advices on the PP/PA programmes in all cities.
- Consultation with and making advices and supervising to all the Nagar Nigams for the

PP/PA programmes and related activities

Frequency of meetings – every three months with rotation in the four cities and shall be chaired by the secretary Urban Development.

2) Sanitation Promotion Committee (SPC)

This committee shall be at the local city level to monitor the progress of work and shall consist of representatives from Nagar Nigam, Jal Nigam and Jal Sansthan.

The main functions of the SPC shall be

- Overall supervision of the PP/PA programmes in *Varanasi* city.
- Setting and monitoring of yearly targets
- Consultation with and making advices and supervising to Local Consultants to be employed for the PP/PA programmes and related activities
- Internal consultation and, coordination with, technology transfer and reporting to the committee members, and feed backing to the State Co-ordination Unit on the PP/PA activities in *Varanasi* City.
- All the yearly campaigns and programmes to be executed in the city will need sanction by this committee.

Frequency of meetings – every three months with rotation in the four cities and shall be chaired by the secretary Urban Development.

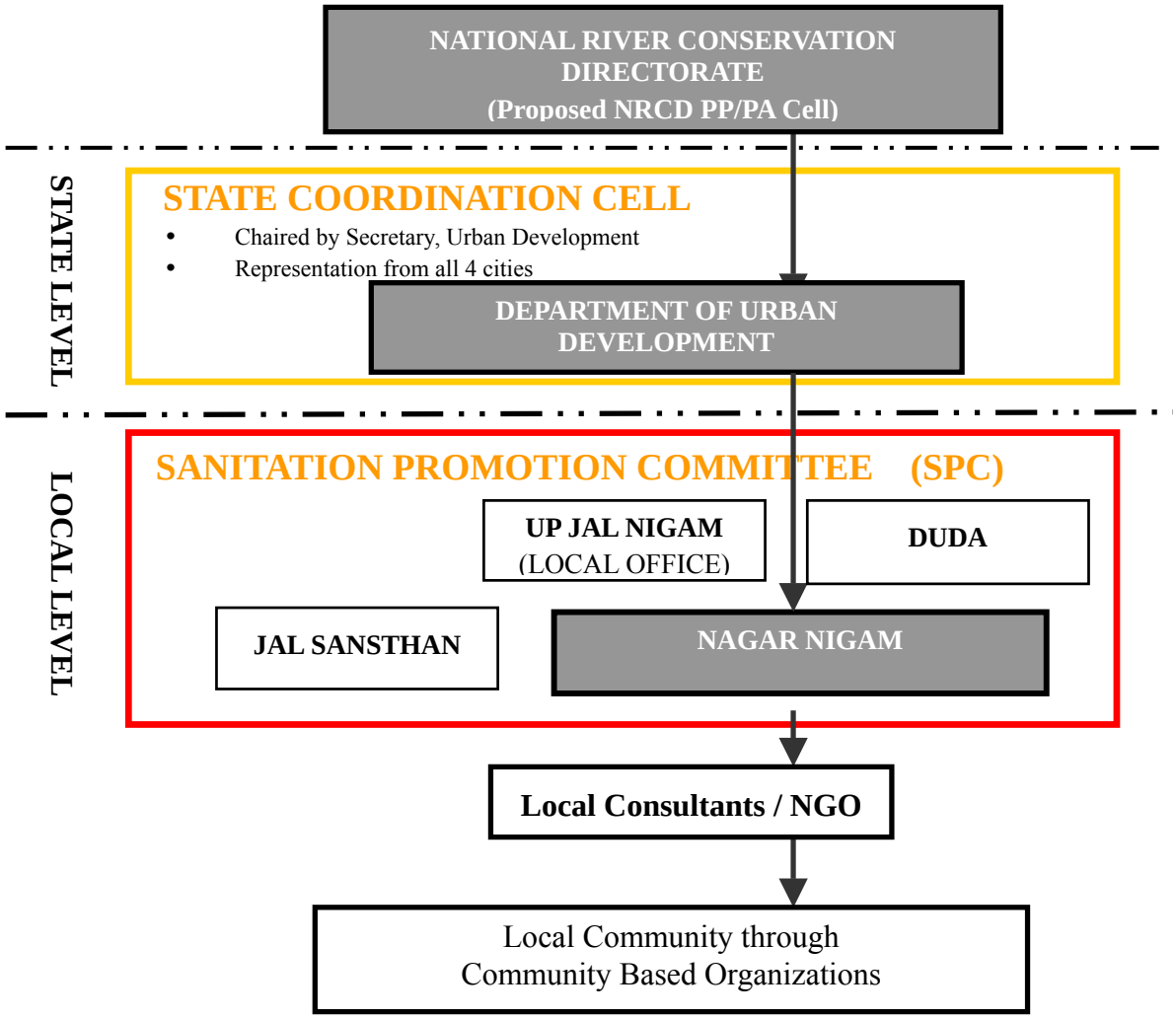


Figure 3.1 Proposed Organisational Structure of the Implementing Agency

(3) Local Bodies in Varanasi

The various functions and structures to be added in the local institutions are as explained below

1) Nagar Nigam

The Health Department of *Varanasi Nagar Nigam* (VNN) is in charge of health and environmental matters. The department exclusively handles hygiene and sanitation issues and also conducts some IEC activities. However, there is no specific section or personnel handling PP/PA activities for sewerage scheme at all in VNN at present.

For smooth implementation of the PP/PA programmes in Varanasi City, as mentioned above, VNN shall perform a critical and central role for effective and immediate communication and interaction with the communities, the private sectors including NGOs and CBOs and individuals in Varanasi City.

Therefore, it is advised that the Health officer at the *Nagar Nigam* shall be given the responsibility of managing the programme in their respective cities. To provide for the lack in a technical person knowledgeable in the field of PP/PA work additional staff on contract basis shall be provided to the Health Department and one assistant that shall also take care of the extra administrative work that may accrue to the office owing to the additional

responsibility.

Table 3.8 Staff required at Nagar Nigam

Position	No.	Expertise	Main Activities
Project Officer	1	Public Education Expert or Social Science Expert	Management, Planning and consultation with UPJL, VJS, NRCD and other official entities Coordination and Facilitation with Local Consultants, NGOs and CBOs and Communities
Assistant	1	Person with secretarial qualifications	Assist to Project Officer

The project officer has two roles to play in the whole system.

One is providing help to the Local Consultative Group in conducting the programmes in the city i.e. act as a facilitator to the whole project (For example the project officer may help the Consultative Group provide links to the various government officials when their role is required in the awareness programme and make sure of their availability etc). It shall be coordinating efforts with the Local Consultative Group to streamline things in the Nagar Nigam for better communication with the public and making the whole effort more transparent. This is very important because the present structures are hierarchal bodies where the voice of people is given very little importance.

Secondly it will be coordinating with the SPC to synchronise the developments in PP/PA with other programmes being undertaken as the overall project and that may have relevance to PP/PA. Through him the need to have training programmes for the staff of the Nagar Nigam for better communicating skills towards participatory planning can be conveyed and thus effective capacity building held. He shall also be responsible to coordinate with the Jal Nigam and Jal Sansthan, keeping the officers there updated for the latest progress in work and managing programme execution.

2) *Varanasi* Jal Sansthan

Varanasi Jal Sansthan (VJS) is in charge of the operation and maintenance including collection of water and sewerage charges. Therefore, one or two officials of VJS shall be assigned for the coordination and consultation for facilitating the programmes in addition to their daily duties.

They shall represent the concerns of VJS in the SPC meetings and it shall be essential for one person at least to be present in the meetings.

(4) UP Jal Nigam

As mentioned above, UP Jal Nigam (UPJN) has Human Resource Development (HRD) Cell through which PP/PA related activities are facilitated in Varanasi City. Therefore, HRD function can be utilized as a suitable institutional organization for coordination and consultation with the SPC and State Co-ordination Cell for the PP/PA programmes in Varanasi City. Therefore, one or two officials of HRD shall be assigned for representing the concerns of UPJN in the SPC and co-ordination wherever required in addition to their daily duties.

It shall be essential for one person at least to be present in the meetings.

(5) DUDA (District Urban Development Authority

DUDA is the nodal agency responsible for the construction of CTC and Dhobighats in the district.

Therefore it is important to have the presence of one of the officials for coordination and consultation with the SPC and State Co-ordination Cell for the PP/PA programmes in Varanasi City.

One officer at DUDA shall be given the additional responsibility for representing the concerns of DUDA in PP/PA work in Varanasi city. He shall also be responsible that DUDA is adequately represented in the SPC meetings and co-ordinate works with the Nagar Nigam.

(6) Project Management Consultant

The PMC shall be the nodal person establishing the much-needed link between NRCD and local level implementation. He/She shall have a reporting relation to NRCD and will be providing consultation and receiving reports at the local level.

Apart from that his office shall be responsible for monitoring work progress in the four cities and ensuring that horizontal co-operation happens. He shall be present in the meetings of the State Co-ordination Cell that are held every three months with rotation in the four cities. He shall also be responsible for technical advices to the Nagar Nigam whenever required.

Monthly, Quarterly and yearly review reports shall be sent to NRCD and their comments on the work progress monitored. It shall be the duty of the PMC to make sure that the suggestions made by NRCD are incorporated at the grass root implementation level.

In terms of the horizontal Cooperation the main duties of PMC shall be

- To share each experiences and issues of setting up institutional arrangements, preparation of PP/PA programmes, communication with communities and so on.
- To share necessary resources for the PP/PA programmes.

(7) Local Consultant

The body shall be hired by the respective Nagar Nigams and will execute the work in the city under the guidance of Health officer at Nagar Nigam.

The consultant shall be the link between the authority and people and will be reporting regularly on monthly basis to the office at Nagar Nigam. He shall execute the programme through Ward Committees who shall have required representation of civic society groups.

(8) Local Groups

The people as of themselves can not interact with the agency on individual basis but will have to be formed into groups through which the programme will be routed. These groups will then join at the ward level to form ward committees, which shall interact with the implementing agency.

1) Ward Committees

It shall be inquired if there are existing ward Committees in the four cities and what is their status in terms of legal powers, representation and effectiveness in reaching the people. As per the results it shall be decided if new Committees have to be constituted in the cities or the existing ones have to be strengthened.

The main idea is to have adequate people's representation in these committees. People's representation will be such that the elected representatives of the Resident Welfare Association, Community Groups and other Civil Society Groups find place in the Committee and have influence over the decisions that will take place.

The ward (despite its shifting ward boundaries based on electorates) can be seen as a basic unit for carrying and coordinating the activities. At an ideal of 30,000 persons (6000 families) it can offer a people centric framework with the "Ward Committee" as an accountable elected representative at the helm of a transparent plan as a platform for change and investments.

Workshops and the monthly review meeting of these committees with the NGO shall be regularly organised. In the workshops, the area officers of Police, Varanasi Jal Sansthan, and Development Authority will also be present. These meetings will be used to discuss the work progress in the areas and their problems and find out mutually agreed solutions to these problems.

Apart from that this shall be the group that has to be present for the Necessary Explanatory Meetings as described in section 4.4.2

2) Associations / Community Groups

These groups may be referred to as 'Mohalla Committees', 'Community Groups', 'Resident Welfare Associations' or something of the like according to the nature of people that formulate the group. These associations will form of group of families residing in one geographical location and will select representatives from among themselves.

According to the previous analysis the suitable groups may be from within or exclusively of Bhajan Mandalies, Ward Committees, Clubs, Religious Organisations, Educational Institutes, and Health Institutes etc.

The elected representatives will be responsible for conveying the people's message to the Ward Committees and the programmes and policies to the people. They will be the link for effective participation. For execution of any programme for awareness these representatives shall be contacted by the local NGO and they will ensure public support in their area.

Slum CBO

In case of Slums and works related to non-sewerage works, special groups shall be constituted known as Slum CBO's. One Slum CBO shall comprise of 10 slum Neighbourhood Groups that in turn will roughly comprise of 2000 persons or 400 families. This number may vary depending on the physical distribution of slums but only to the extent of 5%.

3) Citizens Committee

Citizens committees exist in all the four cities but are not very active. These committees shall be strengthened and the SPC shall regularly inform about their decisions and future plans to the committee and the ward committees.

The citizens group shall also submit monthly reports of work progress to PMC, who shall also receive report from SPC, and thus monitor the work progress.

CHAPTER 4

PROGRAMMES TO BE IMPLEMENTED

CHAPTER 4 PROGRAMMES TO BE IMPLEMENTED

4.1 BASIC STRATEGY FOR PROGRAMMES

Based on discussions previously in the document a basic strategy to be employed for the PP/PA programmes for *Varanasi* city may be summarised as follows.

- Based on health situation in *Varanasi* city, it is reasonable to say that health benefit can be used as an incentive to initiate the PP/PA programmes.
- Based on the people's perception and the nature of sewerage scheme, it is reasonable to say that main target of the PP/PA programmes for sewerage shall be HIG and MIG.
- Based on the nature of non-sewerage scheme it is reasonable to say that the main target for PP/PA programmes on non-sewerage shall be the slum and LIG communities
- Overall the PP/PA programmes detailed in the report shall cover the entire city and all its inhabitants.
- There will be two faces to the PP/PA Programmes - ones that shall be planned and conducted in parallel with the schedule of the events and topics of the priority projects of *Varanasi* and second the regular programmes revolving around the Hygiene Education Concept to establish the needed link between sanitation and Health.
- The main focus for the programmes associated with the sewerage component shall be to generate an improved understanding of health-hygiene as well as generating willingness to pay
- The main focus of activities related to non-sewerage shall be on improving their facilities by providing low-cost sanitation systems which will have more direct correlation with their improved health and hygiene
- Most of HIG homes are well connected to sewer lines or have installed systems of their own, so it seems that HIG do not perceive health as a big personal problem, even then it is a community problem and there is a risk of health for them as well. Therefore HIG shall be involved as the main target to share issues and the cost accordingly.
- People residing in slums shall be dealt with by the non-sewerage scheme of LCS and CTC projects of the JICA Study. However these shall be secondary and tertiary target as a future beneficiary of the sewerage scheme.
- All programmes should move towards building a relation of trust between the people and government machinery.
- Programmes will ensure active involvement of community and officials at all stages of decision-making.
- The programmes shall be routed through the existing community structures.
- The activities are being designed for the first phase of the priority projects up to the year 2009.

4.2 PRIORITY PROJECTS AND TIMING OF PP/PA RELATED ACTIVITIES

According to the construction and rehabilitation schedule of the priority projects prepared, the main PP/PA related activities and the suitable timing are summarized in Table 4.1.

The first four activities are related to the setting up of the Structures for the execution of the PP/PA programme that has been explained in the previous section and the details of the PP/PA programmes shall follow further in the report.

Table 4.1 Priority Projects and Timing of PP/PA related Activates

Item	Description	2006	2008	2009	2010	2011	2012
District 1							
Dinapur STP	Rehabilitation		*****				
Konia PS	Rehabilitation		*****				
Trilochan PS (Ghat PS)	Rehabilitation		*****				
Jalesan PS (Ghat PS)	Rehabilitation		*****				
Dr. RP PS (Ghat PS)	Rehabilitation		*****				
Mansarovar PS (Ghat PS)	Rehabilitation		*****				
Harishchandra PS (Ghat PS)	Rehabilitation		*****				
Old Trunk Sewer	Rehabilitation		*****	*****	*****		
District 2							
Sathwa STP	New Construction		*****	*****	*****		
Chaukaghat PS No.1	New Construction			*****	*****		
Chaukaghat PS No.2	New Construction			*****	*****		
Azamgarh Road Trunk Sewer	New Construction			*****	*****		
Varuna River Interceptor 1	New Construction		*****	*****			
Varuna River Interceptor 2	New Construction		*****	*****			
Varuna River Interceptor 3	New Construction			*****	*****		
Varuna River Interceptor 4	New Construction			*****	*****		
Relief Trunk Sewer	New Construction			*****	*****		
District 3							
Ramna STP	New Construction		*****	*****	*****		
Bhagwanpur STP	Rehabilitation		*****				
Assi River Interceptor	New Construction			*****	*****		
PP/PA related Activities	**Entities**	**2006**	**2007**	**2009**	**2009**	**2010**	**2012**
1. Organizing NPPAC	NRCD	***--	-------	-------	-------	-------	-------
3. State Co-ordination Cell	NRCD, UPJN, VJS, VNN	***-	-------	-------	-------	-------	-------
4. Sanitation Promotion Committee (SPC)	VNN, CBOs, NGOs etc.	***-	-------	-------	-------	-------	-------
5. PP/PA Programmes	Campaigns, and others	▲	▲	▲ ▲	▲ ▲	▲ ▲	▲ ▲

* Construction and preparation, --- operation and execution, ▲ PP/PA Activities

4.3 APPROACH AND TECHNIQUE

(1) Approach

Based on the discussion at the Hygiene Education Plan by the JICA Study Team, the approach to be employed to the explanatory meetings and programmes mentioned the following section is the 'Participatory Approach'.

(2) Technique

In addition to the approach, the leading participatory techniques of RRA, PRA (PLA: Participatory Learning and Action: more process oriented technique of PRA) and PCM can be utilized to find some problems, solutions and make plans in the meetings. Those techniques are summarized in Table 4.2.

Table 4.2 Participatory Analysis and Planning Techniques

Participatory Planning Techniques	Description
RRA (Rapid Rural Appraisal)	A social appraisal approach for development assistance projects using interviews and other methods. This is said to be an effective way to understand the qualitative needs of residents in the project area within a relatively short period.
PRA (Participatory Rural Appraisal)	The basic concept is the same as for RRA, except that this method is more oriented to regional residents than RRA. Among the RRA approaches, this method utilizes means (discussions among residents, etc.) that allow implementation by residents themselves.
PCM (Project Cycle Management)	A method to control a series of cycles including planning, implementation, and evaluation of the development project by means of a project outline table called the Project Design Matrix (PDM).

Source: 'Tentative Guidelines for Optimisation of Operation and Maintenance of Sewage Works in Developing Counties', IDA Water Series No.12, October 2001, Infrastructure Development Institute (IDI) – Japan

4.4 NECESSARY PROGRAMMES TO BE IMPLEMENTED

As has been observed earlier the programmes being elaborated further shall be seen in two sets:

SET I –These are the necessary programmes that have to be undertaken in accordance to the timings of the projects as detailed in the master plan.. These shall include

- Committee Meetings
- Necessary Publicity Programmes
- Necessary Explanatory Meetings
- Demonstration Programmes

SET II – These are the second set of programmes that shall run parallel to the first set and shall communicate the ideas on Health, Sanitation and better living Environment in accordance with the Hygiene Education Concept of JICA Study team. The end achievable of this set of activities shall be to generate willingness to pay in the city people. The programmes shall constitute

- Entry point Activities
- Regular Publicity
- Yearly Campaign
- Clean River Day and Clean river week
- Regular activities in Slums and Dhobighats

The above described sets of programmes shall make use of various tools and activities, the description of which shall be given in section 4.6.

4.4.1 Committee Meetings

(1) Objectives of Committee Meetings

Committee (Sanitation Promotion Committee) Meetings shall take place every month to monitor the progress of work on PP/PA in Varanasi City. The principal objectives of the Committee Meetings are as follows.

- To discuss the progress of work on PP/PA and update the next month activities
- To heighten co-ordination among the authorities and share their expected roles, especially brief on the works that will need the concerned departments support or clearance etc.
- To discuss and decide related activities such as details of programmes to be launched, and decide

on timings of explaining it to the people

4.4.2 Explanatory Meetings

(1) Objectives of Explanatory Meetings

In Explanatory Meetings, PP/PA activities shall be discussed with communities and stakeholders. These shall be undertaken twice a year with one meeting proceeding the PP/PA activities in the city to discuss the plans and, other after the completion to discuss achievements and shortcomings of past. The principal objectives of the meetings are as follows.

- To inform related actions on the priority projects and the necessary arrangements on PP/PA activities to the communities and stakeholders.
- To encourage public participation in the related actions on the priority projects
- To heighten public awareness on the priority projects and their expected roles.
- To share the common issues on the priority projects, the sewerage schemes and river water pollution within the public and the private sector.

(2) Necessary Explanatory Meetings

In accordance with the schedule of the projects in *Varanasi* City the necessary explanatory meetings for the priority projects and the timing are summarised in Table 4.3.

The frequency of the meetings has been decided as per the details given in Appendix A1.

Table 4.3 Explanatory Meetings

Year	Timings and Agenda*	Frequency
2006	- Immediately after recruitments in VNN and allotting of new responsibilities to staff to inform the roles and functions	1
2007	- Immediately after deciding of details of Yearly campaign (2a) - After finishing each campaign implemented to inform the evaluation of all results of each campaign (2b)	2
2008	- Immediately after deciding of details of Yearly campaign (3a) - After finishing each campaign implemented to inform the evaluation of all results of each campaign (3b)	2
2009	- Immediately after deciding of details of Yearly campaign (4a) - After finishing each campaign implemented to inform the evaluation of all results of each campaign (4b)	2
2010	- Immediately after deciding of details of Yearly campaign (5a) - After finishing each campaign implemented to inform the evaluation of all results of each campaign (5b)	2
2011	- Immediately after deciding of details of Yearly campaign (6a) - After finishing each campaign implemented to inform the evaluation of all results of each campaign. (6b)	2

* In all explanatory meetings the community, stakeholders and Mass media in *Varanasi* shall be involved

4.4.3 Publicity Programmes

The publicity programmes shall be planned and implemented to advertise widely the information on the projects as detailed in the master plan, to the population in Varanasi City through the mass media and printed materials to ensure that the city population is adequately informed about the actions and invited to participate at free will.

Apart from these programmes tied to the priority projects publicity will also be undertaken regularly as will be discussed further in section 4.5.5. However, the necessary publicity programmes in this section may be detailed under two heads as follows:

(1) Publicity Programme on Opening of the Public Awareness Section and Targets

In 2006, new staff shall be recruited in the VNN and new duties shall be assigned to the Health Department of VNN. These functions need to be made public so that people are aware of the authorities to contact in case of any need. Therefore, a publicity programme on opening of the Cell shall be launched in 2006 for several days to inform of the functions and the expected roles to population of Varanasi City through the specified activities.

The target groups for main activities of the programme are:

- The sewerage project are being implemented in districts I, II and III so people living in districts I, II and III are the direct beneficiaries for the current phase –Target Group I
- Because the cell is to become an integrated part of the VNN so the whole of the city population becomes a beneficiary (indirect) – Target Group II
- The PP/PA programme of the non-sewerage scheme will be coordinated through this cell as well so they become the future beneficiaries –Target Group III

As per the target groups the activities (details in Table 4.14, section 4.6) are summarised in Table 4.4.

Table 4.4 Publicity Programmes on Opening of PP/PA Cell (PP 1)

S. No	Category	Activity	Duration	Message
1	Target Groups I	Information Mela	1 week	- Information on the new Cell is disseminated. - Involvement in the sewerage schemes of the primary target groups is encouraged.
		Information Van	2 weeks	
		Information Kiosk*	1 month	
2	Target Groups II	Information Mela	1 week	- Information on the new Cell is disseminated. - Future involvement in the sewerage schemes of the secondary target groups is encouraged
		Information Kiosk**	1 month	
3	Target Groups III	Information Kiosk***	2 months	- Information on the new Cell is disseminated. - Related information, concept, future plans and actions are disseminated to the remainders. - As for the LIGs, coordination with the PP/PA programmes for the non-sewerage scheme is necessary
		Information Mela	1 week	

* One kiosk each in district I, II and III.
** One kiosk on a frequently visited public place or near an important public office like Nagar Nigam.
*** This Kiosk shall be near the slums rotating to four areas (2 days per area). Location selected shall be such so as to have maximum coverage.

(2) Publicity Programmes on the Priority Projects & Targets

From 2007 to 2009, new construction and rehabilitation of the sewerage scheme are planned as the priority projects in Varanasi City as shown in Table 4.1. Similarly under the non-sewerage scheme activities towards construction and rehabilitation of CTCs and Dhobighats are planned from year 2006 to 2009.

Therefore, publicity programmes on new construction and rehabilitation shall be launched through the beginning to the end of the project i.e. year 2006 to 2009 accordingly, to inform of those projects outlines, schedules & construction timings, projects' benefits, starting of operation of the projects and so on to the population of Varanasi City.

The **tools** to be utilised for publicity in this section are: Hoardings, Banners, and Advertisements in

newspaper and T.V., Posters, Pamphlets, Hot Air Balloons and News in local channels the details about which can be referred to in section 4.6 Table 4.14 on communication tools.

For the projects under the non-sewerage component the necessary publicity will take place only in the year 2006 when the demonstration projects for these are being constructed and these will at two times before and after completion of each construction/rehabilitation.

The target groups and main activities for projects under sewerage scheme the programmes can be summarised in Tables 4.5 and 4.6.

Table 4.5 Publicity Programmes on the Sewerage Projects (1)

Projects	Category	Target Groups	Information Publicised
- Rehabilitation of Dinapur STP in the District I - Rehabilitation of Konia PS in the District I - Rehabilitation of Trilochan PS (Ghat PS) in the District I - Rehabilitation of Jalesan PS (Ghat PS) in the District I - Rehabilitation of Dr. RP PS (Ghat PS) in the District I - Rehabilitation of Mansarovar PS (Ghat PS) in the District I - Rehabilitation of Harishchandra PS (Ghat PS) in the District I - Rehabilitation of Old Trunk Sewer in the District I - New construction of Sathwa STP District II - New construction of Varuna River Interceptor 1 District II - New construction of Varuna River Interceptor 2 in District II, - New construction of Ramna STP in District III - New construction of Bhagwanpur STP in District III	Primary Target Group	- The direct beneficiaries of the projects live in the district I, II and III - Direct beneficiaries may be defined as ones that have connections to or have their sewage flowing through the respective sewerage scheme component	- Information on the rehabilitation and new constructions is disseminated before the constructions in 2006. - Information on direct benefits of the project is informed in 2008. - Information on progress of Rehabilitation of Old Trunk Sewer in District I, new construction of Sathwa STP in District II and new construction of Ramna STP in District III in 2009 - Information on completion and starting of operation of Rehabilitation of Dinapur STP, Konia PS, Trilochan PS (Ghat PS), Jalesan PS (Ghat PS), Dr. RP PS (Ghat PS), Mansarovar PS (Ghat PS), Harishchandra PS (Ghat PS), new construction of in district II, new construction of Bhagwanpur STP in District III in 2007 - Information on completion and starting of operation of new construction of Varuna River Interceptor 1, Varuna River Interceptor 2 in District II in 2008 - Information on completion and starting of operation of Rehabilitation of Old Trunk Sewer in District I, new construction of Sathwa STP in District II and new construction of Ramna STP in District III in 2009
	Secondary Target Group	- The indirect beneficiaries of the projects live in the district I, II and III. - The indirect beneficiaries may be defined as ones those shall be connected to the respective sewerage component in near future through individual efforts or by the government agency	- Information on the rehabilitation and new construction is disseminated before the construction in 2006. - Indirect benefits of the project are informed in 2007. - Future plans and actions of the sewerage schemes are informed to the secondary targets in 2007. - Information on progress of Rehabilitation of Old Trunk Sewer in District I, new construction of Sathwa STP in District II and new construction of Ramna STP in District III in 2008 - Information on completion and starting of operation of Rehabilitation of Dinapur STP, Konia PS, Trilochan PS (Ghat PS), Jalesan PS (Ghat PS), Dr. RP PS (Ghat PS), Mansarovar PS (Ghat PS), Harishchandra PS (Ghat PS), new construction of in district II, new construction of Bhagwanpur STP in District III in 2007 - Information on the rehabilitation and new constructions is disseminated before the constructions in 2006. - Information on direct benefits of the project is informed in 2007. - Information on progress of Rehabilitation of Old Trunk Sewer in District I, new construction of Sathwa STP in District II and new construction of Ramna STP in District III in 2008 - Information on completion and starting of operation of Rehabilitation of Dinapur STP, Konia PS, Trilochan PS (Ghat PS), Jalesan PS (Ghat PS), Dr. RP PS (Ghat PS), Mansarovar PS (Ghat PS), Harishchandra PS (Ghat PS), new construction of in district II, new construction of Bhagwanpur STP in District III in 2007 - Information on completion and starting of operation of new construction of Varuna River Interceptor 1, Varuna River Interceptor 2 in District II in 2008 - Information on completion and starting of operation of Rehabilitation of Old Trunk Sewer in District I, new construction of Sathwa STP in District II and new construction of Ramna STP in District III in 2009

* If there are direct and indirect LIGs, such LIGs shall be excluded and treated as direct and/or indirect beneficiaries
** The details of the activities are to be found in the Table 4.14, section 4.6 on Communication Activities

Table 4.6 Targets & Main Activities for Publicity Programmes on the Sewerage Projects (2)

Projects	Category	Target Groups	Information Publicised
- New construction of Chaukaghat PS No.1 in District II - New construction Chaukaghat PS No.2 in District II - New construction Azamgarh Road Trunk Sewer in District II - New construction Varuna River Interceptor 3 in District II - New construction Varuna River Interceptor 4 in District II - New construction Relief Trunk Sewer in District II - New construction Assi River Interceptor in District III	Primary Target Groups	- The direct beneficiaries of the projects live in the district II and III - Direct beneficiaries may be defined as ones that have connections to or have their sewage flowing through the respective sewerage scheme component	- Information on the new construction and rehabilitations are disseminated before the construction/rehabilitations in 2007. - Direct benefits of the projects are informed in 2008. - Progress Rehabilitation of Old Trunk Sewer in District I, new construction of Chaukaghat PS No.1, Chaukaghat PS No.2, Azamgarh Road Trunk Sewer, Relief Trunk Sewer in District II and Assi River in Interceptor in District III and new construction of Ramna STP in District III is informed in 2009. - Completion of the construction/rehabilitations and starting of the operation is informed in 2010.
	Secondary Target Groups	- The indirect beneficiaries of the projects live in the district I, II and III. - The indirect beneficiaries may be defined as ones those shall be connected to the respective sewerage component in near future through individual efforts or by the government agency	- Information on the new construction and rehabilitations are disseminated before the construction/rehabilitations in 2009. - Indirect benefits of the projects are informed in 2009. - Future plans and actions of the sewerage schemes are informed to the secondary targets in 2007 as well as in 2010 - Progress of the construction/rehabilitations is informed in 2010. - Completion of the construction/rehabilitations and starting of the operation is informed in 2010.
	Tertiary Target Groups	- The remainders are considered as future beneficiaries. - Primarily the slum population and LIG* to some extent that may be connect in some far future but only though government efforts and are presently being covered under the non-sewerage component	- Information on the new construction is disseminated before the construction in 2009. - Future plans and actions of the sewerage schemes are informed to the reminders in 2007 as well as in 2010. - As for the LIGs, coordination with the PP/PA programmes for the non-sewerage scheme is necessary

* If there are direct and indirect LIGs, such LIGs shall be excluded and treated as direct and/or indirect beneficiaries
** The details of the activities are to be found in the Table 4.14, section 4.6 on Communication Activities

4.4.4 Demonstration Programmes

(1) Demonstration Programmes for Sewerage Works

In accordance with the priority projects' schedule, demonstration programmes on the new and rehabilitated facilities (relief sewers, pumping stations and so on) shall be launched at the start of operation of these facilities to demonstrate and show them to the population. In addition, the programme shall include publicity on the primary projects' incentive of health benefit, burden sharing and Polluter Pays Principal (PPP) to get the residents' cooperation and public participation in advance for the necessary operation and maintenance of those facilities.

The target groups and main activities for the programmes can be summarised in Tables 4.7 and 4.8.

Table 4.7 Targets & Main Activities for Demonstration Programmes on the Sewerage Projects (1)

Projects	Category	Target Groups	Main Activities
- Rehabilitation of Dinapur STP and Konia PS in the District I - Rehabilitation of Trilochan PS (Ghat PS) and Jalesan PS (Ghat PS) in the District I - Rehabilitation of Dr. RP PS (Ghat PS), Mansarovar PS (Ghat PS) and Harishchandra PS (Ghat PS) in the District I - Rehabilitation of Old Trunk Sewer in the District I - New construction of Sathwa STP and Varuna River Interceptor 1 in District II - New construction of Varuna River Interceptor 2 in District II, - New construction of Ramna STP in District III - - New construction of Bhagwanpur STP in District III	Primary Target Group	- The direct beneficiaries of the projects live in the district I, II and III - Direct beneficiaries may be defined as ones that have connections to or have their sewage flowing through the respective sewerage scheme component	- **Site Visits:** after completion of these facilities in 2007, 2009 and 2010 - **Group Discussions:** The direct benefits, several constraints and burden sharing of the operation and maintenance of these facilities are informed to and shared with the target groups at the time of the demonstration and site visits.
	Secondary Target Group	- The indirect beneficiaries of the projects live in the district I, II and III. - The indirect beneficiaries may be defined as ones those shall be connected to the respective sewerage component in near future through individual efforts or by the government agency	- **Site Visits:** after completion of these facilities in 2007, 2008 and 2009 - **Group Discussions:** Indirect benefit like health and environmental sanitation improvement, future plans and actions of the sewerage schemes are informed to the secondary targets after completion of these facilities in early 2007, 2008 and 2009. - Information also to be dissipated on the agencies to approach and ways to connect to the facilities
	Tertiary Target Groups	- The remainders are considered as future beneficiaries. - Primarily the slum population and LIG* to some extent that may be connect in some far future but only though government efforts and are presently being covered under the non-sewerage component	- **Publicity:** Information on the facilities constructed and rehabilitated is informed after completion of these facilities in early 2011. - Indirect benefit like health and environmental sanitation improvement, future plans and actions of the sewerage schemes are informed to the Tertiary targets after completion of these facilities in 2011. - As for the LIGs, coordination with the PP/PA programmes for the non-sewerage scheme is necessary

* If there are direct and indirect LIGs, such LIGs shall be excluded and treated as direct and/or indirect beneficiaries
** The details of the activities are to be found in the Table 4.14, section 4.6 on Communication Activities

The site visits shall be undertaken for two groups, the general public and school students of the locality. During the site visit for students they shall be informed about the working of the system and benefits that shall occurs to the overall surroundings of the city. The site visits may be clubbed with painting competitions and extempore.

Table 4.8 Targets & Main Activities for Demonstration Programmes on the Projects (2)

Projects	Category	Target Groups	Main Activities
- New construction of Chaukaghat PS No.1 in District II - New construction Chaukaghat PS No.2 in District II - New construction Azamgarh Road Trunk Sewer in District II	Primary Target Group	- The direct beneficiaries of the projects live in the district I, II and III - Direct beneficiaries may be defined as ones that have connections to or have their sewage flowing through the respective sewerage scheme component	- **Site Visits:** after the completion of the rehabilitation of the system in 2009 and 2009. - **Group Discussion:** The direct benefits, several constraints and burden sharing of the operation and maintenance of these facilities are informed to and shared with the target groups at the time of the demonstration and site visits.
- New construction Varuna River Interceptor 3 in District II - New construction Varuna River Interceptor 4 in District II - New construction Relief Trunk Sewer in District II	Secondary Target Group	- The indirect beneficiaries of the projects live in the district I, II and III. - The indirect beneficiaries may be defined as ones those shall be connected to the respective sewerage component in near future through individual efforts or by the government agency	- **Site Visits:** after completion of these facilities in 2012 - **Group Discussions:** Indirect benefit like health and environmental sanitation improvement, future plans and actions of the sewerage schemes are informed to the secondary targets after completion of these facilities in 2008 and 2009. - Information also to be dissipated on the agencies to approach and ways to connect to the facilities
- New construction Assi River Interceptor in District III	Tertiary Target Groups	- The remainders are considered as future beneficiaries. - Primarily the slum population and LIG* to some extent that may be connect in some far future but only though government efforts and are presently being covered under the non-sewerage component	- **Publicity:** Information on the system rehabilitated is informed after completion of these facilities in 2008 and 2009. - Indirect benefit like health and environmental sanitation improvement, future plans and actions of the sewerage schemes are informed to the Tertiary targets after completion of these facilities 2008 and 2009. - As for the LIGs, coordination with the PP/PA programmes for the non-sewerage scheme is necessary

* If there are direct and indirect LIGs, such LIGs shall be excluded and treated as direct and/or indirect beneficiaries
** The details of the activities are to be found in the Table 4.14, section 4.6 on Communication Activities

(2) Demonstration Programmes for Non-Sewerage Works

The non-sewerage activities include construction of CTC and Dhobighat facilities, which total to almost 200 or above in the city. The large numbers of facilities that have to be constructed put a restriction on the fact that each of these can be accompanied with a demonstration programme as have been the sewerage activities.

Therefore in the non-sewerage works the demonstration projects (5 CTC and 2 Dhobighats) will be accompanied with demonstration programmes. Here the start and completion of the construction shall be treated as an event marked with associated functions. The community people will be invited to the place and the detail designs of the respective facility shall be displayed and explained. The opportunity shall also be taken to announce the next activity as well.

Apart from the community the invitees shall include people from the office at Nagar Nigam, local NGO, local press and some prominent people in the city.

Each event will be managed in a sum of approximately Rs 15,000/-.

4.5 REGULAR PROGRAMMES

In addition to the specific programmes discussed above, in order to maintain sustained public participation and public awareness on the environment, health, sanitation, and burden sharing of the

sewerage projects, continuous efforts shall be made with the following general actions.

- Entry Point Activities
- Regular Publicity
- Regular Activities executed under the Yearly Theme Campaign in *Varanasi* City
- Regular activities for community building (CBO formation) in the slums
- Regular activities in Bathing Ghats for ghat improvement project
- Periodic Activities such as setting up "Clean River Day" and "Clean River Week"

4.5.1 Entry Point Activities

To build a platform for initiating the programmes in the city certain activities have to be undertaken in the first year. Apart from the formulation of SPC and the required cells the need shall be towards creation of informal groups in each of the cities with representatives that will co-ordinate with the SPC or be part of SPC so that the programme can reach all to the end.

Also slums will be targeted as special areas to build faith in the people there. They are being treated as special places because the socio-economic conditions of the people and the area restrict the reach and people's participation in programmes going on in the city.

The first year shall be entirely committed to building a platform for formation of these groups and advocating the idea within people so that they become receptive to the future programmes.

(1) Community Workshop

The workshop shall invite the people from city from various walks of life and build an informal group that shall commit themselves to participate regularly in the explanatory meetings and act as ambassadors to communicate with the people.

Invitees shall include doctors, Lawyers, Leaders (political and religious), prominent women activist, artists, government officials, Architects, Academicians, Environmentalist, Sociologist and other professionals so as to have a representative group for a mix of ideas. The idea here shall be to invite people from all cities geographically so that they can then help to form ward committees in their area and also other groups. If there are existing citizens committee in the city then the primary objective of the workshops shall be to strengthen them to act as the needed group.

One special workshop shall be taken up solely for people from the slums and the venue will also be near a slum area. This is done to ensure reach to lowest section of society, and the invitees will include forward-thinkers from the slums and NGO's working with them. Here 50% of the invitees have to be women that live in the slums and have been working for socio-cultural and other needs in their community. The help of NGO locally working in the area my be sought for deciding the invitees.
Each workshop shall be in the form of a series of interactive sessions over a time of three months as detailed. Overall three workshops will be held considering the city into 2 geographic areas and the slum localities.

Session I

The first session shall introduce the team to the people and the basic idea of having these sessions. This first session has to be followed by designing questionnaires and decide sample size for survey that shall collect information on the health of the people.

Women shall be important invitee list because they are the main family member responsible for health and hygiene in the house and so shall be practicing local doctors as they will certainly have a basic idea of the status of the locality and will be trusted in the people.

The agenda of this session shall be

- Introduce community to project team and survey team
- Brief people about the programme idea (this particular programme not the whole awareness campaign)
- Discuss general health problems faced by the people on regular basis (the emphasis shall be on the diseases because of environmental health and not go to lifestyle diseases).
- Introduce community to the idea of conducting the survey and need for their co-operation
- Invite their suggestions of basic design of the questionnaire.

At the end of the day the session shall be deemed successful if a support has been gathered in the people for co-operating in the survey that is being conducted.

Session II

Now after having a feel for the area and its needs this session shall concentrate on development of the questionnaire for the survey and that shall remain the soul agenda.

The basic important information the survey should provide is

- Nature of the disease
- The frequency of contacting the illness
- The average duration that people fall sick for
- The age group and sex most vulnerable
- The average amount of money spent each time

This information may also be collected using means other than a survey like focus group discussions and other participatory methods. The decision to this effect shall be taken by the agency working in the area depending on the people's behaviour in the locality, which can easily be made after the first session. In fact, a discussion to this effect can also be held in the first session if an agency seeks to use other means.

Session III

As a preliminary to this the health data for the locality shall be tabulated and results examined. The analysis will tabulate the health effects in terms of the total days of work lost by a single individual and the amount of money spent each year on an average for treating these diseases.

The background study reflects on the prevalence of water born diseases and the survey should neither show much varied results.

The team shall be carrying before hand materials to link the presence of the disease to its causes establishing linkages here with sanitation.

Agenda

- Discuss results of survey with the people
- Involve local doctors to bring forward the reasons for the spread of these diseases
- Generate interest through charts and other interactive media to explain the chain and linkage to poor sanitation.

This session should end leaving people thinking on the situation and no interest should be shown towards discussing the sanitation situation in the area. This point shall be taken up in the next session.

Session IV

If the earlier three sessions have left any mark on the minds of the people then this session will not need any initiation and talk itself will flow over to the existing situation in the area that may lead to these causes.

Thus the agenda here shall be

- Discuss present situation in the locality
- Discuss people's personal behaviours – practicing hygiene and other daily practices
- Narrow down on the causes that are most important and need to be tackled immediately
- The measures that can solve these problems.

Leave the session letting people think of ideas on means and measures that should be used to spread the message in the general public

Session V

Discuss the programmes that people suggest for implementation.

Note – the Authorities need not be the top officials because their availability may at times hamper the progress of the workshops. These can be people of the cadre of assistant engineers and ones that work at sites and actually interact with the people.

(2) Introductory Sessions

A team of people comprising members from the various cadres of the implementing agencies i.e. SPC, NPPAC, VNN, and Local Consultant shall visit each of the city wards and organise informal groups and introduce themselves and the idea of the whole campaign within the people, encouraging them to look forward to forthcoming programmes.

These sessions shall follow the Community Workshops and shall try to include people that have attended the workshop to facilitate in their respective locality.

The group may target 5 – 6 places in a day. Their targets shall include city Wards, Clubs, Swimming Clubs, Educational Institutes, Schools, slums etc. Care must be taken that one of the areas visited in two days has to be a slum. They shall also go down and get groups of people at parks and community places to spread the idea. The activity shall be completed within a period of 4 months after holding the community workshops. Special care should be taken to reach institutes like Nadwa-ul-ullema.

4.5.2 Regular Publicity

Publicity on regular basis is important to keep the message fresh in the minds of the people. This effort shall ensure that the much-needed relation between Health and Sanitation is made clear in the minds of the people. The publicity shall make use of communication tools as explained in section 4.6. The messages sent to the public can be

- Importance of sewerage in the city and impact on health due to lack of the same
- Better Hygienic practices
- Necessity of cleaner a Environment
- The fate of Holy River if present situation continues
- Dissuade from use of mud idols and wheat deepak (light cup) for immersing in river Ganga etc.

The themes shall be decided by the SPC in consultations with the community (esp. women) and stakeholders but the emphasis in Varanasi shall be to impact people's minds through a rationale

approach for adverse health effects. This is because the analysis previously conducted proves that the city does not have a very religious flavour for the river and so a message rooted in sentiments may not have desired impact.

4.5.3 Yearly Campaign

As one of the important actions for the continual efforts, a yearly campaign should be implemented in Varanasi City in accordance with public participatory approach and the stepwise planning as has been discussed in the Hygiene Education Plan by the JICA Study Team.

The yearly campaign will set the tone for the entire PP/PA programme of the year. Activities of yearly programme will be spread over the year and timings of these activities will be decided by the SPC and discussed in the community workshops. However inaugural programme will be held early in the year.

The yearly campaign shall comprise of a mix of the communication activities as have been listed in section 4.6. The appropriate mix shall be approved by the SPC.

The yearly campaign shall have specific themes. Based on the setting of the PP/PA Cell of VNN in 2006, the priority projects of Varanasi City from 2007 to 2009 and those concepts, the suitable themes and a list of activities are proposed in Table 4.9.

Some main points to be taken care of while deciding the programmes for yearly campaign shall be:

- **Emphasis shall be on generating willingness to pay at the end of Campaign**
- Ghats are the indispensable part of *Varanasi* city and will be dealt within the non-sewerage component of Master Plan, but still **Volunteer groups** of priests that perform rituals along the banks shall be formed and they shall be trained separately. The aim of training will be to develop them into patrollers for Ganga ghats to ensure cleanliness. Special group discussions and training programmes shall also be arranged for them to educate on use of materials and means that do not harm nature.
- Have **competitive programmes** for hotels and *dharamshalas* to mark them as eco friendly hotel or most hygiene conscious *dharamshala* or something of the like.
- Religious leaders and religious messages need to be included – especially the **seers that perform rituals on the banks** should be formed into groups and special group discussions and training programmes shall be arranged for them to educate on use of materials and means that do not harm nature.
- Gear up **publicity** and have special **transect walks** and **information kiosks** around Mahashivratri, Holi, Navratri, Ramnavami, Rath Yatra, and Krishna Janmashthami
- Religious leaders and religious messages though need to be included but care must be taken that these leaders do not indulge to forming a lobby of their own as it may harm the campaign theme.
- **Swasthya Mela** once in the year shall be compulsory

Table 4.9 Themes for the Yearly Campaign

Year	Yearly Themes	Activities
2007	- Health and Sanitation condition in *Varanasi* - Pollution in Ganga	Focus Group Discussions (FGDs), Transect walks, Swasthya Mela (Health Camp), School programmes, Programmes for women, Information Mela – description of the same has been given in Table 4.14, sec 4.6 and the programmes will make use of the communication tools described in Table 4.14, sec 4.6
2008	- Waste water management and health linkage - Necessity sewerage systems.	
2009	- Constraints on construction, rehabilitation, and O&M of Sewerage Systems	
2010	- Responsibilities of citizens and civic authorities of *Varanasi* for better sewerage management	
2011	- Environment Friendly City and Burden Sharing especially generating willingness to pay	

4.5.4 Regular Activities

The main aim of the Sewerage Project is 'Abatement of Pollution in River Ganga' so this aspect has to be highlighted and kept fresh in the minds of the people throughout the period. For the same regular activities shall be undertaken as described.

(1) Clean River Day

A Clean River Day shall be set up twice a year as a public day or a public holiday in *Varanasi* City. The day may be selected at the 'International Environmental Day' or other important day related to *Ganga* River or immediately before Durga Puja when many idols are immersed in river *Ganga* to raise awareness.

The day may recognize the importance of "Clean River" with several activities:

- A ceremony of the day with speech by environmentalist
- Dissemination of related information to the people in *Varanasi* City through the mass media and printed materials
- Dissemination of related information to tourists and business trippers in *Varanasi* City through the mass media and printed materials in cooperation with local hotels
- Exhibition/Demonstration on Clean River such as methods of wastewater treatment
- Trips and picnics for School Children with competitions held on river banks, with special attention to include slum children.
- Display of some Demonstration Project like a Wetland Park along river bank
- Transect walk along river, covering communities settled along the river to be a part.
- River cleaning drive

The Clean River Day shall have specific theme every year for one day. Based on the priority projects of *Varanasi* City from 2007 to 2009 and the public participatory approach and the stepwise planning concepts, the suitable themes are proposed as shown in Table 4.10.

Table 4.10 Yearly Themes for the Clean River Day

Year	Yearly Themes	Activities
2007	- Health and Sanitation Condition in *Varanasi* - Pollution in Ganga	
2008	- Waste water management and health linkage - Necessity of sewerage systems.	
2009	- Constraints on construction, rehabilitation, and operation and maintenance of Sewerage Systems	

Year	Yearly Themes	Activities
2010	- Responsibilities of citizens and civic authorities of *Varanasi* for better sewerage management	
2011	- Environment Friendly City and Burden Sharing especially generating willingness to pay	

(2) Clean River Week

A Clean River Week shall be organised once a year for seven days at a stretch. The week will highlight the importance of "Clean River" to the people of *Varanasi* specially schoolchildren, who are the future actors and information disseminators for their family members, and sensitise on wastewater management and clean river environment. Swasthya Mela and School Programmes as detailed in section 4.6 shall be an essential part of this week every year along with a mix of other activities. Some suggested activities during Clean River Week may be:

- Dissemination of related information to the people in *Varanasi* City specially children through the mass media and printed materials
- Dissemination related information to tourists and business trippers in *Varanasi* City through the mass media and printed materials in cooperation with local hotels
- Exhibition/Demonstration/ Rallies on Clean River such as methods of wastewater treatment, sewerage management
- Painting Competition/ Debates/ Essay Competition on 'Clean River'
- Transect walk Rally along the Ganga River
- Sports Competitions on the bank of Ganga
- Workshop/Seminars/Awareness Camps to discuss cause and effect of river pollution and the solution
- Clean River drive

The Clean River Week shall have specific theme every year for one week. It shall be taken care that of all the activities 25% are directed towards the slum population. Based on the priority projects of Varanasi City from 2007 to 2009 and the public participatory approach and the stepwise planning concepts, the suitable themes are proposed as shown in Table 4.11.

Table 4.11 Yearly Themes for the Clean River Week

Year	Yearly Themes	Activities
2007	- Health and Sanitation Condition in *Varanasi*, Pollution in Ganga	Ceremonial Speech, Mass Media Campaign, Publicity Campaign, Film Screening, Transect Walk, River Cleaning Drive, Sports Competitions along river, Workshop/Seminar/Awareness Camps, School Programmes
2008	- Waste water management and health linkage as well as necessity sewerage systems.	
2009	- Constraints on construction, rehabilitation, and operation and maintenance of Sewerage Systems	
2010	- Responsibilities of citizens and civic authorities of *Varanasi* for better sewerage management	
2011	- Environment Friendly City and Burden Sharing especially generating willingness to pay	

4.5.5 Regular Activities for Slums and Dhobighats

(1) Regular Visits

Slums and Dhobighats have to be treated as special areas. The reasons for the same may be elaborated as

- The interface for interaction between the community and the official of the local body is

non-existent.

- Heterogeneity of community structure is a major constraint. It is felt that formulation of CBO and achievement of strategic consensus is a much easier task within homogenous communities.
- In heterogeneous communities one organized institutional structure is difficult to formulate.
- Mobilizing these communities, as a vehicle of participation is the most difficult task.
- To build trust within the communities to participate in the sanitation programme is major constraint. Experience shows that a considerable amount of time and commitment is required on the part of NGO for this activity.
- Social habits of the community are also a major constraint.
- Dhobighats are also heterogeneous areas the people working generally come from slums and display similar characteristics.
- Associations for the management of Ghats exist but a major constraint with them is the adoption of new work culture.

For Slums

To overcome these problems and especially for the creation of neighbourhood groups and then CBO's it is essential that the local NGO' visits these areas on a regular basis and keeps hammering upon the idea constantly.

For this purpose the city shall be divided as per the sewerage zones and yearly budget allocations for each zone shall be made based on the slum population and number of ghats falling in the area. The local NGO shall appoint zonal in charge for these and they shall work to achieve target. The usage of funds and the activities undertaken will be to the discretion of area in-charge but they have to be compiled and reported on monthly basis.

Each cluster of app 400 households shall be clubbed into a Slum Neighbourhood Group (SNG) and 10 SNG's shall comprise one Slum 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.

The slum community programme will move with the intention of propagating the hygiene virtues and making PP/PA a continuous process. 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. These regular visits may be planned in three phases as explained below

1) Phase I – Awareness for needs and design (Pre-Construction Phase)- 3 months

Interactions should be organized at the community level to explain the objective and benefits of the LCS programme. These should clarify roles and responsibilities of different stakeholders, and the key elements of the LCS programme such as the layouts, construction material, and importance of treatment of waste water before disposal, and O&M issues etc. 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 design of facilities shall be discussed and inputs sought from the community
- The inputs received from the community can form the basis of initiation and content of PP/PA programme.

2) 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.

3) 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 neighbourhood.

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.

For Dhobighats

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

The targets to be achieved are summarised in Tables 4.12 and 4.13.

Table 4.12 Targets for Slum Area Programmes

Stages		Target	
2006	**Stage I**	- Development of faith in the community	**Pre- Construction Phase**
	Stage II	- Articulation of the process of CBO formation. The identification of key persons in the area that may act as catalyst must be completed. - Analysis of community for their ability to pay and preferred payment mechanisms in detail as per areas - Identification of site - Initial discussion on the preferred design	
	Stage III	- Formalization of process of CBO formation - Adequate willingness in people to use the facility - Finalisation of designs	
	Stage IV	- Finalization of the payment mechanisms – may differ from area to area depending on community need - Operationalisation of CBO/neighbourhood groups in areas where construction gets completed. - Working of CBO/ neighbourhood groups with assistance of NGO - Implementation of the preferred payment mechanisms	**Construction Phase**
	Stage V	- The NGO intervention is reduced and the built facilities move towards sustainable operation and maintenance - Substantial amount of users are making use of the facility - Payment mechanism is formally in place - If need be liaison is initiated/completed with private companies for O&M of facilities through the CBO/ neighbourhood groups	
2011	**Stage VI**	- The NGO withdraws and CBOs start working on their own – help is extended only if they demand - The payment mechanisms are working smoothly - Sustainability to some extent is achieved.	**Post Construction Phase**

Table 4.13 Yearly targets for Dhobighat Programme

Stages		Target	
2006	**Stage I**	- Development of faith in the Dhobis and their associations - Willingness of Dhobis to use the new type of facility - Initial discussion on the preferred design - Initial discussion on O&M required - Training on the use of new type of facility and associated changes	**Pre-Construction Phase**
	Stage II	- Fully equipped association takes charge - O&M by associations initiated with help from NGO - People willingly using the facility	**Construction Phase**
	Stage III	- If need be liaison is initiated/completed with private companies for O&M of facilities through the associations - Association maintaining the facility with very little help from NGO	
2008	**Stage IV**	- The facilities are operating well on their own - NGO starts withdrawal	**Post Construction Phase**

(2) Community Workshops for Slums and Dhobighats

These workshops are held for the capacity building of the slum CBO's and their inclusion in the mainstream programme activities. These shall be held at regular frequency of 2 WS per month for years 2008-2011.

For adequate representation of the 0.46 million slum community it is advised that four representatives from each of the CBO will be attending the meeting. One Slum CBO shall comprise of 10 slum Neighbourhood Groups that in turn will roughly comprise of 2000 persons or 400 families. This number may vary depending on the physical distribution of slums but only to the extent of 5%.

Overall 10 CBO's will attend a WS that estimates to 50 persons (40 from CBO's and 10 from administration, NGO etc)

The objectives of the workshops shall be to:

- Review the work in progress in the slum communities
- Review the reach of other regular city programmes to these communities
- Discuss the agenda of Explanatory meetings held in recent past and elect representatives from them to attend the next explanatory meeting (will be only twice a year)
- When relevant decide on the activities and how these communities can participate in city activities of 'Clean River Day' and 'Clean River Week'

(3) Health Camps

Health camps will be organized in/around the slums on a regular basis of 2 per year for three years (2^{nd}, 3^{rd} and 4^{th} year).

Free checkups medicines will be given to all the slum dwellers. For the first year the camp will be open to all but for the next two years people will have to approach through the neighbourhood groups. People who do not agree to the idea of improved sanitation shall not be receiving this benefit.

4.6 COMMUNICATION TOOLS TO BE UTILISED

In *Varanasi* and other parts of India, a lot of communication tools have been applied for PP/PA activities as reviewed in the Hygiene Education Plan. Among and in addition to them, Table 4.14 summarizes those communication tools, which could be utilised in combination to promote the PP/PA programmes and related activities in *Varanasi* City.

Table 4.14 Communication Tools

Communication Tools	Description	Target population
Media		
Press	Press is the most important tool to reach the public at their doorsteps and has mass appeal. Press releases should precede any event being organised so that public is aware of it and may attend if they wish so. After the event the proceeding and findings (if any) should also be published.	**All Population**
Press Conference		
Press Release		
Articles		
Advertisements	Advertisement in 4 newspapers with local edition.	
Television	The attempt should be to make them interesting	
Talk shows	Regularly on local regional channel	
Advertisements	On local Cable TV and channels targeting *Varanasi*/UP	
News	Awareness and participation with the help of TV news	
Other Publicity Materials		
Hoardings	These mediums will generate the much needed flavour in the city and will be the most appreciable visual changes. The magnitude should be such that no person in the city is left untouched by these	
Banners		
Posters		
Pamphlets		
Hot Air Balloons		
Other means		
Theme plays	Theme Plays, Street Plays etc. in the target areas. They may also be referred to as *Nukkad Nataks* when performed in streets	General Public, Slum public
School Programmes	Painting Competition, Debates, Essay Competition, Rallies of children etc Shall be organised in Schools with themes defined in yearly campaign	School Children
Information Kiosks	Small setting like a hut to distribute related information on Priority projects and themes of other activities as decided, installed at various locations as need may be during the programme	People in vicinity of location
Power Point Presentations	They can be used to target the youth in colleges and universities where a technical message might have a better appeal than the general one. One college can be targeted at the initial from where a group of volunteers may be picked and trained to take the action further in other colleges.	College Youth, Professors, High School Children
Documentary Films	Films on appropriate sanitation practices, health and hygiene should be relayed. Such shows should be held in public places on large projector screens like outside multiplexes and theatres, public gardens, Swimming clubs etc.	General Public
Information Van	Property of the ANN it may be a small four-wheeler like Maruti Van able to move freely on narrow and congested roads, well equipped with mediums like projector, screen, public address system etc and will be used for publicity at various stages in the PP/PA activities also to distribute publicity materials whenever required. Can be covered from two sides with slogans or message related with the activity.	General Public
Site Visits	Visits (Sewers are underground. But symbolic sites of related to the system like a manhole of the starting point of the system and so on) on the facilities constructed and rehabilitated shall be undertaken after completion of these facilities	General Public
Shram Dan	Organised with the slum community to let them have ownership feeling for the assets being created for them. Here in the intention is that the people come forward and participate in the activities for building assets for them.	Slum Populations

Apart from these tools the various activities that will make effective use of these tools communication are listed further in Table 4.15.

Table 4.15 Activities for Communication

Communication Activities	Description	Intended Target population
Focus Group Discussions (FGDs)	These discussions are meant to build a consensus among the influential people in the city - those having a mass appeal so that they may later act as volunteer ambassadors spreading the message. Another Group of discussions shall try to build on the existing organisations like the resident associations to build them as examples to be presented to the people.	Lawyers, Doctors, Professors, Religious Leaders, Political Personalities, Municipal Officers, RA's and other Professionals
Transect walks/Padyatras	Walks through locality to identify unhygienic points and disease breeding locations with the individuals of the locality	Women and Youth
Workshops	These shall be discussion more oriented for the general residents of the societies and can be arranged in each of the wards. Here the discussions can be held on health and sanitation, progress of priority project etc. Besides these discussions free medical checkups can be an incentive to people attending.	Beneficiaries and future beneficiaries of priority projects
Swasthya Mela in city	This can be part of yearly campaign where discussion over health issues, check-up camps etc. will be organised. Women shall be encouraged to come up as leaders and representatives of their respective communities.	General Public encouraging women in particular.
Health Camp for slums	These will target only the slum population shall be organised as a part of entry point activity to build faith in the slum community. This shall comprise free checkups and distribution of medicines	Slum community
School Programmes	Painting, Essay and Debate competitions and Sports events (inter-school) etc shall be organized in schools with specific themes to sensitise school children and develop them as change agents in the community in order to address sanitary conditions in the community. Visits of children to sites of priority project like STP, SPS, CTC, LCS and Dhobighats etc can be used to sensitise them to need and working of these.	School Children
Programmes for women	Women are instrumental in household decisions especially relating to health as has been observed in sections earlier in study. Apart from encouraging women's participation in workshops special attention shall be paid to ensure presentations are made in women's clubs, Bhajan Mandalies etc and gathering support Special Programmes like kitty and some lecture or theme based sales and exhibitions (furniture, kitchen accessories) will also be designed.	Women
Information Mela	An event to attract and generate special public interest. Can be clubbed with some activity like payment of house tax etc and then the message required to be publicised is given along.	Beneficiaries and future beneficiaries of priority projects
Competitive Programmes	These shall be in form of healthy competitions between commercial enterprises like clubs, hotels, industries etc giving them titles like Eco-enterprise so that they are included in the programme.	Clubs, industry houses, hotels, private hospitals

The tools and activities that have been listed in this section shall form the basic part of all the programmes to be implemented that have been discussed further in section 4. A mix of all the activities and tools shall constitute a programme and the appropriate mix shall be selected by the implementing agency as per the guidelines given in the TOR and budgetary allocations that have been made.

4.7 MONITORING AND EVALUATION

There will be two parallel monitoring and evaluation structure for the entire PP/PA programme:

i) Official - In the official format VNN will prepare reports on the progress of work by the local consultant and send to NPPAC.
ii) People's - On the people's side the groups of communities (ward committees and citizens Committee) will report to SPC and SPC will report to State Co-ordination cell. These reports will be sent on quarterly basis.

Such a system will ensure that a check is maintained on the works that are being undertaken and the budgets allocated are utilized properly. Evaluation of Programme will be done in the regular State Co-ordination Cell meetings and annual evaluation reports are a must.

For the purpose of evaluation a set of Impact Indicators shall be developed by the local consultant that henceforth shall be circulated to the SPC, VNN and the local groups who all shall rate the programmes. These indicators will be developed in consultations with the community and Stakeholders as a part of agenda set in the community meetings. These shall also be reviewed at every consecutive community meeting.

The essential function of the impact indicators is to evaluate the effectiveness of PP/PA programmes. The evaluation shall be consistent with the objectives of the programmes and the results will be utilised for further programme implementation (during defining the activities for Yearly campaigns and other demonstration programmes). They can be devised under two heads:

- Operational – measure information provision, feasibility, and duplicity of each
- Effect – Direct and Indirect influences

On the basis of reports and evaluation of the PP/PA Programme necessary changes in the content and direction of the programme will be made, if required, to make it more effective.

Table given below provides an indicative list of indicators for evaluation of PP/ PA programmes particularly relevant in case of non-sewerage activities.

Table 4.16 Evaluation Items

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

Effect	Indicators
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

CHAPTER 5

TERMS OF REFERENCE

CHAPTER 5 TERMS OF REFERENCE

5.1 INTRODUCTION

This TOR is developed for the implementation of the PP/PA Programme for Sewerage Works, under 'The Study on Water Quality Management Plan for River Ganga". At the city level it is proposed to work predominantly through the Nagar Nigam offices as has been explained under the section 3.2 on Implementation Structures, and to support most of their activities, a local consultant shall be engaged.

This document shall not be considered in isolation but be seen in continuation to the report prepared on the city. Some of the sections identified (as listed below) for detailing in the TOR have already been covered in the report and shall be referred to from there.

1. Project Overview and Background

   (As detailed in section 1.0 of main PP/PA report)

2. Implementation Structure and Role of Participating Organizations

   (As detailed in section 3.2 of main PP/PA report)

3. Selection Criteria for Consultants/ NGO's

4. PP/PA Activities Anticipated

   (Take from main PP/PA report)

5. Costs and Budgets

6. Guidelines for the implementation of proposed Activities

5.2 SELECTION CRITERIA FOR CONSULTANTS / NGO'S

For the successful delivery of the P/PPA activities to main levels of engagement of external individuals, organizations are anticipated in the role of:

- Programme Level PP/PA Technical Specialist, working across all 4 towns
- Local Consultant/ Organizations familiar with and working in their specific town

5.2.1 Programme Level PP/PA Technical Specialist

Given the limitations faced by the state level State Co-ordination Cell (SCC) namely the Jal Nigam regarding the PP/PA activity implementation and management, it is suggested that an expert be engaged as part of the role of the Project Management Consultant (PMC) to:

- Guide the PIAs on the PP/PA processes at the state level and oversee the strategy for implementation
- Advice NRCD on the progress of work
- Consultation and coordination with the State Co-ordination Cell
- Advise the local consultants engaged by each municipality and the people in municipality

It is suggested that the PP/PA Technical Specialist is appointed in consultation with NRCD, UPJN, and the Nagar Nigams of the 4 municipalities that are the focus of this project. All these people will form a part of the NPPAC cell that has been suggested, and so the selection will follow the establishment of the cell.

It is essential that the PP/PA Technical Specialist is a person of repute who can develop or currently has a comfortable working relationship with the State Government and other NGOs based in the State, as well as is widely respected for her/his professionalism and objectivity towards the work in hand, harbouring no bias or ill will towards any NGO, CBO or other agencies based in the state. Given the fact that this position is of critical importance to ensure the smooth functioning of PP/PA activities under the project in the State, these suggested parameters for selecting such a person assumes immense significance. In addition, the individual should meet the following selection parameters:

- Over 15 years of work experience on state level environmental and social issues
- An advanced degree in social sciences and/or social work
- History of having worked in a consultative/advisory capacity with the state government, municipalities, other government departments, NGOs, donor agencies, CBOs and other voluntary organizations
- Experience of having worked in YAP I towns (desirable)
- At least 5 years of work experience in designing and implementing environmental/social awareness activities
- Demonstrated capabilities in the use of folk media, print media and developing and using information and communication technologies for the purpose of environmental and social awareness activities
- In depth understanding of the local ethos and competence of organizing/ working with communities on issues related to
    - Environment education and awareness, especially in themes related to river/water pollution & urban environment
    - Water conservation, recycling/harvesting and other river Conservation projects
    - Health, hygiene & sanitation

5.2.2 Guidelines for the Selection of Local Consulting Organization/ NGOs/CBOs/ Other Agencies that could Undertake / Facilitate the Implementation of PP/PA Activities

The successful implementation of PP/PA activities under this project is largely dependent on the selection of the right agencies for undertaking/facilitating the process of implementation of these activities. It is suggested that the process of selection of these agencies be made as transparent as possible with clearly defined indicators for the selection of such agencies. An indicative set of criteria for pre-qualification, short listing and selection of such agencies (primarily NGOs, CBOs and VOs) include:

- History of working with Government (projects, grants, consultancy, partnership), Working with municipalities and other urban local bodies
- Length of experience in environmental awareness/ community participation related activities (minimum 5-10 years)
- Competence for working in slums and town communities, with experience in one or more of the following:
    - Environment Education and Awareness (especially in themes related to river/water pollution & urban environment)
    - Slum rehabilitation, resettlement.
    - Health, hygiene and sanitation
- Formation and training of community groups/CBO on themes like Water conservation, recycling, harvesting, River conservation etc
- Experience of working with local communities, in the town(s) concerned.
- Partnership with other NGOs and networking with other agencies.
- Multi disciplinary team (with skills in PRA, communication & media management, training,

community work, non-formal education etc.)
- Experience in traditional media, electronic media, development and use of printed resource material.
- Previous experience of similar PP/PA work in an earlier River Action Plan.
- Organizational & Financial capability of managing large projects.
- Capacity to start work at short notice.
- Project management, evaluation and project designing skills.

It is however suggested that the pre-qualification stage of the selection process, be kept open to all types of organizations (i.e. let the pre-selection not be restricted only to NGOs, CBOs and VOs). The eligibility criteria should be advertised in at least one national English newspaper and one national Hindi newspaper. It should also be published in at least one local English newspaper and one local Hindi daily. The information required from the organizations should be sought under the following heads:

- Information about the organization and its key functionaries, which would include but not be restricted to:
    - Name of the organization
    - Whether the organization is registered with the Registrar of Societies or Registrar of Trusts or the Registrar of Companies or any other authorized body of the Government of India
    - Registration Number and the Year or Registration/Incorporation
    - The address of its registered headquarters
    - Addresses of other offices (if any)
    - Telephone numbers, fax numbers, etc. of all its offices
    - Names, residential addresses and other contact details of the key functionaries of the organization
    - Number of years of operation of the organization
    - Key sectors/areas in which the organization operates
    - Last 3-5 years of audited financial statements of the Organization
    - Permanent Account Number (PAN) of the organization

- Information regarding the relevant experience base of the organization. Information sought under this head would include, but not be restricted to:
    - The organization's history of working with Government, multilateral and bilateral donor agencies, corporate houses and other organisations (i.e. either on projects, grants, consultancy, partnership or any combination hereof)
    - Length of experience in environmental awareness/ community participation related activities (minimum 3-5 years)
    - Competence for working in an urban area in one or more of the following:
    - Environment Education and Awareness (especially in themes related to river/water pollution & urban environment)
    - Health, hygiene and sanitation
    - Working with municipalities and other urban local bodies
    - Formation and training of community groups/CBO.
    - Working on projects related to water conservation, recycling, and harvesting and other river conservation projects
    - Experience of working with local communities, in the town(s) concerned.
    - Experience in traditional media, electronic media, development and use of printed resource material.
    - Previous experience of similar PP/PA work in an earlier River Action Plan.

- Information regarding the organization's ability and willingness to work for PP/PA activities under

short notice. Information sought under this head could include details such as:

- The presence Multi disciplinary team (with skills in PRA, communication & media management, training, community work, non-formal education etc.)

Information on the various parameters mentioned above will be collected at the very start of the Project. The PIAs in the respective towns can collect this information and build up a database of organizations capable to implement the PP/PA activities.

The PP/PA Technical Consultant engaged would assist the PIAs in evolving a methodology where the various parameters mentioned above could be given due consideration in selection.

5.3 COSTS AND BUDGETS

The costs for successfully addressing the PP/PA activities are categorized as expenditure to be incurred on:

- Programme Implementation
- Consulting Services
- Organizational Capacity Building Budgets

Table 5.1 Overall PP/PA Costs for the sewerage schemes in *Varanasi*

Cost Item	Description	Budgetary Allocation
Programme Implementation Costs	- This includes the expenses to be incurred on all PP/PA activities till from the year 2006 to the year 2009 for sewerage related activities. - The management of expenditure of these funds is to be handled by the Nagar Nigam, with guidance as given in the implementation structure.	- Approx. Rs. 3,83,00,000
Consulting Services Costs	- Under this section funds for the engagement of local consultants, as well as provision of funds for assistance from NGO's and CBO's have been made. This amount is expected to cover the entire period of engagement from the year 2006 to the year 2009 for sewerage related activities. - These funds will be disbursed by the Nagar Nigam.	- Approx. Rs. 82,00,000
Organizational Strengthening Costs (Local Level)	- Under this section funds will be allocated for the strengthening of local organizations for the specific purpose of PP/PA. These funds will provide for engagement of PP/PA specialist staff, related administrative staff, limited office infrastructure, travel budgets, etc. - As outlined in the communication tools, a van equipped with specialist equipment, as well as its operation and maintenance budgets for the duration of this project will also be provided to the Nagar Nigam.	- Approx. Rs. 41,00,000
Organizational Strengthening Costs (Programme Level)	- Under this section funds will be allocated for the functioning of the NPPAC. - This funding is reflective of $1/4^{th}$ the overall budgets required, being distributed in budgets computed for each of the 4 cities.	- Approx. Rs. 58,00,000
Overall Costs	- Total of all cost items	- Approx. Rs. 5,64,00,000

The fund allocations have been rounded off, with details provided in Appendix A2.

At the state level however, to facilitate coordination across the 4 cities, and to provide technical

guidance, under the Programme Management Consultant, a technical specialist be engaged.

5.4 GUIDELINES FOR IMPLEMENTATION OF PROGRAMMES

5.4.1 Communication Tools and Activities

A list of programmes to be implemented has been provided in Tables 5.2 and 5.3 of the main document and this section shall be seen in continuation of section 4.6.

Table 5.2 Specifications for Communication Tools

Tools	Theme	Specifications
Media		
Press		
Press Conference	Information on progress of physical works and future timelines Yearly/Monthly/Weekly agendas for the awareness activities. Initially in the first conference: the stake and role of various government and non-government bodies	To be accompanied by tea and snacks A press kit with a brief on the intentions of the conference Inviting at least a week ahead of the programme followed phone calls a day ahead. Local Consultant to introduce the main speaker (Local PPAC Chairman/Convener or Nagar Ayukt) Maintain a record of happenings and participation with contact details (minutes of the meeting). Follow up of the coverage. Prepare a dossier of each press conference with clippings, VCD with dates.
Press Release	Relation between health/hygiene and sanitation	On one of the preferred themes from the list.
Articles	The benefits of the project Present health status of the city and the intended effects after the project interventions The role and responsibilities of various government bodies The channels of approach for reaping benefits by individuals	Informative with technical inputs Generally in 3 – 4 prominent newspapers (equal representation of Hindi, English, and Urdu) Preferable the regular column should appear in 3 main papers and some articles at certain times may appear in other papers to ensure public coverage.
Advertisements	The need of public participation and the role and responsibilities of the people emphasising in an underlined way the need for willingness to pay Progress of various awareness activities and also their timings and venues Progress of work at various stages	On one of the preferred themes from the list. An add agency to be hired for the purpose Ads to be specially designed for each theme Message to be interesting and eye catching
Television		
Talk shows	Relation between health/hygiene and sanitation The need of public participation and the role and responsibilities of the people in making such projects successful The need and nature of awareness programmes Public opinion on the work progress	In a few national channels – famous talk shows More regularly special talk shows on local channels Equal mix of shows in Hindi, English and Urdu.
Advertisements	Same as ads for the press	Same ad agency employed for newspaper ads. Ads to be specially designed for one of

Tools	Theme	Specifications
		the themes from the list Messages to be interesting to people at al ages and not in the form of sermons
News	Progress of works Schedule of awareness activities and their results	-
Other Publicity Materials		
Hoardings	Relation between health/hygiene and sanitation The benefits of the project Present health status of the city and the intended effects after the project interventions The role and responsibilities of various government bodies The channels of approach for reaping benefits by individuals The need of public participation and the role and responsibilities of the people emphasising in an underlined way the need for willingness to pay Progress of various awareness activities and also their timings and venues Progress of work at various stages	In the form painted boards
Banners		Painted on piece of cloth
Posters		Maximum of A2 size Coloured with use of graphics and text both (esp. pamphlets with only text to be avoided)
Pamphlets		Maximum of A4 size Coloured with use of graphics and text both (esp. pamphlets with only text to be avoided)
Hot Air Balloons		-
OTHER MEANS		
Painting Competition, Debates, Essay Competition, Rallies of children	Relation between health/hygiene and sanitation Vision of the future city Importance of river Vision of future river bank (Individual as well as part of clean river day, clean river week)	Programmes to be both at city level as well as individual school level as decided in programme meetings. Schools selected to be a mix of both public and private ones Competitions to be accompanied by certificates and prizes Request school administrations to send one teacher to accompany students Reimburse for communication
Information Kiosks	As per the need of the Communication activity that it is a part off.	Temporary information booths in the localities where beneficiaries of priority project stay 2 people each shall manage booths. Booths will provide information on local PPAC, priority projects through distribution of literature. Facility for collection of taxes and bills can be an incentive. These booths will operate for a minimum period of 3 weeks.
Power Point Presentations	As per the need of the Communication activity that it is a part off.	-
Documentary Films	Relation between health/hygiene and sanitation Hygienic practices Environmental sanitation Behavioural changes	Prepared by the same ad agency Maximum 30 min film in colour
Information Van	As per the need of the Communication activity that it is a part off.	Property of Local Nagar Nigam Four wheeler Equipped with Projector, Screen, Public address system (mike, speakers etc)

Table 5.3 Specifications for Communication Activities

Activities	Theme/Tools to be Used	Specifications
Focus Group Discussions (FGDs)		Selected list to include opinion makers, scholars, experts, and activists from stakeholders. Invitation to be sent at least a month before the event followed by phone call a day ahead. Ensure participation of at least 100 persons. An information kit containing background literature on the topics to be discussed. Discussion to be more interactive and technical. Maintain a record of happenings and participation with contact details.
	PRA tools may be used	**For Slums** These shall also be taken up specifically in slums as a part of the regular visits that are being undertaken It shall take place at the house of one of the slum dweller or an open area in the locality A few brochures relating to the topic may be distributed Maintain a record of happenings and participation
Transect walks	Group discussions Pamphlets	Walk for minimum half hour Accompanied by a person who is knowledgeable about the priority project and related PP/PA The person accompanying the team should have made the walk earlier and should be aware of the problem areas to highlight.
Community workshops	Power point presentations Posters Publicity Van, Banners Distribution of pamphlets	Accompanied with food/refreshments. Publicise for the workshop for at least one week with the help of Publicity Van, Banners and distribution of pamphlets Make arrangements for exhibition where panels of photographs of priority projects, environmental status in the city and the posters/paintings etc generated at school competitions is displayed A senior officer involved with priority project should address the participants and explain those benefits of priority projects. Distribute written literature in Hindi. Maintain a record of participation and happenings
		For Slums Publicise for the workshop for at least one week with the help of Publicity Van, Banners and distribution of pamphlets – target area should be the participating slum localities Distribute written literature in Hindi. Maintain a record of participation and happenings 50% of the participants shall be women from the slums Presence of practicing doctors/Quacks/MRPs from the locality will be ensured Accompanied with food/refreshments. An area near the slum locality – possibly MCD school ground or open area with tented arrangements It shall be ensured that people from Nagar Nigam, Jal Sansthan are present
Swasthya Mela	Posters Pamphlets Information Kiosk Information Van	Organised in open grounds Doctors for free health checks especially for water related disorders, free eye checks etc can be added incentive Various private health institutes, medicine houses, medical equipment manufacturers etc can be invited to propagate themselves. People visiting should have a compulsory medical check-up (mainly to check for water related disorders) and their health status should be recorded. This shall help review health status for water borne diseases.
Health Camp for slums	Posters Pamphlets Information Kiosk	Special camps targeting slum population to be organised separately Organised in open grounds near the slum area Doctors for free health checks especially for water related disorders, free eye checks etc can be added incentive

Activities	Theme/Tools to be Used	Specifications
	Information Van	People visiting should have a compulsory medical check-up (mainly to check for water related disorders) and their health status should be recorded (if possible locality wise). This shall help review health status for water borne diseases. For first year the camps are open to all but subsequently only NHG members Some private company may sponsor the event
School Programmes	Painting Competition, Debates, Essay Competition, Rallies of children	As described in table on information tools
Programmes for Women	Talk shows with special themes attended only by women - Themes to be gender sensitive Group Discussion	Invitees to represent all walks of life – professionals, experts on women's issues and working and non-working women.
Information Mela	Information Kiosk Information Van Posters Pamphlets Hoardings Banners	Held in open grounds at an area within the main city so that it is not difficult to reach. Tax collection or something of the like shall be offered to people as incentive to visit 5 – 6 kiosks giving information of different subjects like organisation and duties of ANN, PP/PA, sewerage schemes, non-sewerage schemes, etc All new recruits to ANN and Local Consultant shall be present with badges for their names and designation. Information shall also be given on their duties.

5.4.2 Slums / Dhobighat related works

For activities related to slums and dhobighats the consultant shall

- Have a separate team of 4-5 field workers per sewerage district for carrying out the regular slum activities
- Each team of sewerage district will consist of one leader and rest field workers.
- All field workers should be from social work background with at-least a bachelors in social work or 2-3 years of field experience in related activities
- The team leader should be minimum bachelors in Social work/related field and 2-3 years experience of working with the slum communities
- The team should have minimum 50% female members
- The team shall be in-charge to cover all the slums that fall under one sewerage district
- In case the slum falls under two sewerage districts then it shall automatically move into the jurisdiction of the team that has lesser population under its cover
- The team has to visit each of the slum and a minimum of two visits per month are compulsory
- The activities will be undertaken in three phases as detailed in section 4.5.5
- Records to be maintained for all the activities and monthly reports to be sent separately to in-charges
- Before the commencement of the work each team shall be given a time of two months to access the situation in their respective area and set targets for themselves.
- The targets have been defined in section 4.6 Tables 4.14 and 4.15, but the timeline for these targets will be defined by the respective teams
- Timelines for different groups may vary according to the local conditions

- After 6 months once a chance will be given to all to revise timelines if required after which these shall be final and treated as monitoring and evaluation tools.
- The involvement of voluntary groups and school children will be vital

Appendix A

Appendix A.1 PP/PA Program Schedule for Varanasi

Year		January	February	March	April	May	June	July	August	September	October	November	December
2005				Necessary Explanatory Meeting 1a						Clean River Day	Clean River Week		
	SCC Meetings		Lucknow			Allahabad			Kanpur			Varanasi	
	PublicityProgrammes				Necessary Publicity								
	Regular activities for slums and Dhobighats												
	Entry Point Activities				Community Worshops and Interactive Sessions								
2006		Necessary Explanatory Meeting 2a										Necessary Explanatory Meeting 2b	
	SCC Meetings		Lucknow			Allahabad			Kanpur			Varanasi	
	PublicityProgrammes	Shall include necessary publicity and the regular publicity programmes explained in the main document											
	Regular Programmes									Clean River Day	Clean River Week		
	Regular activities for slums and Dhobighats												
	Yearly Campaign												
2007		Necessary Explanatory Meeting 3a										Necessary Explanatory Meeting 3b	
	SCC Meetings		Lucknow			Allahabad			Kanpur			Varanasi	
	PublicityProgrammes	Shall include necessary publicity and the regular publicity programmes explained in the main document											
	Regular Programmes									Clean River Day	Clean River Week		
	Regular activities for slums and Dhobighats												
	Yearly Campaign												
2008		Necessary Explanatory Meeting 4a										Necessary Explanatory Meeting 4b	
	SCC Meetings		Lucknow			Allahabad			Kanpur			Varanasi	
	PublicityProgrammes	Shall include necessary publicity and the regular publicity programmes explained in the main document											
	Regular Programmes									Clean River Day	Clean River Week		
	Regular activities for slums and Dhobighats												
	Yearly Campaign												
2009		Necessary Explanatory Meeting 5a										Necessary Explanatory Meeting 5b	
	SCC Meetings		Lucknow			Allahabad			Kanpur			Varanasi	
	PublicityProgrammes	Shall include necessary publicity and the regular publicity programmes explained in the main document											
	Regular Programmes									Clean River Day	Clean River Week		
	Demonstration Programmes	As per the timings of Priority Projects explained in section 4.4.4 of main report											
	Regular activities for slums and Dhobighats												
	Yearly Campaign												
2010		Necessary Explanatory Meeting 6a										Necessary Explanatory Meeting 6b	
	SCC Meetings		Lucknow			Allahabad			Kanpur			Varanasi	
	PublicityProgrammes	Shall include necessary publicity and the regular publicity programmes explained in the main document											
	Regular Programmes									Clean River Day	Clean River Week		
	Demonstration Programmes	As per the timings of Priority Projects explained in section 4.4.4 of main report											
	Regular activities for slums and Dhobighats												
	Yearly Campaign												

note: publicity shall be carried all year round on a consistant basis which shall address two components of necessary publicity tied with the priority

Appendix A.2 Cost for PP/PA for Varanasi (1/2)

		2006			2007			2008			2009			2010			2011		
Main Activity	**Details**	**frequency**	**Cost per event**	**Total**	**frequency**	**Cost per event**	**Total**	**frequency**	**Cost per event**	**Total**	**frequency**	**Cost per event**	**Total**	**frequency**	**Cost per event**	**Total**	**frequency**	**Cost per event**	**Total**
SET I																			
Committee Meetings		12	1000	12000	12	1000	12000	12	1000	12000	12	1000	12000	12	1000	12000	12	1000	12000
Necessary Publicity Programmes																			
	Information Kiosk (ref pt 1)			67000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Information mela	1	150000	150000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Working the information van			30000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Publicity tied with const /rehab of non-sewerage works (Ref pt 6)	*	*	30000	*	*	10000	*	*	10000	*	*	10000	*	*	50000	*	*	50000
Necessary Explanatory Meetings		2	15000	30000	2	15000	30000	2	15000	30000	2	15000	30000	2	15000	30000	2	15000	30000
Demonstration Programmes^		0	0	0	0	0	0	0	0	0	0	0	0	*	180000	180000	*	180000	180000
Demonstration Programmes for Non-Sewrage		10	15000	150000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SET II																			
Entry point Activities																			
	Community Workshops (3x6)	18	40000	720000															
	Introductory Sessions	*	*	25000															
Regular Publicity***				300000			800000			800000			800000			800000			800000
Yearly Campaign							1500000			1500000			1500000			1500000			1500000
Clean River Day																			
	Mela	1	60000	60000	1	60000	60000	1	60000	60000	1	60000	60000	1	60000	60000	1	60000	60000
	Transect Walks	6	5000	30000	6	5000	30000	6	5000	30000	6	5000	30000	6	5000	30000	6	5000	30000
	School Programmes*	1	20000	20000	1	20000	20000	1	20000	20000	1	20000	20000	1	20000	20000	1	20000	20000
	River Cleaning Drive*	1	10000	10000	1	10000	10000	1	10000	10000	1	10000	10000	1	10000	10000	1	10000	10000
	Misc			20000			20000			20000			20000			20000			20000
Clean river week																			
	Publicity			10000			10000			10000			10000			10000			10000
	Film Screening at public places (ref pt 3)	8	#	18000	8	#	18000	8	#	18000	8	#	18000	8	#	18000	8	#	18000
	Transect Walk	6	5000	30000	6	5000	30000	6	5000	30000	6	5000	30000	6	5000	30000	6	5000	30000
	River Cleaning Drive	1	15000	15000	1	15000	15000	1	15000	15000	1	15000	15000	1	15000	15000	1	15000	15000
	Sports Competitions	1	30000	30000	1	30000	30000	1	30000	30000	1	30000	30000	1	30000	30000	1	30000	30000
	School Programs			20000			20000			20000			20000			20000			20000
	Misc			40000			40000			40000			40000			40000			40000
Regular activities for slums and Dhobighats																			
	Regular Visits (Ref pt 4)			3068000			3068000			2455000			1227000			1227000			1227000
	Slum Community WS							24	20000	480000	24	20000	480000	24	20000	480000	24	25000	600000
	Health camps				2	120000	240000	2	120000	240000	2	120000	240000						
Regular activities for ghat improvement project																			
	Regular Visits (Ref pt 4)			2335000			2335000			1557000			778000			778000			
Fixed Costs																			
Information Van				600000															
Projector				600000															
Regular equipments like mike, speakers, etc that is required for a workshop				20000															
3 Computers (one to be added in third year)				75000															
Printer				5000															
Misc				10000															
Documentary films (5 nos as per specification)				2500000															
Yearly Costs for Implementation	0			11030000			8298000			7387000			5380000			5360000			4702000
Administrative Activity																			
Streeing Committee Meeting	once every year in each city	1	5000	5000	1	5000	5000	1	5000	5000	1	5000	5000	1	5000	5000	1	5000	5000
Local Consultant/ NGO (ref pt 5)				1060000			1166000			1282600			1410860			1551946			1707140
NPPAC Cell				750000			825000			907500			998250			1098075			1207882
LPPAC Cell				50000			50000			50000			50000			50000			50000
Yearly Administrative Costs				1865000			2046000			2245100			2464110			2705021			2970022
Overall Costs	**0**			**12895000**			**10344000**			**9632100**			**7844110**			**8065021**			**7672022**

Overall Implementation Costs	**42157000**	**Overall Cost inc Administrative and fixed costs**	**56452253**

Appendix A.2 Cost for PP/PA for Varanasi (2/2) - Estimation Conditions

* overall budget for the activity

1

information kiosk

	nos	per month	
	5	5000	25000
salary	4 months	8000	32000
material			10000
			67000

2

The yearly budjetry allotments shall include the cost of publicity programmes associated with the priority projects (Sewerage Works) as well

3

2 places in the city for 5 days
cost of film production and the projector have been covered elsewhere

4

The cost is estimated as a percentage of overall budget spent as capital costs for Non-Sewerage works.
The reasons being
1. The nature of Project limits ties the PP/Pa work with the respective Master Plan Intervention
2. Because the number of facilities being constructed vary for the four towns
and are even not syncronised with the numbers of slum population in the city.

It is important top note that these costs include the daily/monthly (as the case may be) allowances of the team that visits these areas on regular basis i.e. the field staff

Thus the Budget is

Regular activities in Slums and Dhobighats	
Total estimated cost	122725000
Cost for CBO formation (10% of estimated Capital cost)	12272500

5

Salaries		160000	Based on a team of 4 to 5 persons, locally based, working full time for one year
Office and Adminsitrative Expenses	Per year	600000	
Local transportation expenses	Per year	120000	
Out-of town Travel expenses	Per year	100000	
Contingencies	Per year	120000	
	Base Annual Costs	1,100,000	

6

Apart from the publicity by banners etc this budget is maily meant to initiate activities like street plays, shram Dan shivers etc in the slums

7

The cost is estimated as a percentage of overall budget spent as capital costs for ghat improvement works.
It is important top note that these costs include the daily/monthly (as the case may be) allowances

Thus the Budget is

Regular activities in Ghat Improvement Project	
Total estimated cost	155680000
Cost for PP/PA and community activities (5% of estimated Capital cost)	7784000