Slum Free City Plan of Action - Varanasi

Regional Centre for Urban and Environmental Studies
(Sponsored by Ministry of Urban Development, Govt. of India)
Osmania University, Hyderabad - 500007

CONTENTS

LIST OF TABLES

LIST OF CHARTS

LIST OF FIGURES

LIST OF PICTURES

LIST OF MAPS

ACRONYMS

BPL –Below Poverty Line

BSUP – Basic Services for Urban Poor

CBD – Central business district

CBO – Community Based Organization

CCA – Compensatory City Allowance

CDP - City Development Plan

CDS - Community Development Societies

CGG - Centre for Good Governance

CO – Community Officer

DPR – Detailed Project Report

DU - Dwelling Unit

DUDA – District Urban Development Agency

EWS - Economic weaker section

FAR –Floor Area Ratio

FSI - Floor Space Index

GIS – Geographical Information System

GoI – Government of India

HH's - Households

HRA – Housing Rent Allowance

HUDCO – Housing And Urban Development Corporation Ltd

IHSDP – Integrated Housing and Slum Development Program

JnNURM – Jawaharlal Nehru National Urban Renewal Mission

LDPE - Low Density Polyethylene

LIG - Low Income Group

LPCD –Liter per capita per day

MIS – Management Information System

MoHUPA – Ministry of Housing and Urban Poverty Alleviation

MLD - Million Litres per Day

MSW –Municipal Solid Waste

NGO's – Non-Governmental Organizations

NHC - Neighborhood Communities

NHG - Neighborhood Groups

NNRC – National Network Resource Centre

NOAPS –National Old Age Pension Scheme

O&M – Operation & Maintenance

PO - Planning Officer

POA - Plan Of Action

PPP - Public Private Partnership

RAY – Rajiv Awas Yojana

RCUES - Regional Centre for Urban and Environmental Studies

RCV - Resident Community Volunteers

SEZ –Special Economic Zone

SFCPoA – Slum Free City Plan of Action

SHG – Self Help Groups

SJSRY – Swarna Jayanti Shahari Rozgar Yojana

SLNA - State Level Nodal Agency

SLSC - State Level Scrutinize Committee

STEP UP - Skill Training for Employment Promotion amongst Urban Poor

SUDA – State Urban Development Agency

TDR - Transferable Development Rights

TPIMA - Third Party Inspection and Monitoring Agency

UCDN - Urban Community Development Network

UDPFI - Urban Development Plan Formulation and Implementation

ULB - Urban Local Body

UPHDB – Uttar Pradesh housing and Development Board

UPJN – Uttar Pradesh Jal Nigam

UPRSAC –Uttar Pradesh Remote Sensing Applications Center

USHA - Urban Statistics for Human Resource & Assessments

UWESP - Urban Women Employment & Self help Programme

UNITS

1 Crore (Cr) – 100 Lakhs

1 Hectare (Ha) -10,000 Square Meters (Sq.mts)

1 Hectare (Ha) -2.471 Acres (Ac)

1 Metric Ton (MT) -1000 Kilograms (Kg)

1 Million – 10 lakhs

1 Square Kilometer (Sq.Km) -100 Hectares (Ha)

EXECUTIVE SUMMARY

The Government of India unveiled a holistic mission "Rajiv Awas Yojana" (RAY) to envision a slum free India, benefitting about 81 million urban poor with affordable housing, decent & dignified living environment and well developed basic amenities. Achieving Slum Free India though appears to be a very difficult exercise, the Ministry of Housing and Urban Poverty Alleviation (MoHUPA), GoI, has categorized the tasks and sub tasks in such a manner, providing a clear roadmap for the state governments to follow certain methodology and process in conducting the categorical steps. Slum Free City Planning is a holistic mission to eradicate poverty, systematize the squatter and hazardous settlements, integrate the plan with other poverty alleviation schemes and make them as regular engines of both socio-economic and sustainable development.

The key aspects of Slum Free City Planning comprises mainly of Urban Planning, Law and Legislation, MIS, GIS, Provision of Land, Community Participation, Stakeholder Convergence, Project Management and Capacity Building. The process starts with conducting slum survey and updating MIS database, preparation of the city and slum level maps in GIS, integration of the spatial and non-spatial data, analysis of the existing situation of slums, preparation of slum specific proposals, involve the community from the inception of project, preparation of DPR, project monitoring and implementation to achieve Slum Free India.

The Ministry of Housing and Urban Poverty Alleviation (MoHUPA) issued guidelines on RAY for preparation of State Slum-free City Plan of Action (SFCPoA), Community Mobilization, MIS and GIS etc. The states have to pass legislation for the assignment of property rights to the slum dwellers, and take steps to prevent new slums, with certain existing reservation of land.

The present report is the tentative Plan of Action for Slum Free City under the scheme of Rajiv Awaz Yozana (RAY) sponsored by the Ministry of Housing and Urban Poverty Alleviation (MoHUPA), Govt. of India. To implement the scheme, the city of Varanasi is selected as one of the Pilot Cities for the development of 209 slums as part of inclusive growth. The report is structured with prime objective of addressing the existing slums as curative step and also to ensure **slum free Varanasi** as a preventive measure. The report contains 7 sections namely, ***SFCPoA Initial Framework, City Profile & Institutional Framework, Assessment of Existing status of Slums, Slum Rehabilitation strategy, Requirement & Investment, Slum Preventive strategy, Finanacing strategy*** respectively. The slum – free City Plan of Action includes preparation of Geo-referenced city base map satellite imagery, identifying and demarcating slums and surrounding vacant lands, analyzing the slum profile features, finding infrastructure gap assessment, line estimates and detailed city/slum level analysis. The report provides a gross understanding of slum situation in the city, categorizes the slums, proposes the development mode required for each slum, and majorly phasing the slum development for the next coming five years. The first year prioritized slums have been finalized by conducting various stakeholder meetings under the leadership of "Project Officer", District Urban Development Authority (DUDA) of the city. The report aims to summarize, analyze the slum situation and propose a roadmap to reach slum free Varanasi.

This report is accompanied by annexure I & II where the first and second contains the data tables and analysis of each slum profile comprising of socio economic, household and livelihood information, gap assessment and proposed line estimates. The present report therefore needs to be referred with annexure I & II.

Slum Free Varanasi

Varanasi city is the district headquarters of Varanasi district and well-known pilgrim tourist place in India. The city has 209 slums with 78,253 households. About 34% of the city population lives in slums. Among the slum population, 79% belongs to OBC and SC division of social groups and 44% are living below the poverty line (BPL). In concern to Infrastructure, 54% of the slum households do not have access to individual water supply connections and 37 out of 209 slums are not connected to city wide water supply system. Ironically, it is found that about 24% of the slum households practice open defecation. In this context, the plan of action provides line estimates for housing and infrastructure gaps and proposes civic amenities as per RAY guidelines and the report calls for an approval and action to prepare DPR's for year wise phased slums.

ACKNOWLEDGEMENT

The Regional Centre for Urban and Environmental Studies (RCUES), Hyderabad was established in the year 1970 by the Ministry of Urban Development, Government of India in the Osmania University campus. The RCUES caters to the training and research needs of the constituent state governments namely, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Arunachal Pradesh, Nagaland and the Union Territory of Pondicherry in the urban sector. Apart from the training programmes, the RCUES is providing capacity building, research and consulting services and has developed exclusive divisions comprising of twenty in house professionals in the areas of Urban Finance, Environment, Urban planning, GIS and Poverty Alleviation.

RCUES, Hyderabad has been awarded the project of preparation of 'Slum Free City Plan of Action' under Rajiv Awas Yojana (RAY) Scheme for Lucknow, Kanpur, Allahabad, Varanasi, Agra and Meerut of Uttar Pradesh state. The RCUES has completed the plan of action reports following the step by step methodology of RAY as specified by the Ministry of Housing and Poverty Alleviation, Government of India.

RCUES, Hyderabad would like thank the Director and all the staff of State Urban Development Agency (SUDA), Lucknow for the co-operation they provided during the project period. We would like to thank the Project Officers (PO's) and the staff of District Urban Development Agency (DUDA) of respective cities for their generosity while helping RCUES teams to collect data, conduct workshops and played a big role in the preparation of Plan of Action. We would also like to express our gratitude to the officials of respective Nagar Nigam's, Jal Sansthan and other agencies who co - operated for the successful preparation of Slum Free City Plan of Action.

RCUES, Hyderabad looks forward for implementation of the effective strategies by the nodal agencies and making Uttar Pradesh state free from slums.

CHAPTER 1 – INTRODUCTION

1.1 Background

The Government of India in 2009 launched Rajiv Awas Yojana (RAY) with an aim to achieve the vision of a 'slum - free India' with inclusive and equitable cities in which every citizen has access to basic civic and social services and decent shelter. It aims to achieve this vision by encouraging States/Union Territories to tackle the problem of slums in a definitive manner, by a multi-pronged approach. It focuses on bringing all existing slums, notified or non-notified within the formal system and enabling them to avail of the same level of basic amenities as the rest of the town. It also seeks to tackle the shortages of urban land and housing that keeps shelter out of reach of the urban poor. The Rajiv Awas Yojana aims to provide support to enable States to redevelop all existing slums in a holistic and integrated way and to create new affordable housing stock. The Ministry of Housing and Urban Poverty Alleviation (MoHUPA) has instituted for this holistic RAY scheme.

Considering the importance of the scheme for achieving inclusive and sustainable development of the city, state and the nation, the Slum Free City Plan of Action for Varanasi city is prepared to provide a systematic and holistic approach to tackle with existing slums in the city and to prevent the formation of new slums in future.

1.2 Objectives of Slum Free City Plan of Action

A Slum Free City Plan of Action (SFCPoA) is an important instrument for cities to attain the objectives of RAY. It is a citywide plan of action, which consists of two parts; a plan to bring about the improvement of existing slums through both planning and stakeholder participation of the existing dwellers and strategies for prevention of future slums. In doing so, the 'Slum Free City Plan of Action' takes into consideration the present status of slums, priorities of slum dwellers, the resources and capabilities of the city in improving the quality of life of the urban poor and the capacity of the urban poor to be partners in this development process.

The Objectives of Rajiv Awas Yojana (RAY):

- Bringing existing slums within the formal system and enabling them to avail of similar level of basic amenities as the rest of the town/city;
- Redressing the failures of the formal system that lie behind the creation of slums; and
- Tackling the shortages of urban land and housing that keep shelter out-of-reach of the urban poor and force them to resort to extra-legal solutions in a bid to retain their sources of livelihood.

1.3 Perspective

The lack of housing and basic services at the required pace to meet the challenges of urbanization has resulted in the development of slums and squatter settlements with wider ramifications on the health, safety and well-being of the citizens. In 2001, there were 23.5 percent of households in urban areas which were living in slums. In 2011, it has come down to 17.4 percent. But there are still 13.74 million slum households and 68 million people living in the slum areas (Census, 2011). As per the report of the Technical Group on Urban Housing Shortage (2012-17) constituted by the Ministry of Housing and Urban Poverty Alleviation (MoHUPA), there is a shortage of 18.78 million dwelling units in the country out of which nearly 96% belong to the Economically Weaker

Sections (EWS) and Lower Income Group (LIG) households potentially living in slums. There are constraints and challenges both on the supply side and the demand side, which need intervention by the governments.

In context of Uttar Pradesh, though the state is considered as one of the less urbanized states of India, it has second largest urban population in the country. About 22% of the population lives in urban areas in Uttar Pradesh i.e. more than 44 millions. As per the statistics of committee on Slum Statistics/census, 2011, Government of India, about 10.8 million urban population of Uttar Pradesh is living in slums, which constitute about 24% in urban population.

In spite of various central and state government programmes implemented in the state the problem of urban poverty and slums is still prevailing on large scale. In order to resolve the problem through inclusive and in a holistic manner, the state government with the assistance of central government has adopted Rajiv Awas Yojana (RAY). The Urban Employment & Poverty Alleviation Programme Department, Govt. of Uttar Pradesh is the concerned department in the state for monitoring and implementing RAY.

1.4 SFCPoA Methodology in Varanasi

For the preparation of Slum Free City Plan of Action, the following methodology is followed for Varanasi city.

- **Step-1:** Establishment of a slum free technical cell at the state nodal agency level for city for planning, documentation, capacity building and monitoring the POA through selection of professionals from various departments and disciplines.

- **Step-2:** Preparation of city and slum profiles involves collection of secondary information such as CARTOSAT II images and relevant slum information. Next preparation of base maps to an appropriate scale using GIS application. In addition, identification and inventory of all slum clusters along with inventory of all possible vacant lands in each zone and that could be used for slum redevelopment/ rehabilitation development purposes.

- **Step-3A:** Socio Economic Survey in slum areas: reputed NGO/CBOs were selected for conducting socio economic surveys and data validation. Identification of survey personnel from nearest slums with local knowledge and extensive training to be provided for survey personnel by the local organizations on survey formats as specified by MoHUPA.

- **Step-3B:** Preparation of GIS based maps involves mobilization of GIS team and training, acquiring Satellite images for the cities and creating geo - databases with required spatial layers such as roads, buildings, land use and capturing utilities. In addition, involves preparation of base maps, thematic maps and slum maps.

- **Step-4:** MIS & Data Entry involves collection of data of slum dwellers, compilation and collation of primary data, preparation of a robust Slum-wise, City and State Slum Survey Database and Baseline Reports. In addition, the MIS team is responsible for identifying data gaps validation, resend them to the concerned authorities and updating the database.

- **Step-5:** Ground Mapping involves survey personnel team to map the parcels, capture utilities and updating the revised slum maps.

- **Step-6:** Verification and Validation by Independent Agency on socio-economic, spatial data and base maps on a random basis.

- **Step-7:** MIS includes Integration of Slum MIS with GIS Maps to enable the preparation of GIS-enabled MIS maps for the preparation of meaningful Slum Development Plans and Slum-free City.

- **Step-8:** Data analysis and decision for Slum Redevelopment Plan based on models like PPP development, infrastructure provision only, community-based development through involvement of the community mobilization and dialogue for deciding the model to be adopted.

- **Step-9:** Micro level planning & organizing workshops with community stakeholders for prioritization of slums and the mode of development.

- **Step-10:** Plan Preparation- Prioritization and phasing of slums and works including line estimates for 1st year slums.

- **Step-11:** ULB Approval involves prioritization and phasing of slum rehabilitation models.

- **Step-12:** Preparation of Slum-free City Plan and DPR should include strategies for the prevention of future slums, including reservation of land and housing for the urban poor. The Plan should contain timeline of activities for achieving slum-free city, phasing information and financial estimates against each of the activities.

- **Step-13:** Obtaining approvals from ULB and other concerned authorities

- **Step-14:** Obtaining approval of SLSC/SLNA/MoHUPA

- **Step 15 & 16:** Tendering process, implementation of proposals and appointing of TPIMA team

- **Step 17:** Impact Assessment

- **Step-18:** Revisions and rectifications of the strategies, reforms.

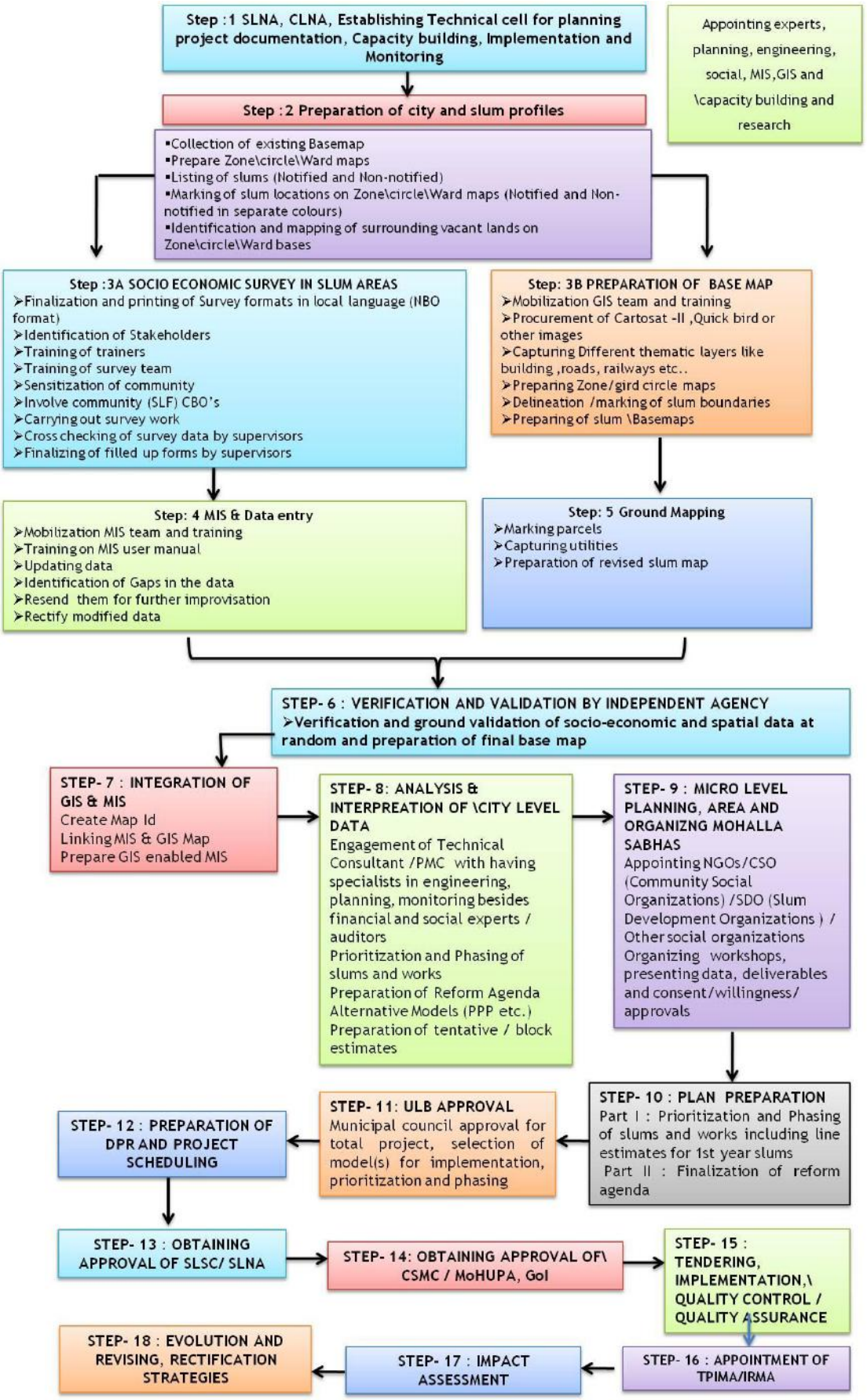


Chart 1-1 : SFCPoA Methodology for Varanasi

1.5 Surveys, Investigations & Consultations

1.5.1 Listing of Surveys and Timelines (annexure)

State Urban Development Agency (SUDA) is the nodal agency to implement surveys for the scheme 'Rajiv Awas Yojana' in the State of Uttar Pradesh. As per the directions of Government of India, slum survey started in Uttar Pradesh from the year 2009. Initially the survey was taken up under USHA programme, which was having similar survey format of RAY. Various meetings were conducted by calling different para-statal agencies to discuss the required methodology for conducting surveys and initiate the steps for survey. Several discussions were held at length and depth about the conduction of surveys and to finalize a methodology. The following institutional methodology has been adopted for the state.

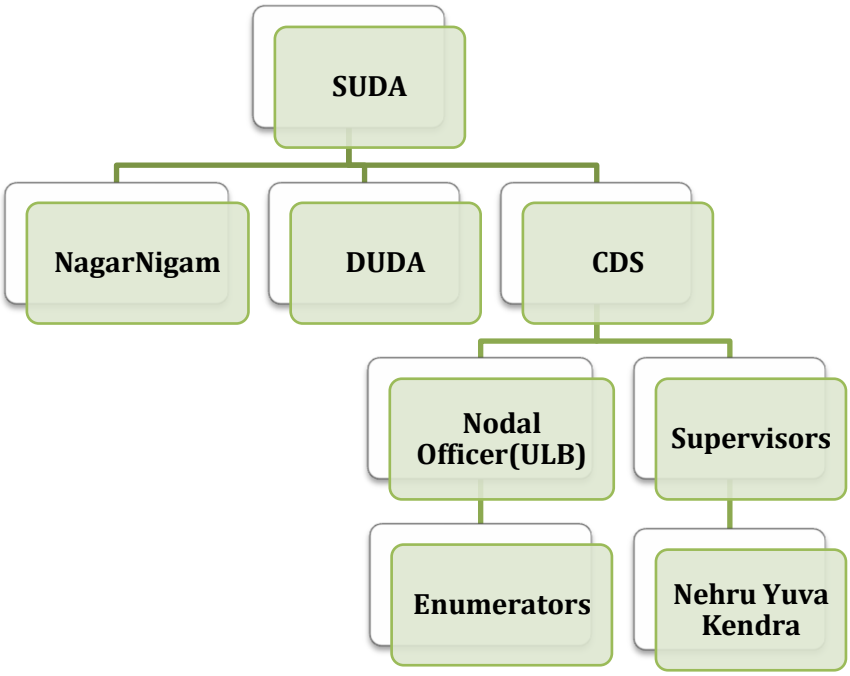


Chart 1-2 : Agencies & Stakeholders involved

1.5.2 Agencies (including procurement process) & Stakeholders involved

State Urban Development Agency (SUDA) as State level authority and District Urban Development Agency (DUDA) as city level authority have been the Nodal agencies to monitor the quantity and quality of surveys performed by individual cities. DUDA is headed by Project Officer (PO) who is in charge for one city, a nodal officer for a ULB and number of supervisors for quality and quantity check upon the enumerators who have done the surveys. Member of Community Development Societies (CDS), Self Help Groups constituted under SJSRY and other schemes have been involved in conducting surveys and a minimum qualification of SSC was taken as Enumerators eligibility to collect information and to fill up the survey forms. The various stakeholders involved in the process comprised of CDS, Nehru Yuva Kendra societies, NGO's working in the local areas and properly monitored by respective DUDA staff.

a. City level Technical cell

Although the policy for appointing state and city level cell has been initiated only state level cell comprises of RAY specialists in State Urban Development Agency (SUDA), Head office, Lucknow.

District Urban Development Agency (city level RAY nodal agency) how ever is finding it tough to identify and appoint RAY specialists. The necessary support required is been hired by available qualified consultants properly monitored by the state level technical cell.

b. GIS mapping

RCUES, Hyderabad is the Nodal agency for preparation of GIS base maps for Varanasi city. RCUES, Hyderabad has collected the base maps from Uttar Pradesh State Remote Sensing Center which is prepared in the year 2008. RCUES has revised the base map and also prepared the slums level maps collecting the slum boundaries from concerned ULB staff and NGO's. The satellite images were acquired for all cities and digitization of city and slum boundaries have been completed in RCUES, Hyderabad Urban Planning Division by in house GIS staff. The key stakeholder for the GIS map preparation would be RCUES, Hyderabad and Uttar Pradesh State Remote Sensing Center.

c. MIS

SUDA has initiated the work of MIS to UPTRON, which in turn has outsourced to Infinite systems, performed the operations of MIS. Data Entry has been done at ULB level and ported the data to the main server at CGG. A routine checkup of data has been performed and uploaded in a web tool specially prepared for RAY project. Every ULB has given a USER Name & PASSWORD to access their data from the Central Server. The front and back end of the web tool is Postgres and Java. Once the data is frozen and migrated to centralized data base at CGG, any editing of data will be done by the Project Director, DUDA in case of cities and by Commissioners in case of City Corporations.

d. Stakeholder Consultation

The various stakeholders involved along with SUDA in the process of RAY comprised of District magistrate, DUDA, Officials of Nagar Nigam/Parishad, RCUES - Hyd, UP Remote Sensing Center, elected people representatives, private agencies, NHG's, NHC's, CDS ,NGO's, slum inhabitants, media and other agencies, individuals working in the local areas. The list of slums acquired from DUDA/Municipal authority is confirmed with the officials of various Government organizations, Corporators and with slum dwellers & representatives during slum survey exercise and again during stake holder consultative workshop.

1.6 Stake Holder Consultative Workshop/Meeting

The State Urban Development Authority (SUDA), Government of Uttar Pradesh have prepared Slum Free City Plans for 6 cities (Lucknow, Kanpur, Agra, Meerut, Allahabad, Varanasi) in the first phase using the consultative services of Regional Centre for Urban and Environmental Studies (RCUES) Hyderabad and submitted the draft report of Plan of Action for each city. As part of Plan preparation, a consultative stakeholder workshop of Varanasi is held on 30th May 2013 at Nagar Palika from 3 PM. The purpose of the meeting was to discuss about the draft Plan of Action, significance of the programme, review upon the gap assessment analysis for the city.

1. The meeting was chaired by Shri Ram Gopal Mohalle, Mayor of Varanasi city along with Shri R.P.Singh, Commissioner Varanasi Nagar Nigham. Shri Sachithanadh Singh,Deputy Municipal Comissioner, Varanasi Nagar Nigam, Shri Shailender Tripati, Environmental Officer, Varanasi Nagar Nigam, Shri Kamal Kumar Singh, Consultant, SUDA, Lucknow, Shri M.Rama Rao, Head of Urban Planning Department along with the team of two urban planners have represented from RCUES, Hyderabad. The key stakeholders who participated in the workshop were officials from Varanasi Nagar Nigam, District Development Authority, water supply board, ward corporators, local NGOs, various other public representatives, few slum dwellers, few residents from the city, print and electronic media representatives.

2. Shri Parihar, Project Officer, DUDA, Varanasi along with Assistant Project Officer, DUDA coordinated the consultative stakeholder meeting on behalf of SUDA.

3. The meeting started at 11am in Varanasi Nagar Nigam. Shri Kmal Kumar Singh, Consultant, SUDA, Lucknow explained the need and objectives of Rajiv Awas Yojana to the stakeholders. He explained how RAY is different from JnNURM. The details of reforms, the funding pattern and scope of work planned to execute under RAY etc. He explained the status of RAY project carried out in various cities of Uttar Pradesh state.

4. Shri.M.Rama Rao, RCUES, Hyderabad made a detailed presentation of draft Slum Free City Plan of Action prepared for Varanasi City. He explained the step by step methodology followed for preparation of plan. He explained the existing situation of slums in the city with respect to physical characteristics of the city, demography, socio-economic profile, housing profile, status of physical and social infrastructure facilities etc. He detailed out the proposals, year wise phasing of slums, and cost estimates made for Varanasi city to make it slum free. He concluded the presentation by visualizing a few sample layouts designed under Public Private Partnership mode of development to convince and convey people to agree to live in better communities comprising of needed basic services.

5. Shri. Ram Gopla Mohalle, Mayor, Varanasi City appreciated the work done by DUDA and RCUES, Hyderabad. He said there should be a good co-ordination between DUDA, Nagar Nigam and peoples representatives in order to prevent the duplicity of work, to identify the need of slum dwellers and to make Varanasi city Slum free. He suggested for making ward wise slum data available for ward corporations to verify the data. He specified that the active participation of slum dwellers is essential to achieve the objective of making the Varanasi city slum free.

6. Shri R.P.Singh, Commissioner, Varanasi Nagar Nigam in his remarks, appreciated the work done by DUDA and RCUES. He suggested including the slums in the plan of action which were identified by Nagar Palika recently. He assured that the Nagar Nigam will work with DUDA to prevent the issue of duplicity of work and to make Varanasi city Slum free. He said that the people has to take lead in the project as RAY is people centric and the results will be positive only with involvement of people in all stages of the project.

7. Shri Sachithanadh Singh, Deputy Municipal Commissioner, Varanasi Nagar Nigam said that the co-ordination between the departments is the initial step to be followed to make RAY successful. He suggested for providing proposals for each activity in the plan of action. He said that some of the slums in the city are located along river bank and low lying areas which need to be relocated to the nearby tenable location.

Shri.Parihar, Project Officer, DUDA, Varanasi thanked the dignitaries for their valuable suggestions and asked the other stakeholders attended the workshop for their suggestions.

<u>Suggestions from People attended the Meeting:</u>

1. Display of Ward wise slum list should be made available in DUDA and Nagar Nigam offices for the reference of the people.

2. Dr. Akthar Ali expressed his happiness for conducting stakeholder meeting and making the slum dwellers as main decision makers. He suggested for formation of committee comprising

corpoartor, the women associations and few slum dwellers etc., to monitor the project in every stage.

3. Access to water supply, sanitation and solid waste management are the major problems facing by the slum dwellers in the city, which needs to be facilitated in upmost priority.

The meeting ended with the vote of thanks proposed by Shri Parihar, Project Officer, DUDA to all the stakeholders attended the meeting.

The suggestions received in stakeholder meeting were considered and the following actions were taken:

1) The ward wise slum data has been sent to DUDA office and made available to the ward corporators and slum dwellers and people representatives for data verification.

2) A separate strategy would be adopted in dealing with the slums located on land belongs to central government, defense, railways.

3) The ongoing infrastructure projects approved, in the process of implementation would be considered and integrated into the proposal of slum facilities.

4) The selection of development model for hazardous slums and slums situated in low lying areas would have to be done with the additional consultation of respectively slum dwellers and DUDA consultation.

5) The aspect of solid waste management and water supply would be dealt as priority areas.

Refer ***Annexure*** Attached for the list of participants of meeting

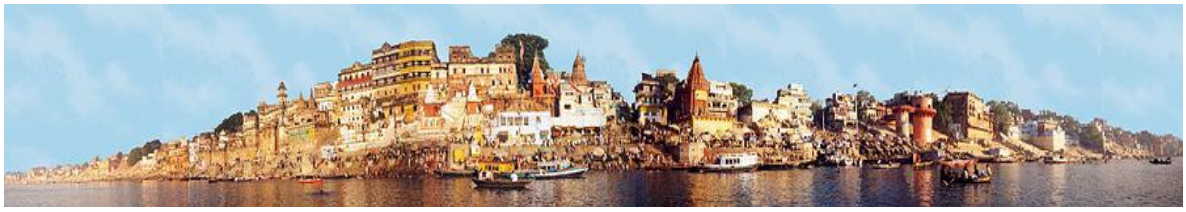
CHAPTER 2 – VARANASI CITY PROILE & INSTITUTIONAL FRAMEWORK

2.1 Introduction

The state of Uttar Pradesh is one of the prominent states in the North eastern region of India with Lucknow as its capital, falling under 'A' category[1], with Varanasi classified as 'B' category city. Being the district head quarters, Vfaranasi Municipal Corporation was established on 24-01-1959 under Municipal Corporation Act of 1959 as a Nagar Mahapalika and was converted into Nagar Nigam under the U.P. Government Act-2 with a total of 90 wards in the year 1994. Mr. **Kaushalendra Singh** is the current Mayor, leading a band of 90 councillors . The city administration is headed by an IAS officer as Commissioner of Municipal administration of the city.

2.2 Physical Characteristics of the City

2.2.1 Location



Picture 2-1 : Varanasi City on the banks of river Ganga

Varanasi is a Class I town, municipality and administrative headquarters of Varanasi District, falls under Varanasi division of Uttar Pradesh. Varanasi town lies between the 25015' to 25022' North latitude and 82057' to 83001' East longitude. The River Ganga only here flows south to north having the world famous ghats on the left bank of the river. The highest flood level of river Ganga was 73.90m (1978) and the lowest river water level is approximately 58m. It is at an elevation of 80.71 metres above mean sea level.

2.2.2 Geography and Topography

Varanasi is situated in the fertile alluvial Gangetic plains and is under laid with sediments deposited in successive stages. Layers of clay, fine sand, clay mixed with kankar and stone bazari is met with during drilling operations. With vast expanse of gently undulating plain, most of the area beyond the ridge slopes towards the river Assi in the South and towards Varuna River in the North.

2.2.3 Climate

The climate of the town is of tropical nature with temperature varying from 5°C in winter to 45°C in summer. The annual rainfall varies from 680mm to 1500mm with large proportion of its occurring during the months of July to September.

[1] According to India report 2008, Indian cities are classified into A (A1,A2,..), B and C based on grant for HRA and CCA on the recommendations of 5th Pay Commission , which essentially classifies these cities based on cost of living and Census 2001.

2.2.4 Connectivity and Linkages

Varanasi is well connected by road, rail and air with other parts of the country. The distance from the major cities are Delhi-750 km, Lucknow-286 km and 125 km from Allahabad.

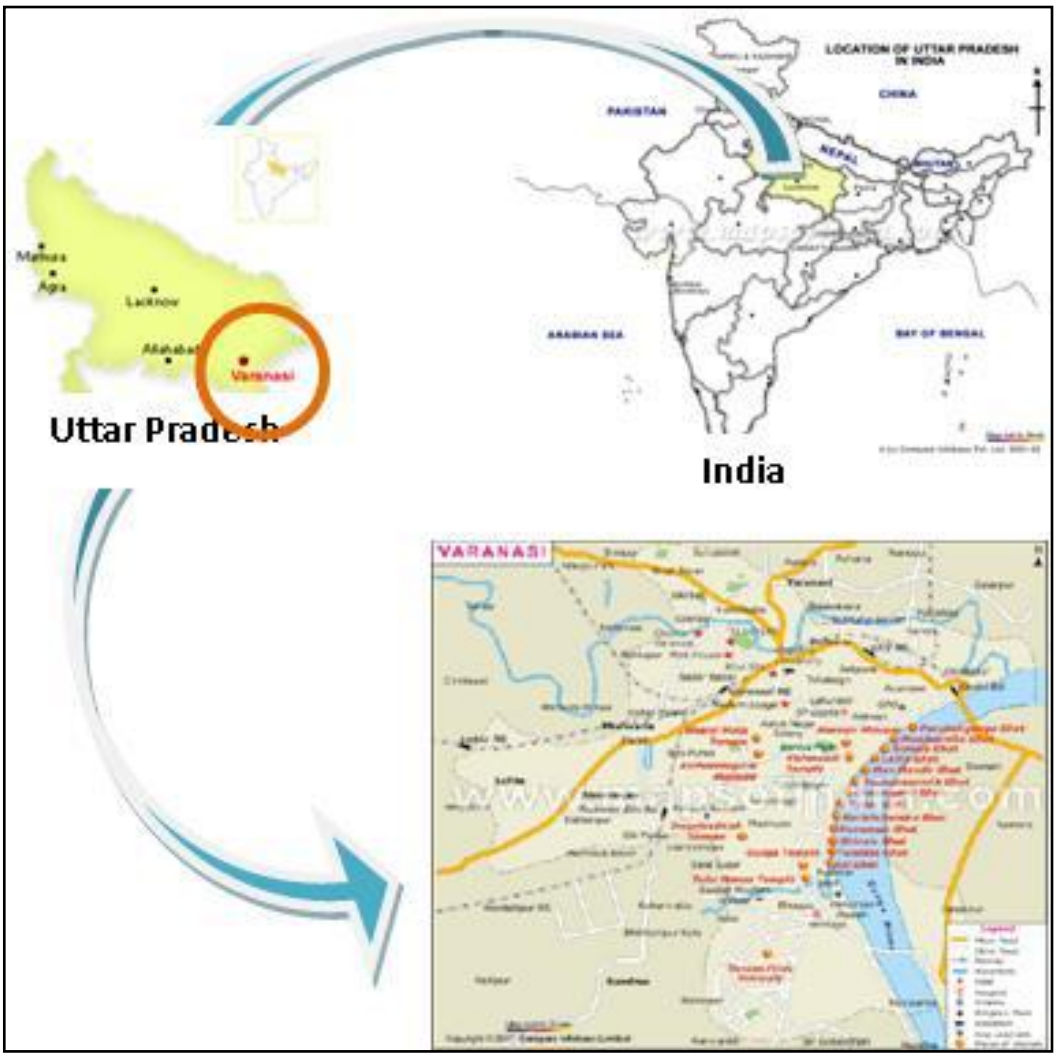


Figure 2-1 : Location of Varanasi

Road

There are four national highways i.e. NH-2, NH-56 and NH-29 and four state highways i.e. SH 87, SH-73, SH-74 and SH-98 passing through the heart of the city. NH-7 originates at Hyderabad gate in Varanasi. The linkages provided by the National highways are:

i. NH 2 - G.T. Road from Mughal Sarai to Allahabad;
ii. NH 7 – Hyderabad gate in Varanasi to Jabalpur, Hyderabad, Madurai, etc
iii. NH 29 - Varanasi to Gorakhpur, Kushinagar; and
iv. NH 56 - Varanasi to Jaunpur Lucknow,

A bypass is constructed along the Eastern edge of the city to relieve the burden off NH-2. Another ring road is under consideration along the Western edge of the city to divert the traffic and provide better connectivity to the newer developments coming up in the town.

Railways

Varanasi is well connected by railways with broad gauge. There are three rail lines entering to the city from Lucknow, Bhadoi and Allahabad and is diverted in two lines to Gorakhpur and Mughal Sarai. The city lies on Delhi-Kolkata rail route of North Eastern Railways, which is the broad gauge. A rail line connects the town with Sarnath. The other cities having good connectivity through railways are Patna, Guwahati, Chennai, Mumbai, Gwalior, Meerut, Lucknow, Kanpur and Allahabad.

Air

The town has an airport at a distance of about 24 km away from the city in Babatpur. There are flights to Varanasi from Agra, Bhubaneshwar, Kolkata, Delhi, Gorakhpur, Khajuraho, Lucknow, Raipur and Kathmandu (Nepal). It is on a regular aviation route of Delhi to Kolkata and Bhuvaneshwar. It is also the aviation gateway to Nepal.

2.2.5 History

Varanasi is one of the world's oldest continuously habituated cities, the archaeological evidence states that settlement around Varanasi in Ganga valley began in 12th century B.C. During the time of Gautama Buddha i.e. 567 B.C, Varanasi is the capital of Kingdom of Kashi. The city went to decline over three centuries of Muslim occupation from 13th century beginning to 15th century ending. In the 16th century, city experienced a cultural restoration under the Muslim Mughal emperor Akbar. He built two large temples and dedicated to Shiva and Vishnu. Again in 1656, emperor Aurangzeb ordered the destruction of temples and building Mosques causing the city to experience a temporary setback. After his death, most of the area was ruled by Hindu kings and modern Varanasi was built during this time by Rajputs and Maratha kings. Many of the buildings in the city at present are dated back to this time. Tourism has begun to flourish in the 18th century. In 1791, British governor general founded a Sanskrit college in city. A significant improvement started in city with the establishments of Varanasi Municipal board in 1867.

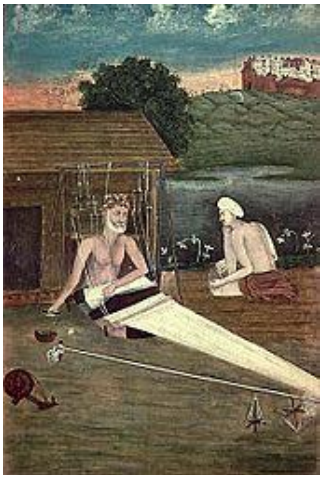
Picture 2-2 : Kashi Viswanath Mandir

In 1910 Varanasi was made as separate Indian state with Ramnagar as headquarter by British. Kashi Naresh, Maharaja of Benares still resides in the Ramnagar fort which is situated to the east of city, across the banks of River Ganga. He is chief cultural patron and an essential part of all religious activities taking place in the city.

A massacre by British troops over the Indian rebellions and people of city took place in 1857 during the early stages of sepoy movement which was called as first freedom movement. Annie Besant founded the Central Hindu College which was later turned into Banaras Hindu University in 1916. In 15th October 1948 Varanasi was ceded into Independent India.

2.2.6 Culture

Varanasi has its own culture of fine art and literature. The Great ancient writers like Kabir, Ravidas and Tulsidas, who wrote Ram Charit Manas, Kulluka Bhatt, who wrote the best known commentary of Manusmrti in the 15th century, and Bharatendu Harishchandra have lived in the city. In the recent pasts Ravi Shankar, Bismillah Khan, Girija Devi, Siddheshwari Devi and numerous others have kept the city alive to the spiritual aspect of fine arts as musicians. All night, open music concerts are organised at Sankat Mochan Temple, Hori, Kajari, Chaiti Mela, and Budwa Mangal, are annual features that draw attention of tourists and city population. Buddha gave his first sermon, "Turning the wheel of law" in 528 B.C in Saranath (12 km from city railway station) is a cultural heritage place for Buddhists.



Picture 2-3 : Saint Kabir (Lithiograph)

2.3 Social and Demographic Profile

2.3.1 Population growth

City population: The Municipal Corporation of Varanasi (MCV) administers an area of 79.97 sq km with a population of 1,201,815 in 2011(Census, 2011) among which male and female are 636,860 and 564,955 respectively. Total children (0-6 years) in Varanasi city are 129,180 were 68,761 are boys and 60,419 are girls. The child forms 10.75 % of total population of Varanasi City. The town has witnessed a constant increase in population from 1931 to 2001 and slight decrease in 2011 with a varying decadal growth rate. The population increased by six folds over the last seven decades with increase in population from 207,650 in 1931 to 1,201,815 in year 2011. The growth of the population can be seen from the table below (table 2-1). It is estimated that daily flow of tourists and pilgrims to the city is 25,000 (*Revitalization of Varanasi as a Tourist Destination for Ministry of Tourism and Culture, Govt. of India, February 2006)*

Table 2-1 : Decadal growth trend of Varanasi city population

Census Year	Population	Decadal Population Increase (In No.)	Decadal Population growth rate (in Percentage)
1931	207,650	-----	-----
1941	266,002	58,352	28
1951	355,771	89,769	34
1961	489,684	134,093	38
1971	617,934	128,070	26
1981	773,865	155,931	25
1991	10,00,747	226,882	33
2001	11,70,897	170,150	17
2011	12,01,815	30,918	3

Source*: Census of India, 2011*

2.3.2 Slum Population

As per 2001 census, slum populations in the city are 137,977 residing in 19,025 households constituting 12.7% of the city population. The average slum household size is 7.2 which was equal to city household size. A preliminary annexure I verification survey has been carried out in June, 2011 on the basis of NBO annexure format (RAY guidelines). As per the survey the slums population are 407,036 and households are 78,253 residing in 209 slums of city.

2.3.3 Population Density

The area under MCV jurisdiction is 79.79 sq km. Planning area has changed from 56.65 sq km in 1991 to 79.79 sq km in 2001. Overall population density of the town is 150,62 persons per sq km (i.e. 150 persons/ha), which is considerable, compared to other class B cities. Change in the gross density of Varanasi over the last two decades is shown in Table 2-2.

Table 2-2: Population Density of Varanasi

Year	Population	Area(sq.km)	Gross Density (pop/sq.km)	Density (pop/Ha)
1991	10,00,747	56.65	17,665	177
2001	11,70,897	79.79	14,675	147
2011	12,01,815	79.79	15,062	150

Source: *Census of India – 1991, 2001, 2011*

2.3.4 Sex Ratio & Average Household Size

As per the census 2011, the current sex ratio (female population per 1000 male) in Varanasi town is 887, which is lower than the state urban average of 912 and national urban average of 940. However sex ratio has been increased by 10 units from 2001 to 2011.

As per census 2001, average household size of Varanasi city is 7.3, which is higher when compared to the state average of 6.3 and national average of 5. In slum areas, average household is 7.2, which is bordering to city household size.

2.3.5 Literacy rate

Average Literacy rate under MCV area as per 2011 census is 80.31%, it is higher than state urban average of 75.14% and lower than the national average of 84.98%. The number of literates are 10,26,032 of which 575,353 (84.67%) are male and 452,679 (75.39%) are female respectively.

As per the census 2011, the current sex ratio (female population per 1000 male) in Varanasi town is 887, which is lower than the state urban average of 912 and national urban average of 940. However sex ratio has been increased by 10 units from 2001 to 2011.

As per census 2001, average household size of Varanasi city is 7.3, which is higher when compared to the state average of 6.3 and national average of 5. In slum areas, average household is 7.2, which is bordering to town household size.

2.3.6 Population Projection

The city of Varanasi has a uniquely different growth character, complemented by the movement of people from surrounding areas for occupational reasons, tourist traffic as a result of its heritage value, and special events of spiritual importance of the Ganga at Varanasi. So, population projections are essential in order to estimate the basic service requirements of the people. It also assists in plan preparation process, resource accumulation and revenue realization, which is directly proportional to population growth.

The data used for these projections are the summaries of the 1991, 2001 and 2011 census. The average growth rate of last three decades is considered to calculate future population because of the consecutive decrease of decadal growth rate. Population projected till 2031 with five year interval by average decadal growth rate are as shown in Table 2-3:

Table 2-3 : Population projections for Varanasi city

Year	2011	2016*	2021*	2026*
Population	12,01,815	13,03,970	14,06,120	15,25,640

***** - *Population Projected based on 2001 & 2011 Census data*

Key issues

Based on the above analysis following issues have emerged with regard to the demographic characteristic of the City.

i. Even though there is a sudden decline in percentage of population growth compared to previous decades there is an absolute increase in population of Varanasi during the last decade.
ii. The migrant population from the rural in search of occupation increases the demand for EWS/LIG housing. 33% of the city populations are already residing in slums, which require an immediate attention.
iii. The growth in population is stresses the public transport and also creates a gap among basic services provisions, hence planned efforts are required to direct the growth of the city in right direction.

2.4 Economic Profile

2.4.1 City Economic Base

The economy of the city is based on various production and service sectors. Tourism and its activities are the major economic production sector in Varanasi. Cottage industries along with Small-scale industries form an important base for the Industrial economy of the city. However, the industrial contribution to the city economy is of minor scale. Around 11% of the population is engaged in manufactured activities and 6.8% involved in tertiary sector as of 2001. The detailed employment profile has been given in Table 2-4:

Table 2-4 : Employment Profile of Varanasi City

Category	No. of Employees	Percentage Share
Manufacturing	128,930	10.69
Trade and Commerce	82,035	6.80
Other Services	60,466	5.01
Transport and Communication	24,235	2.01
Agriculture	12,239	1.01
Construction	7,028	0.58
Marginal Workers	5,938	0.49
Total Employed	320,871	28.66
Not Employed	850,026	71.34
Total Population	11,70,897	100.00

Source: *Vision 2025, ICRA report, 2006*

Work participation rate, according to 2001 census, in Varanasi is 28.7% which is low when compared to state (32.5%) and national (39.9%) average. Table 2-5 gives the work force participation in terms of main and marginal workers for last two decades:

Table 2-5 : Workforce Participation composition

Year	Main Workers	Marginal Workers	Total Workers	Percentage
1991	283,287	4,933	288,220	27.9
2001	314,933	5,938	320,871	28.7

Source: *Census 2001*

A marginal increase in number of workers both main and marginal has been observed over the last decade. Workforce participation rate has marginal increased by 0.80 compared to last decades work participation rate of 27.96. Considering, there will be one percent increase in work participation rate on the basis of 1991 and 2001 data, the working populations and their percentages were projected for the next two decades from 2011 to 2031 in Table 2-6.

Table 2-6 : Working Population projections from 2011 to 2031

S. No	Year	Projected Population	Projected Working Population	Work participation rate
1	**2011**	12,01,815	356940	29.7
2	**2016***	13,03,970	393798	30.2
3	**2021***	14,06,120	431678	30.7
4	**2026***	15,25,640	475999	31.2
5	**2031***	16,45,160	521515	31.7

**Population Projected based on 2001 & 2011 Census data*

Varanasi is also famous for its trade in wholesale commodities. Major commodities traded are Banarasi Saree, Betel leaves, handicrafts, carpets, rugs, and durries. Silk weaving is perhaps the most coveted art of Varanasi in both domestic and abroad market. Besides Banarasi sarees and brocades, exquisite pieces of brassware, copperware, wooden and clay toys and antique designs of heavy gold jewelers are also traded in the city.

2.5 Housing Profile

2.5.1 Housing Stock

The traditional old city of Varanasi has undergone transformations over time, still retaining its original character. Areas adjacent to Ghats and the old city exhibit dense development due to its proximity to Ghats and their longevity of existence, which have become the cultural framework of the city. The Central city is constantly under great development pressure due to proximity to the core areas. This is because of availability of all services, cultural attractions and work places. The peripheral areas are becoming more popular among the people as they provide more organized development pattern with infrastructure being relatively in better conditions.

According to 2001 census, the total household in the city are 1,49,933 comprises of 11,70,897 population and the average Household size is 7.3. The household in 2011 are 1,64,632 (projected by taking average HH size of last two decades) consisting of 12,01,815 population.

2.5.2 Housing Shortage

Housing, one of the basic services has given top priority in RAY plan preparation process. As indicated by the last three decades population growth, it can be seen that there is an increase of 33% population from 1981-1991 and it came down to 17% (1991-2001) and 3% (2001-2011), but the increase in housing is in different line resulting in gap.

For the year 2001, the master plan of Varanasi estimated a housing shortage of 5,955 housing units. Considering the average household size at 6.5 persons and assuming 2% as dilapidation rate per decade. The Housing projections were calculated and shown in Table 2-7. These projections were made by excluding the slum households which were considered that they will be developed under RAY scheme.

Table 2-7 : Projection of Housing & Housing shortage in Varanasi city

Category	2011	2016	2021	2026	2031
Projected Housing	1,64,632	1,86,281	2,00,874	2,17,948	2,35,022
Housing shortage	15,640	18,342	19,780	21,460	23,142

**Projections made based on Data from Census 2001 and Master Plan 2021*

2.5.3 EWS/LIG Housing

Working towards slum free Varanasi city, there is a need to build up EWS and LIG housing stock. EWS housing are meant for people whose annual income is below Rs 60, 000 while LIG housing are meant for people whose annual income is less than Rs 1,20,000. Most BPL/EWS and LIG households in cities live in informal settlements/slums on encroached public lands. There is no data on numbers of poor families without adequate housing in cities. Master Plans and development plans etc. project population, on which housing and infrastructure demand is calculated, on the basis of Census information. Considering the past census data and development plans of the city it is assumed that 30% of the Varanasi population belongs to either EWS or LIG category.

In Varanasi city Slums, 40% of the slum households are living under below poverty line (BPL), which accounts 19% of the total households. Assuming the other 11% of the households live in other parts of the city, the EWS/LIG housing projections are calculated with reference to projected population and projected housing of tables 2-6 & 2-7 for the next 20 years (2011-2031) as per the RAY guidelines.

Table 2-8 : Future Population & Housing projections pertaining to EWS/LIG

Year	2011	2016	2021	2026	2031
EWS/LIG Population	321035	363090	391560	424905	458250
EWS/LIG Housing	49390	55860	60240	65370	70500

By developing slum settlements under the Rajiv Awas Yojana scheme, the housing problem for EWS/LIG population living in slums would be expected to tackle in the next 5 years. The mandatory reform, under JnNURM targeting urban poor, "Earmark at least 20-25 percent of developed land in all housing projects (developed by public and private agencies) for Economically Weaker Section (EWS) and Lower Income Group (LIG) category with a system of

cross subsidization", and as per the Housing policy framed in 2010, all government, private and cooperative housing schemes above 3,000 square metre in area are mandated to allocate 10% units each to LIG (lower income group) and EWS (economically weaker section). This prompts any developer to keep a total of 20% land area reserved for these units; up on which layout plan would be approved by the development authority.

On strict implementation of the above mentioned reforms of JnNURM and Housing Policy would solve the existing and future EWS/LIG housing in the city.

2.6 City Growth Pattern

2.6.1 Land Use and Master plan-2031

The city of Varanasi has grown along the arc of Ganges with River Ganga as a focal point in one direction and growth of the city taking place in semi-circular direction. The city has a radial development pattern with areas like Benaras Hindu University (BHU), Manduadih, Sheopur and Sarnath emerging as new growth centers in all directions. Over a period of time, with the inclusion of a large number of villages and urban settlement, the city development has resulted in irregularly shaped built up areas along peripheries of the central areas of the city.

The city is divided into three distinct zones (seen in picture 1.1) - the Old City of the Ghat area, the Central City comprising of the area beyond the old city and bound by NH-2 along the western and northern edge and the Peripheral area where each zone exhibits:

- **The Old city** - high density core area with narrow, inorganic street patterns with a concentration of religious structures, bazaars and old buildings with traditional architecture.

- **Central city-** newer development with relatively wider roads and lesser encroachments and is less dense and faces immense pressure on existing physical infrastructure.

- **Peripheral areas** - newest growth, with upcoming residential areas and growth likely to be much higher in comparison to other parts of the city.

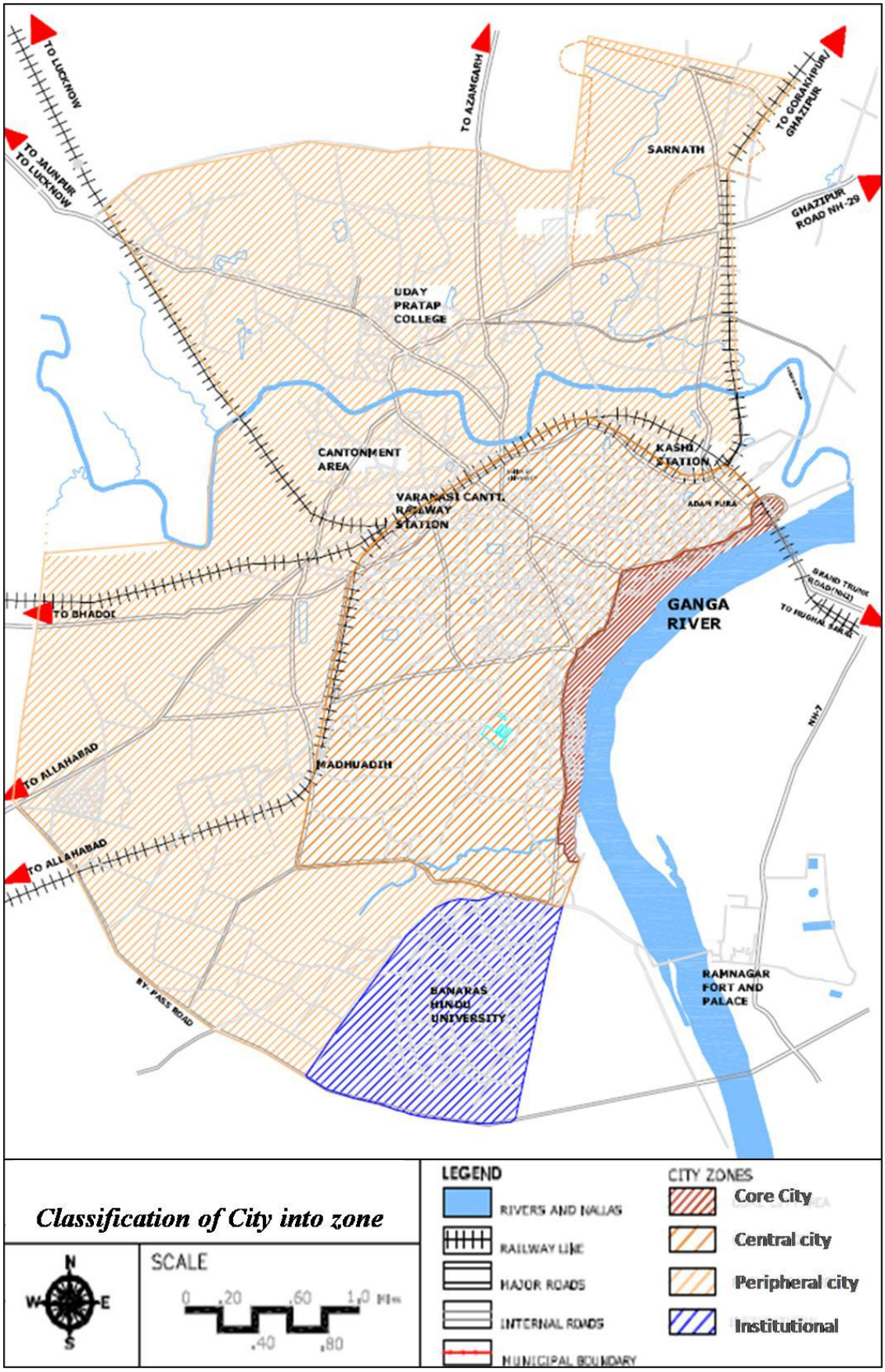


Figure 2-2 : Varanasi map showing three distinct zones, Source: CDP

The salient characteristics of land supply as available Varanasi in 2011 and projected to 2031 are presented in *tables 2-9 & 2-10:*

Table 2-9 : Development taken place in view of and in opposition to master plan 2011

Category	Area in Ha (2011)	Development w.r.t to master plan 2011	Development went against to master plan 2011	Total Developed land	Remaining land
Residential	9254.61	5371.48	104.96	5476.44	3778.17
Commercial	618.23	167.02	66.19	233.21	385.022
Industrial	656.19	211.90	69.88	281.78	374.41
Public and Semi-Public	1413.04	719.00	--	719.00	694.04
Office/Administration	1433.15	223.50	--	223.50	1209.65
Traffic and Transportation	1460.35	991.70	37.89	1029.59	430.76
Park and open spaces	984.47	481	294.54	775.54	208.93
Heritage zone	480.00	82.50	164.96	247.46	232.54
Tourism	192.96	15.32	177.64	192.96	
Agricultural	1683.45	107.80	53.44	161.24	1522.21
Waste/Barren land	273.50	273.50	--	273.50	
Total	18449.95	8644.72	969.50	9614.22	8835.73

***Source**: Master plan 2031*

Like any other city that has grown along the river, Varanasi has also developed in a similar way, later on to become the most sacred place and a waterfront city with rich built heritage and traditional buildings. In reference to Master plan 2031, the developed area proposed in 2011 is 18449.95 Ha, i.e. 51% (9254.61) for residential, 9.5% (1683.45 Ha) for Agricultural preservation, 8% (1460.35) for transportation and the remaining 31.5% for Commercial, Industrial, parks & open spaces, Public and semi public, etc. As of 2011, the development taken place in the city with respect to and in contradiction to master plan 2011 was detailed out in Table 2-10.

Table 2-10 : Proposed Master Plan-2031 and comparison with 2001

Category	Area in Ha (2031)	% of Area	Area increased/decreased (comparison to M.P 2011 - Ha)
Residential	9886.54	40.12	631.93
Mixed	759.83	3.06	---*
Commercial	1099.54	4.46	481.31
Industrial	515.56	2.09	-140.63
Offices/Administration	503.34	2.04	-788.61
Public and Semi-Public	2339.33	9.49	926.29
Parks, open spaces and green cover	4652.70	18.87	3668.23
Historical/ancient sites	92.40	0.38	---*
Traffic and Transportation	3442.51	13.97	1982.16
Public service departments	141.20	0.57	---*
Others (Agriculture, Barren, etc)	1213.05	4.93	---*
Total	24646.00	100.00	6196.06

** lack of these classifications in Master plan-2011*

***Source:** Master Plan-2031, Varanasi*

As per the master plan 2031, the land allocated for residential use has been increased by 632 Ha (2011-31) due to the upcoming residential layouts and increasing demand for better housing and increased tourist activities. The term "Mixed" has been used in proposed master plan-2031 by providing an area of 760 Ha (3%). Commercial land use increased by 481 Ha due to increased inhabitants and tourists needs.

The role of parks and open spaces has been identified and the land allocated for this use is 4652 Ha which was 984 Ha in 2011. Even for the transportation sector the land allocated in 2031 was more than two fold of 2011. Tourism is detached and part of its area was reserved under the nomenclature of Historical and Ancient sites in the master plan-2031. Agriculture, Barren and waste land which were separated in 2011 are merged as others in 2031.

2.7 Infrastructure

2.7.1 Water Supply

The River Ganga is the perennial source of water supply to Varanasi city. As per the City Development Plan (CDP) 45% water supplied to the city is from the river, 50% of the water supplied is met out of 112 deep tube wells operated by Jal Sansthan and remaining 5% is supplied by publicly and privately owned 1559 hand pumps. Table 2-11 shows water supply sources and percentage of water extracted from each source.

Table 2-11 : Water Supply Sources

Source	Capacity (MLD)	Percentage	Remarks
Ganga River	125	45	Water supplied to Bhelupur Water Works
Tube wells	145	50	Operated by Jal Sansthan
Hand pumps (1559)	10	5	Private owned
Total Municipal Supply	280	100	

Source: *Report Prepared by Ganga Pollution Prevention Unit, Varanasi, "Pre Feasibility Report for Water Supply component under JNNURM", 2006*

Raw water is lifted and pumped to Bhelupur Water Works where it is treated, stored and distributed. Water is treated at two water treatment plants Bhelupur water works. Capacities of the Water Treatment Plants (WTP) are 60mld (1954) and 250mld (1994). There are 17 Over Head Tanks (OHTs) with total storage capacity of 17.8mld along with 7 Under Ground Reservoirs (UGRs) with total storage capacity of about 62mld. The length of the distribution network as of 2006 is 590km. The water quality of the upper stretch of Ganga River is good because there is less pollution load discharged into the river and the self-purification capacity is also very high. The middle stretch is highly polluted due to dumping of sewer, industrial effluents, etc.

BHU (Banaras Hindu University) has its own water supply network with about 15 tube wells and an installed pumping station of capacity 23.5 mld. BHU authorities estimate that 50% of water generated from tube wells is used for gardening and the rest for needs of residents.

2.7.2 Sewerage and Drainage

Presently only 30% of the total area is provided with underground sewer network with total length of about 400km. The existing sewer network caters primarily to the old city, comprising mainly of the Ghat area. Total sewage generated in the city is 240mld of which only 90mld is treated in Sewage Treatment Plants (STPs) and the remaining 150mld is directly discharged into River Ganga and Varuna through open drains. The Two main pumping stations are Konia and Assi and five intermittent pumping stations are Harischandra Ghat IPS, Mansarovar Ghat IPS, Mansarovar Ghat IPS, Jalesan Ghat IPS, and Trilochan Ghat IPS. There are three Sewerage Treatment Plants (STPs) in Varanasi viz. Dinapur, Bhagwanpur and Diesel Locomotive Works (DLW) STP. Capacities of these STPs are 80mld, 9.8mld and 12mld respectively.

Varanasi lacks a proper storm water drainage system. The present drains are used for carrying waste water and during monsoon season they carry both waste water and storm water putting more pressure on the sewerage network

2.7.3 Solid Waste Management

Municipal solid waste mainly comprise of waste generated from household, markets, commercial establishments, hotels, hospitals, and small scale industries in the town. Floating population also contributes to waste generation in the town. Total quantity of waste generated is about 600MT/day, out of which approximately 450MT/day of waste is collected (CDP). This constitutes to 75% of the total waste. Waste generated by different activities is shown in Table 2-12.

Table 2-12 : Estimated waste generation

Category	Generation amount (ton/day)	Percentage
Commercial waste	80	13.33
Industrial waste	15	2.5
Road sweeping waste	450	75
Clinical waste	20	3.33
Nala cleaning waste	10	1.66
Construction and others	25	4.16

***Source**: The study on Water Quality Management Plan for Ganga river in the Republic of India; Final report Volume I, Summary, July 2005, JICA, NRCD, MOEF*

At the primary stage, the waste collected from the roads is put in dustbins on streets, and transported to secondary collection depots. There is no door-to-door collection system in Varanasi. The waste generated is collected and loaded into dumper trucks by various shovel loaders or manually, and transported to final disposal sites. There were three final disposal sites, located in Palang Shahid (10 acre), Nahi ghat (2 acre) and Kabir Math (1 acre). The new disposal site is located along Ramnagar road near Mugal Sarai. Municipal Corporation of Varanasi has adopted only dumping as method of disposal of the waste. Currently, the wastes are not treated in a systematic and scientific manner while disposing. Urgent measures have to be taken up by MCV in order to promote a safe solid waste disposal.

2.7.4 Road network

Total length of the roads within the MCV area is 1170 km, which constitute National Highways No.2, 29 and 56, PWD department roads and other roads maintained by MCV. Out of total length of the roads, MCV maintains approximately 70% roads, which are internal arterial roads & narrow streets in the old town area (Refer Table 2-13)

Table 2-13 : Road lengths in Varanasi

Category	Length in Kms.	Percentage	Remarks
Kutcha Roads	104	8	• National Highways are maintained by PWD. • Nearly 70% roads are under MCV
Black Topped Road	649	55.4	
Other roads	**417**	**35.6**	

Source: *Municipal Corporation of Varanasi, 2006*

In general, traffic condition in Varanasi city is poor as most of the roads are narrow and congested. To aggravate the problem of traffic flow is a mix of slow and fast moving traffic. The mixed traffic mode with variable speeds like rickshaws and cars/lorries on the roads during the peak hours causes most congestion/traffic jam on the roads.

2.7.5 Street lighting

The town has total 39,010 streetlights spaced at a varying distance of 30-50m. The newly formed extension areas i.e. peripheral areas are not well illuminated where the distance between the poles is very high. Streetlights are also provided along ghats of Varanasi. As of CDP, it has been found that 35-40% streetlights are not in working conditions. MCV is responsible for street light management, which includes maintenance, repairs and replacement of the streetlights.

For the overall management of the streetlight, MCV has a staff of 86 persons, of which 56 staff is regular, staff of 5 linemen is hired on daily basis and remaining 25 staff is hired on the contract basis.

2.7.6 Open spaces

The city lacks formal open spaces under recreational or green spaces. The Master Plan 2031 provision for green areas is only 5.5% of the total area. There is a need for provision of more green areas in the city, especially in the peripheral Region. Extensive roadside plantation programs also need to be undertaken to maintain the ecological balance of the city.

2.7.7 Education

Varanasi is prominent place for education with the location of worldwide reputed Banaras Hindu University (BHU) which provides the highly sophisticated technical and non technical courses. It draws the students from all corners of the country and also the foreign students. Along with BHU Mahatama Gandhi Kashi vidyapeet University, Sanskrit University are also situated in the city in order to promote cultural and traditional heritage of the city. Apart from the higher education, there are 234 primaries, 111 middle and 52 senior secondary high schools (Census town directory, 2001) are present in the city to provide basic education to the population of town and surrounding country side.

2.7.8 Health

Hospital in BHU is fully equipped with all facilities in order to provide medication for the patients. Ayurvedic hospital in the same university is also assists in providing services to the people. Apart from these, 29(general and specialized) hospitals with 1433 beds capacity, 20 nursing homes (350 beds) and 10 dispensaries (240 beds capacity) are available in the town to render their service to the public.

2.7.9 Other facilities

As the city exceed 10 lakh populations the services like Police station, fire station, postal and telegraph services, Banking facilities, Agriculture and Non Agriculture credit societies (>55), Parks & Stadiums (5), Cinema halls (19), Auditorium (2), etc are available in Varanasi city. The fire station helps in handling the fire accidents in the city and its surroundings. There were 99 banks (2001) of both nationalized and private were located in the city in order to facilitate public, a positive sign of economic development.

2.8 Varanasi Institutional Setup

Varanasi Municipal area of 79.79 sq. km with 12,01,815 (2011) populations is governed by the Municipal corporation of Varanasi (MCV). All the civic facilities have to be provided by the Municipal board as per the provision of 74th constitutional amendment act, 1992. Municipal commissioner heads the Municipality who is a state government officer. The elected representatives formulate a governing body which is headed by chairperson. Both play the major role in delivering the services to the people and development of the city. At present the governing body encompass of 91 councilors.

Public works department is responsible for the constructions and maintenances of road infrastructure in the city. Uttar Pradesh power Supply Corporation provides the electricity to the city. Law and order of the city is controlled by the city police force as per the direction of Superintendent of Police (SP).

Along with local body (MCV) the District Urban Development Authority (DUDA) plays Key role in Slum development. DUDA works under the State Urban Development Authority (SUDA), apex authority for development and poverty eradication in urban areas of Uttar Pradesh. DUDA is responsible for identifying beneficiaries, generally BPL population and providing them benefits of government programmes like allotment of houses constructed under Kanshiram Awas Yojana, IHSDP/BSUP, financial assistance in constructing individual/community toilets, approving loans (credits) and creating awareness.

A brief overview of Varanasi city in terms of population, households, area, density and literacy etc, were specified in Table 2-14.

Table 2-14 : Physical & Demographic profile of Varanasi city

PARAMETER	UNIT	VALUE
Municipal Area	Sq.km/Ha.	79.79 (7980)
Population (2001)	No.	11,70,897
Population (2011)	No.	12,01815
Population Density (Persons per Ha.)	No.	150
Children (0 - 6 yrs) 2011	No.	129,180
Literates (2011)	No.	859,379
Average Literacy rate	%	80.12
Sex Ratio (2011)	No.	887
Child Sex Ratio (2011)	No.	879
Households in the city (2001)	No.	1,49,933
Number of Wards	No.	91
Number of Slums Settlements	No.	209
Slum Population (2011)	No.	407,036
Slum Households (2011)	No.	78,253

Source: *Census 2001 and 2011, Annexure I survey data*

2.9 Implementation Status of BSUP in Varanasi (Housing trend supply for the urban poor)

BSUP (Basic Services to the Urban Poor): JnNURM primarily incorporates two sub-missions into its program:

- The Sub-Mission for Urban Infrastructure and Governance administered by the Ministry of Urban Development, with a focus on water supply and sanitation, solid waste management, road network, urban transport and redevelopment of old city areas.
- The Sub-Mission for Basic Services to the Urban Poor (BSUP) administered by the Ministry of Housing and Urban Poverty Alleviation.

The Sub Mission BSUP is addressed exclusively to urban poor living in slum/squatter settlements in cities and towns. This component would focus on improvement of living conditions of the urban poor by way of providing housing along with infrastructure, with a view to gradually removing slums/squatter settlements from cities and also providing security of tenure to the urban poor. The mission selected under this scheme are million plus populated cities, state capitals, heritage cities and union territories.

The programme/scheme started in 2005-06 initially for seven years and later it was extended to two more years. The Central Sanctioning & Monitoring Committee in the Ministry of Housing & Urban Poverty Alleviation (MoHUPA) will sanction the projects submitted by State Level Nodal Agency (SLNA) of States. The Funds to the approved projects will be released by SLNA (including both Central and Sate share or 100% Additional Central Assistance) to its implementing/monitoring agencies. The first installment of 25% will be release on signing of the Memorandum of Agreement by the State Government/ULB/Parastatal for implementation of BSUP projects. The balance amount of assistance shall be released as far as possible in three installments upon receipt of Utilization certificates to the extent of 70% of the Central fund and also that of State/ULB/Parastatal share, and subject to achievement of progress in projects.

In Uttar Pradesh Seven cities has been selected which are having million plus population and Varanasi is one among them. It is the major programme that taken initiation in order of supplying housing stock to the urban poor in Varanasi for the last five year. The number of projects started in city under BSUP scheme is 10 and the numbers of dwelling units (DU's) approved with a cost of 246 crores are 5963. Modes of development for 9 projects are In situ and the remaining one project is with combination of both up gradation and In-situ. Amount released by State Level Nodal Agency (SLNA) i.e. State Urban Development Authority (SUDA) including both state and central government share to the District Urban Development Authority (DUDA) is 112.37 crores. Out of 5,963 DU's, 4981 DU's had been initially selected to start the construction work. As of August 2012, construction of 1758 DU's is completed, 2,783 units construction is in progress and the remaining 440 units are yet to be start. Irrespective of the construction work status a total of 4541 DU's have been already allotted to the beneficiaries. The project wise status is given in the table 2-15.

UP Rajkiya Nirman Nigam (UPRRN) and Construction & Design Services (C&DS) are the implementing agencies of the projects in Varanasi. UPRRN takes care of 6 projects i.e. construction of 4391 DU's out of 4981 DU's and the rest 590 DU's (4 projects) construction led by C&Ds.

Apart from the BSUP the Nagar Rojgar Yojana, Steup up program, Self Help Groups (SHG's) and Nagar employment schemes, etc were the other programmes/schemes implemented by DUDA in line of improving the economic standing of BPL population in Varanasi.

Table 2-15 : Project Wise details of BSUP scheme, Varanasi – Status as of August 2012 (Amount in Crores)

Project No.	No. of DU's Approved	Project type	Project cost	Amount Released by SLNA to DUDA (state + Central share)	Amount utilized DUDA	Work started	Completed	In progress	Not started	Implementing agency	Allotted
1	1305	In-Situ	56.74	24.91	21.28	1243	486	673	84	UPRRN	1159
2	1109	In-Situ/ Up gradation	43.36	18.98	10.59	748	186	484	78	UPRRN	629 41
3	728	In-Situ	34.32	15.17	9.06	600	180	343	77	UPRRN	523
4	768	In-Situ	32.26	14.14	8.74	663	165	457	41	UPRRN	622
5	776	In-Situ	30.59	13.4	11.44	552	206	316	30	UPRRN	522
6	585	In-Situ	24.81	10.97	11.59	585	260	239	86	UPRRN	499
7	241	In-Situ	8.45	5.69	3.89	225	60	144	21	C&DS	204
8	192	In-Situ	5.69	2.48	1.72	135	72	59	4	C&DS	131
9	135	In-Situ	5.11	3.46	2.57	125	83	27	15	C&DS	110
10	124	In-Situ	4.68	3.17	2.18	105	60	41	4	C&DS	101
Total	**5963**		**246**	**112.37**	**83.08**	**4881**	**1768**	**2783**	**440**		**4641**

Source: *Status report of BSUP scheme, SUDA, Lucknow, Uttar Pradesh*.

2.10 Provisions for Slums in Master Plan 2021 and Municipal Budget

There are no specific encouraging provisions for Urban Poor in Master Plan-2031 of Varanasi apart from the service houses provision for the house keepers, security guards, etc who works in the locality of future residential/group housing developments.

Land parcels had to be preserved or earmarked for the development of slums in the city. Hence, Master plan is legally binded document, the provision of land for the urban poor (BPL household/slum dwellers) in coming up residential activities will be vastly restricting the further growth of slums.

As per the Memorandums of Agreement (MoA) appraisal report of Administrative Staff College of India (ASCI), 2010, it is clear that a provision of 20.3% of the budget in 2009-10 is allocated for poor but no action plan is prepared how to expend the amount. The projects identified under this budget are related to Drainage, road widening, street light, etc. The preparation of action plan which will prioritize the enhancement of urban poor is required.

2.11 Municipal Finance Status of Varanasi Nagar Nigam

Resource mobilization and financial stability is of paramount importance for any city's health and plays a vital role in the development. The source of revenue for MCV is primarily categorized into tax and non tax based. The tax based revenues mainly includes revenues collected from property tax, advertisement, professional and terminal taxes. While the non tax based revenue comprises of rentals from municipal properties, service user charges, and penalties. Transfers from state government generally include shared taxes, general and specific purpose grants and grants recommended by State Finance Commissions. The following *table* presents a comparison of the income and expenditure of Varanasi for the years 2008-2013.

Table 2-16 : Income and Expenditure for the Years 2008 to 2013

Sl. No.	Particulars	Years (Amount: Rs. in Lacs)				
		2008-09	2009-10	20010-11	2011-12	2012-13
1	Total Income	42500.10	41993.44	33669.66	37797.27	44468.25
2	Total Expenditure	41450.11	41433.66	33529.6	37478.91	44367.81
3	Surplus	1049.99	559.78	140.06	318.36	100.44

***Source**: http://www.nnvns.org/budget.php*

From the above table, it was found that there is no increase in the income sources of MCV in terms of tax revenues and non-tax revenues from 2008 to 2011. After that, an increase of 4127 lacs (2010-11 to 2011-12) and 6671 lacs (2011-12 to 2012-13) of income sources is recorded. Budget surplus is observed in the last five consecutive years referring that income generated is not utilized to the extent. As per CDP report, out of total revenues of MCV, grants from the government are 64.07% and balance 36% is from tax and non-tax revenues.

CHAPTER 3 - ASSESSMENT OF EXISTING STATUS OF SLUMS

3.1 Diagnostic Assessment of Slums

The living conditions in slums represent the worst of urban poverty. Individuals and communities living in slums face serious challenges in their efforts to survive. Every slum is different in its origin, location, size and demographic characteristics. All characteristics are not common for all slums in the city. It may differ due to various reasons such as its appearance, economic condition, overcrowding of buildings, tenements, population, health and sanitary conditions, morality, way of life, standard of living, isolation of other residential communities etc

For assessing the current situation of slums, appropriate indicators are required to understand the depth of problems. These indicators are derived from RAY guidelines wherein a detailed household / livelihood survey was conducted to identify the slums which are characterized by poor quality of housing and poor infrastructure. The following sections provide insights into the real picture of slums.

With increase in population of the city, housing needs grew, which could not be met by formal housing market. Migrant population, which could not avail the facilities of suitable housing and lack of monetary support were forced to satisfy their needs by occupying both private and public vacant lands and resulted in formation of slums and more number of squatter settlements.

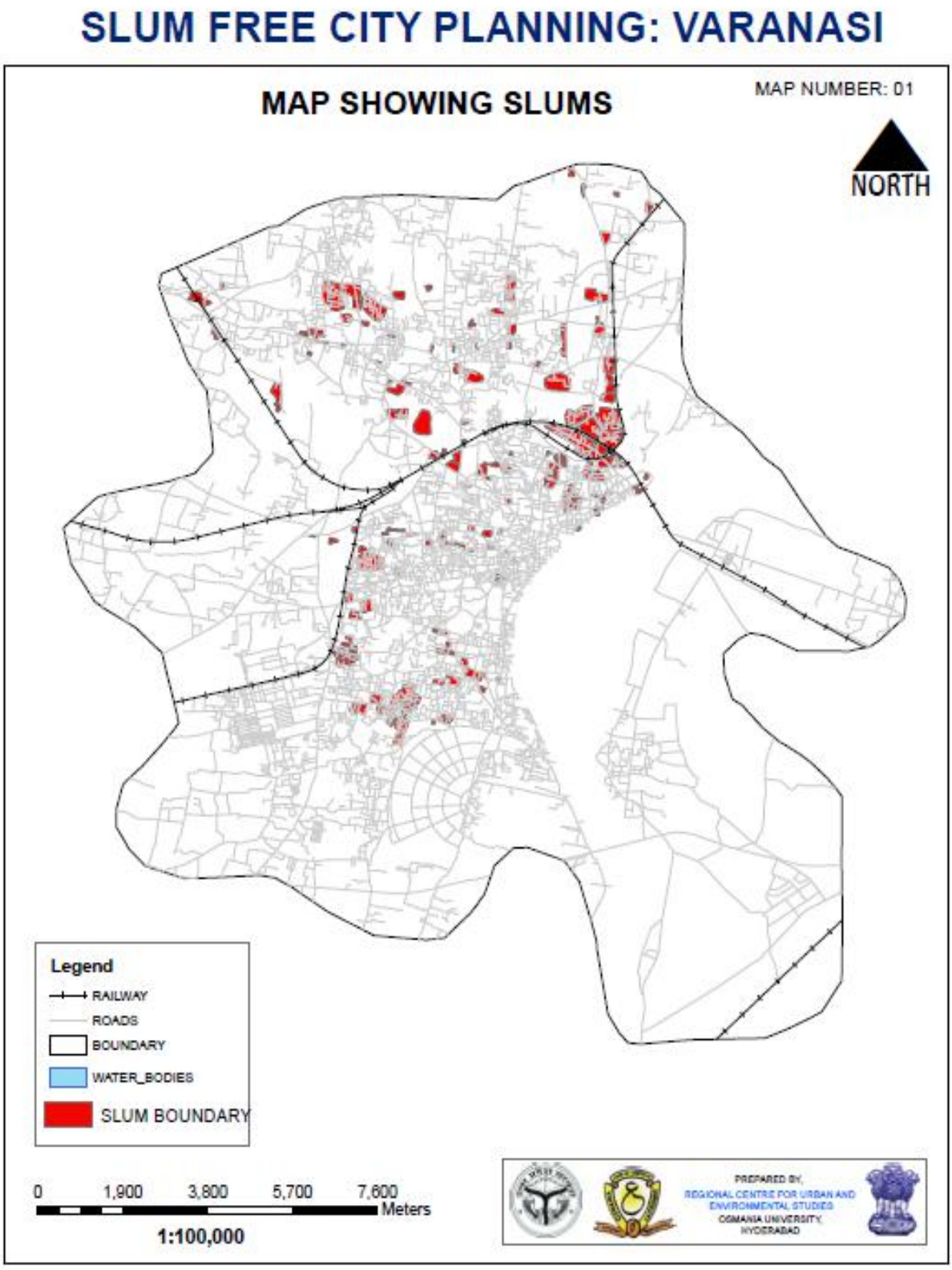
Varanasi city has a total of 209 slums, where all are notified. Out of 209 slums, 176 were built on land belongs to private ownership and 29 slums were situated on land belongs Local body, 3 slums under state government and remaining 1 slum belongs to Government of India. The total population living in slums is 407036, which accounts 34% of the city population (as per census 2011). Of the total 209 slums in the city, 160 slums have existed for more than 75 years. Considering the physical location of the slums, 108 slums are located on non-hazardous / non-objectionable sites, 17 slums are located in proximity to railway lines, and 12 slums are located near major nallahs, 10 slums are located along other drains 21 slum along river / water body bank and 5 slums are on river water body/bed, 7 slums are hazardous. All the slums are located far distinct to hazardous locations or activities making all slums as non-hazardous. Most of the slum settlements are concentrated around the core area of the city, along the highways and around other dominant location/land use forming larger clusters.

Table 3-1 : Comparison of city population & area against the slums

City Population	Slum population	% of slum population to city population	City Area (Ha)	Total Area under slums (Ha)	% of slum area to city area.
1201815	407036	34%	7997	522.74	7%

Source: *Census 2011, RAY Primary Survey, 2013*

As shown in the *Map 3-1*, 156 slums are located in the core part of the city, while the other 53 slums in fringe areas. The abutting land use around the slums is predominantly residential in nature.



Map 3-1 : Location of Slums in Varanasi City

3.2 Listing of Slums –Based on Number, Status, Tenability and Tenure Status

For the purpose of analyzing the existing situation, the deficiencies of the slums and to provide improved basic urban services, the following variables mentioned in RAY guidelines were studied:

- Land tenure status
- Land tenability
- Ownership of the land
- Age of the slums

Considering the above variables, the details of each slum in the city that are characterized by poor physical and socio-economic conditions, irrespective of land tenure status and ownership have been identified through primary surveys. The following Table 3-2 summarizes the aspects crucial for determining the current status of Varanasi slums.

Of the total 209 slums, 176 slums are on private lands and remaining 29 slums were situated on land belongs to Local body ownership. As shown below in the *table 3-2*, 69% of the slums do possess a secured tenure status and an enabled pleasant living condition.

Table 3-2 : Distribution of the slums w.r.to tenure, land tenability, age and land ownership

TENURE			LAND TENABILTY		
Status	**Secure**	**In secure**	**Tenable**	**Semi Tenable**	**Non - Tenable**
No. of Slums	144	65	186	11	12

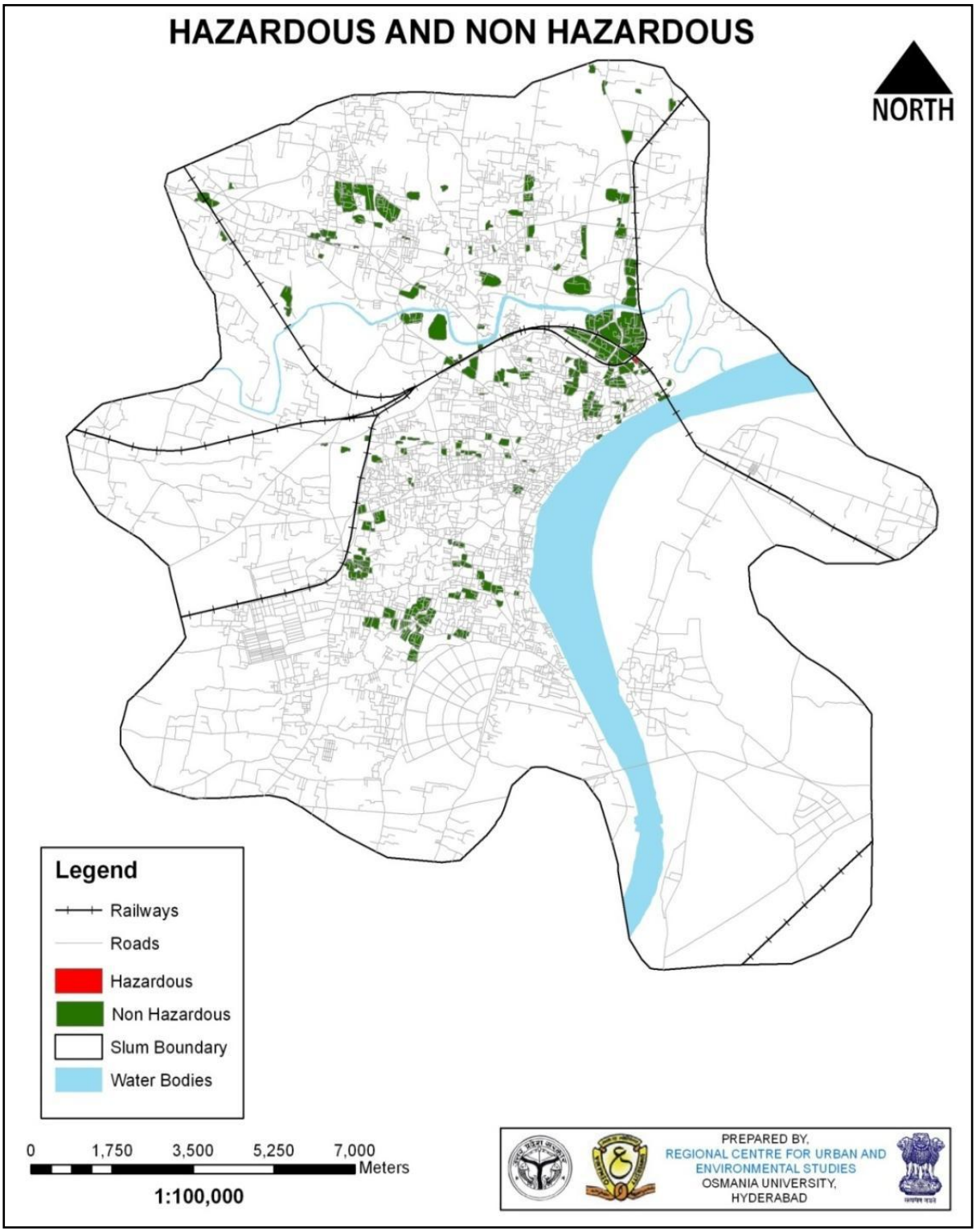
AGE OF SLUM						
Age	**0-15 years**	**16-30 years**	**31-45 years**	**46 - 60 years**	**61 - 75 years**	**Above 75 years**
No. of Slums	2	3	1	33	10	160

LAND OWNERSHIP				
Ownership	**Local Body**	**State Government**	**Private**	**Others**
No. of Slums	29	3	176	1

***Source**: RAY Primary survey, 2013*

3.2.1 Distribution of Slums by Land Tenure Status

Land tenure is an important part of socio-economic structure of any neighborhood and enables entitlement of formal access to basic services. According to RAY guidelines, tenure status is "the mode by which land/property is held or owned or the set of relationships among people concerning land/property or its product" and defines the legal status of the land. As seen in the *table 3-2*, 69% of the slums are secured and have access to basic amenities and in possession of certificates while 31% of slums are unsecured, which needs regularization.



Map 3-2 : Tenure status of slums

3.2.2 Distribution of Slums by Land Tenability Status

The land status of all listed slums/informal settlements should be classified by the ULB as tenable[2], semi tenable[3] or untenable[4] in order to determine whether the land is fit for human habitation and void of health hazards (RAY Guidelines).

As shown in *Figure 3-1*, the current land tenability status for the 209 slums as identified has been presented where 89% (186 slums) of the slums are found to be tenable and 5% (11 slums) slums are semi-tenable, with the remaining 6% (12) slums are un-tenable.

3.2.3 Distribution of Slums by Land Ownership

Over 84% of the slums are situated on land belongs to private ownership and the On other side, 14% of the slum lands belong to ULB ownership and 1% under State Govt. remaining 1 % of the slums belongs to others. In 84% of the slums situated on private land, 69% of the households hold pattas, possession certificates and are still eligible for slum redevelopment programmes considering the varying economic status of those dwellers.

3.2.4 Distribution of Slums by Age

Age of the slum is one of the important information to assess the condition of a slum in any city. Considering the fact that Varanasi being one of the oldest habitat cities in India, it has slums into existence over 60 years. It is interesting to note that 97% of the slums in the city have been into existence for more than 40 years with remaining 3% of slums less than the 40 years *(Shown in Figure 3-2*).

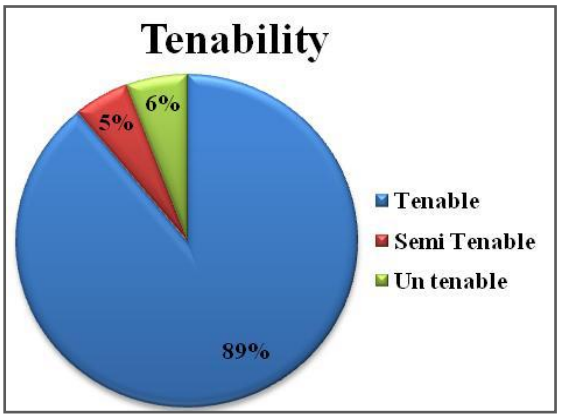


Figure 3-1 : Distribution of slums in the city w.r.to land tenability status

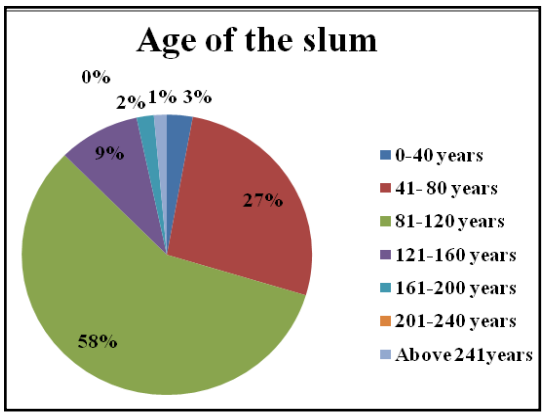


Figure 3-2 : Percentage distribution of slums in the city w.r.to age

[2] According to RAY, Tenable slums means all slums which are not located on hazardous locations suitable for human habitation and the land not earmarked for any major public facilities and therefore it can be regularized in the same location.
[3] Semi tenable slums are those slums which are located on land zone for non-residential uses as prescribed by the master plan.
[4] Untenable slums are those settlements which are on environmentally hazardous sites, ecologically sensitive sites, prohibited areas around heritage sites, and on land marked for public spaces, utilities and services and infrastructure. These shall include settlements in lake/tank beds or near hazardous or polluting industries / activities which are detrimental to the life and property of the inhabitants occupying them.

3.2.5 Notification status of the slums

According to National Sample Survey Organization, areas notified as slums by the respective municipalities, corporations, local bodies or development authorities were treated as "notified slums", they tend to receive higher level of services and those unrecognized by the local bodies were considered as "non-notified slums". As per DUDA, Varanasi the city is having a total of 209 slums and all are "Notified slums". The city doesn't have any Non-notified slums. The Annexure – I primary survey has been done for all 209 slums in the city.

Table 3-3 : Notification status of Slums

	NOTIFICATION STATUS			% PROPORTION OF SLUMS	
Status	**Notified**	**Non-Notified**	**Total**	**Notified**	**Non-Notified**
No. of slums	209	0	209	100%	0%

Source: *DUDA, Varanasi*

Please refer **Annexure-1A**, for a detailed slum wise description of the above.

3.3 Physical Profile

Slums in Varanasi are scattered throughout the city and found all over the city however established mostly near places of employment such as handloom industry, religious places, tourist places and others.. The general composition of majority of slums comprises of scheduled caste, and other backward classes, forming the weaker section of the society. From habitation point of view, in general, the slums located in the low lying areas, along open drains/Nallah, tank beds and hazardous/toxic sites are susceptible to inundation, and other forms of disasters.

The slum concentration in these areas has not only led to poor living conditions for the slum dwellers but also responsible for the general deterioration of the living environment in the city. This is primarily due to lack of proper infrastructure services in these areas and considering the fact that most of these slums are overcrowded, there is always constant pressure on the city infrastructure and resources. In this section, the following set of variables was studied to assess the existing housing scenario in terms of the structures, its type, access to electricity and other related issues so as to bring out the deficiencies:

- Location of slums and its area
- Flood prone slums
- Physical location of slums
- Abutting land use
- Housing type

Table 3-4 : Summary table of the slums – area, location, abutting land use & flood vulnerability

AREA OF SLUMS								
Area (Ha)	**0 - 1 Ha**		**1 - 2 Ha**	**2-3 Ha**		**3 - 4 Ha**		**More than 4 Ha**
No. of Slums	72		61	25		17		34
LOCATION OF SLUMS IN CITY								
Location	**Core area**			**Fringe area**				
No. of Slums	156			53				
PHYSICAL LOCATION OF SLUMS								
Location	**Along Nallah (Major Storm water Drain)**	**Along other drains**	**Along Railway line**	**Along Major Transport Alignment**	**Along River / Water body bank**	**On River/ Water body bed**	**Hazardous/ Objectionable**	**Non- Hazardous / Non - Objectionable**
No. of Slums	12	10	17	29	21	5	7	108
SLUMS PRONE TO FLOODING DUE TO RAINS								
No. of Days	**Not Prone**		**Up to 15 days**	**15 - 30 days**		**More than 30 days**		
No. of Slums	110		76	19		4		
TYPE OF AREA SURROUNDING SLUMS								
Type of Use	**Residential**		**Industrial**	**Commercial**		**Other**		
No. of Slums	195		3	9		2		

Source: *RAY Primary Survey, 2011*

3.3.1 Distribution by Slum Area

According to the primary survey, slum population constitutes 34% of the total City population where as the total slum area is (522.74Ha) 7% of the total city area. Nearly 64% of slums are found to be situated in area less than 2 Ha and 36% of slums are situated in area more than 2 Ha.

3.3.2 Flood Prone Slums

As indicated in the *Table 3-4*, 110 slums are found not prone to floods and the remaining 99 slums are found to be flood prone with rain water remnant for up to 15 days or even more, indicating lack of safety to the slum dwellers.

Picture: 3-1 Stagnant of rain water in Nakhighat slum

Picture: 3-2 Rain water stagnant in Nakhighat purwa slum for more than 15 days

3.3.3 Distribution of Slums by Physical location

Out of 209 slums, 156 slums are located in core area such as near CBD, around temples and small scale industries and remaining 53 were located in urban fringe. With respect to the physical location of the slums, around 14% are located along the major transport alignment such as National Highways while 11% along the open and storm water drains; 8% along the railway lines. On other side, 12% slums are found to be located along the river as well as on the river beds. The location of slums with respect to various physical settings is shown in the *Map 3-5*.

52% of the slums are located on the sites of non hazardous / non objectionable areas,14% of the slums are located along major transport alinment,8% of the slums under railway lines,6% of the slum are along major storm water drains 5% of the slums are along other drains, 10 %are others(non-hazardous and non-objectionable slums,2% of the slums are on river water body/bed and the remaining 3% (7 slums) marked in red color are observed to be near are on the hazardous sites. Thus 7 slums under hazardous and the 26 slums along the river are more vulnerable to any kind of manmade or natural disaster (seen in figure *3-3*). These slums require special attention before undertaking any development, the beneficiaries cooperating and their livelihoods are of paramount importance.

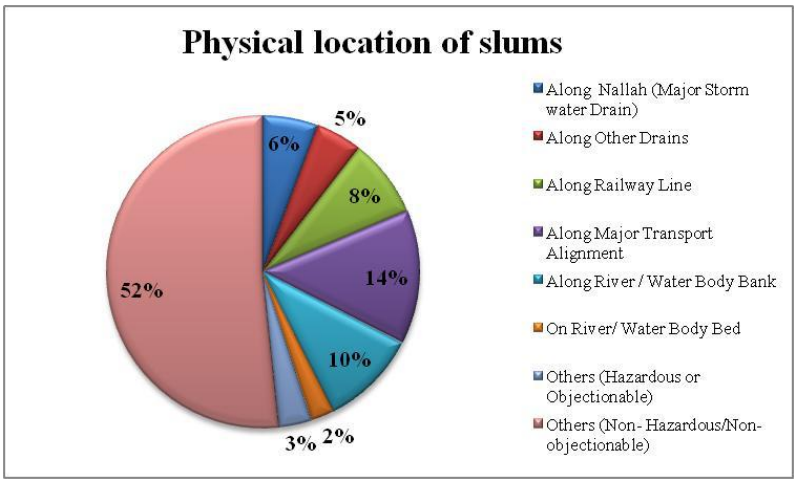


Figure 3-3 : Percentage distribution of slums in the city w.r.to Phvsical location

Picture: 3- 3 Location of Varanasi Slum along Major Nallah

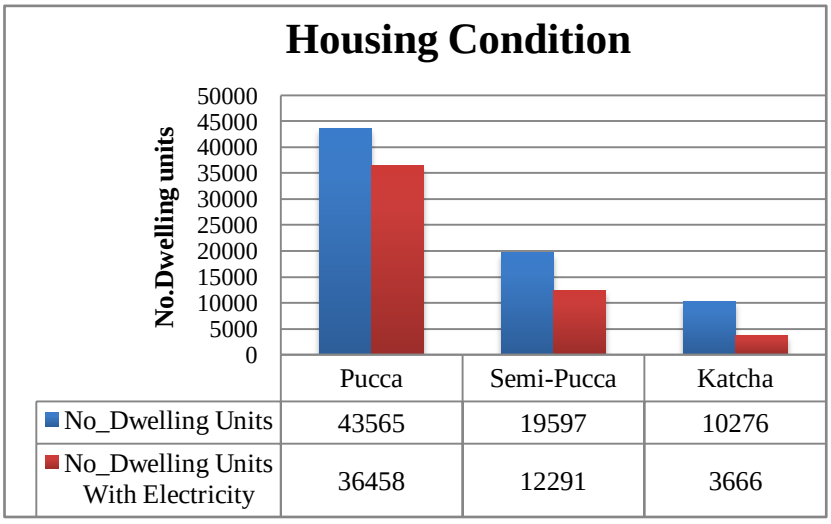
3.3.4 Distribution of Slums by Abutting Land use

Looking into the abutting land use, the *table 3-4* reveals that 94% of the slums are surrounded by residential land use, followed by industrial uses &other land uses (2%) such as small scale industrial units like Madanpura, Adampura and handloom units in the city. In addition 4% of the slums are covered by commercial use like wholesale businesses. Of the 53 slums located in the fringe areas, 88% of the slums are bounded by residential and remaining 8% surrounded by industrial and commercial land use and 4% surrounded by other land use respectively.

3.3.5 Distribution of Slums by Housing type

One of the prime indicators to assess the existing condition of a slum is housing. In order to understand the degree of living conditions, data on the type of housing structures in the slums is collected to examine the housing scenarios. For analysis purpose, the dwelling units were classified into pucca, semi-pucca and katcha, based on the kind of roofing and wall materials used.

In Varanasi the total No. of dwelling units in the slums are 73438. Out of these, 59% of dwelling units are Pucca constructions, 27% units are Semi-Pucca and the remaining 14% are katcha in nature. With respect to electricity connection, about 71% of the dwelling units have access to electricity where 70% of pucca dwelling units, 23% of semi pucca and 7% of katcha dwelling units have access to the same. Hence there is a dire need to cover 29% of total houses with electricity, indicating the pathetic status of the slum dwellers.



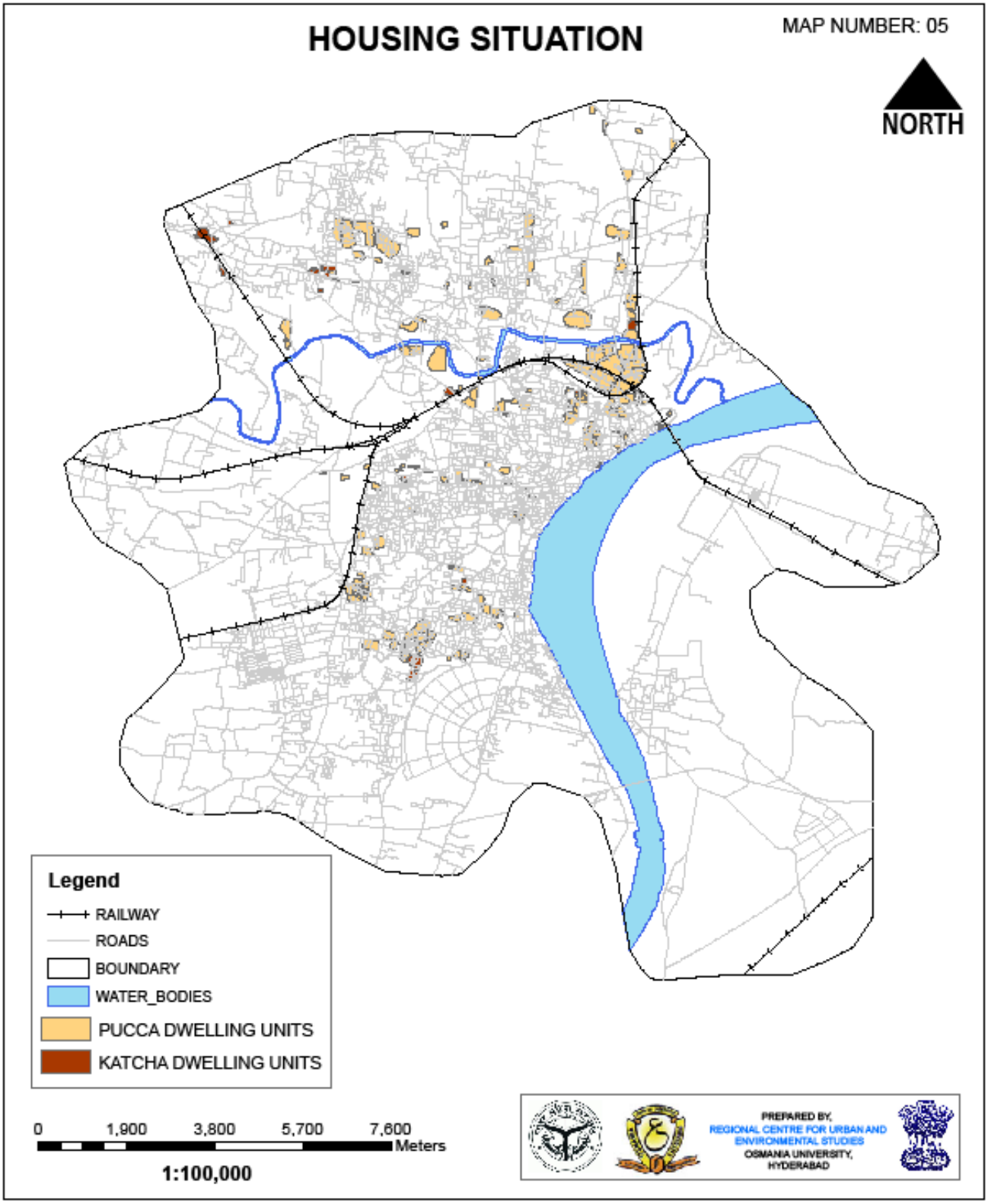
	Pucca	Semi-Pucca	Katcha
No_Dwelling Units	43565	19597	10276
No_Dwelling Units With Electricity	36458	12291	3666

Source: *RAY Primary survey, 2013*

Figure 3-4 : Housing condition of dwelling units in the slums w.r.to structure type and electricity

The *Map 3-3* depicts the current housing structure condition in the slums of Varanasi. For analytical purpose, semi pucca and katcha houses were considered exclusively to determine the housing shortage and the need to implement suitable housing redevelopment programmes. If the semi Pucca + katcha houses were greater than 75% then it is considered poor housing in rehabilitation state which needs to be addressed immediately or rebuilt. In the same way if the semi Pucca + katcha houses were less than 75% then it is assumed that housing condition not as good as Pucca houses. As per the data results, it was found that 29 slums coming under in-situ mode of development (8 slums are hazardous and in 21 slums semi Pucca + katcha houses are more than 75%) while 179 slums in the latter category.

SLUM FREE CITY PLANNING: VARANASI



Map 3-3 : Housing condition in slums

Picture: 3-4 Ambedkar nagar malini basthi slum housing situation

Picture: 3- 5 Nadeshar slum housing situation

Picture: 3- 6 Ruppanpur slum housing situation

Picture: 3- 7 Aunjanganj slum housing situation

Picture: 3- 8 Katcha housing structures in Machodari slum

Picture: 3- 9 Katcha housing structures in Paikambur slum

Based on the income levels and the affordability levels of the households, the kind of housing is determined and varies accordingly. Similarly in Varanasi, 59% of the Pucca houses are built using wall materials of burnt bricks, stones, cement concrete, timber, and roofing of reinforced brick concrete and reinforced cement concrete, PCC flooring. While semi Pucca houses have walls made up of Pucca material but roof is made up of the material other than those used for Pucca house and katcha houses are usually found to be built using make shift material like sandstone tiles, thatches, loosely packed stones, Jhopris and temporary tents.

Although most the dwelling units are Pucca in nature, it is irony that these are in a dilapidated condition and in of up gradation. On housing occupancy status, it was found that 9% of the houses are self-occupied and 12% are rented. Due to lack of choice, and security, the population is forced to live and work in informal settlements and earn on a daily basis. For slum wise details, please refer **Annexure-1B.**

3.4 Demography & Social Profile

3.4.1 Population

According to Annexure 1 primary survey, the total population in **209 slums** is **407036** residing in **78253** households, with an average household size of 5. The average population density of slum area in the city is 779 persons per Hectare. The ***Amarpur Batlohiya*** slum is having the highest population (7650) and ***Rajamandir Unchwala*** slum is having the lowest (167). The slum wise distribution of population is shown in Map 3-8.

3.4.2 BPL Population & Households

The BPL population constitutes about 44% of the slum population. In ***Bagavanala*** slum about 99% of the slum population is BPL population. ***Revadi Talab*** is the slum with lowest percentage (1%) of BPL population. Of the total slum households, 40% are BPL households i.e., 78253 households.

Table 3-5 : Distribution of Slum population w.r.to different social groups

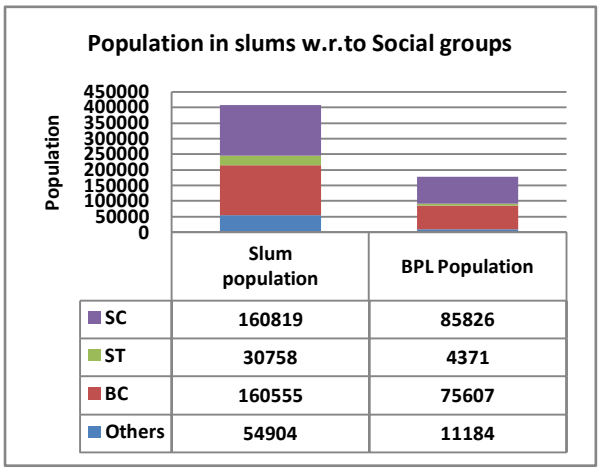
PARTICULARS	SC	ST	OBC	Others	Total	Minorities (out of total)
Total slum population	160819	30758	160555	54904	407036	169757
Total Households	30287	6504	30826	10636	78253	28688
Total BPL population	85826	4971	75607	11184	177588	69340
Total BPL Households	14524	1055	13457	2124	31160	13263
No. of women headed households	4753	326	3793	865	9737	3059
No. of persons > 65 years	10033	789	9792	2363	22977	6456
No. of physical handicapped persons	909	84	776	192	1961	301
No. of persons with tuberculosis	1634	56	1458	221	3369	580
No. of Persons with Respiratory and Chronic diseases	2529	168	2372	626	5695	898

Source: *RAY Primary Survey, 2011*

3.4.3 Distribution of Slum population & households by different Social groups

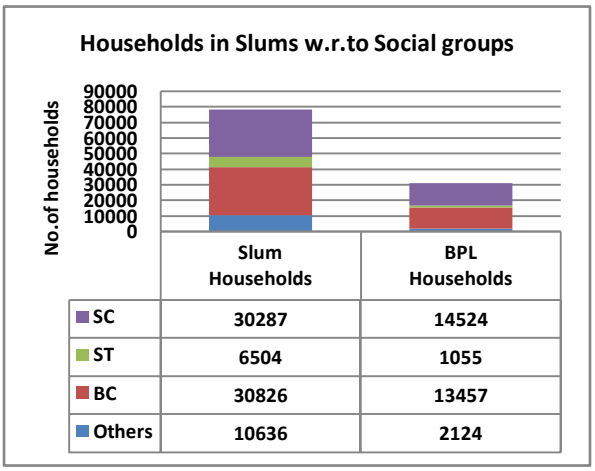
In the context of different social groups residing in slums of Varanasi, SCs and OBCs constitute the major proportion. About 79% of the population living in slums belongs to OBC & SC division of social groups. About 91% of OBC & SC population in slums is under BPL.

In consideration with households, about 77% of the households in the slums belong to OBC and SC division of social groups. Of total slum households, about 39% belong to OBC group of social division. It is further observed that 47% of OBC and 43% of SC households are living below poverty line (BPL).



	Slum population	BPL Population
SC	160819	85826
ST	30758	4371
BC	160555	75607
Others	54904	11184

Figure 3-5 : Distribution of population in slums w.r.to different social groups



	Slum Households	BPL Households
SC	30287	14524
ST	6504	1055
BC	30826	13457
Others	10636	2124

Figure 3-6 : Distribution of Households in slums w.r.to different social groups

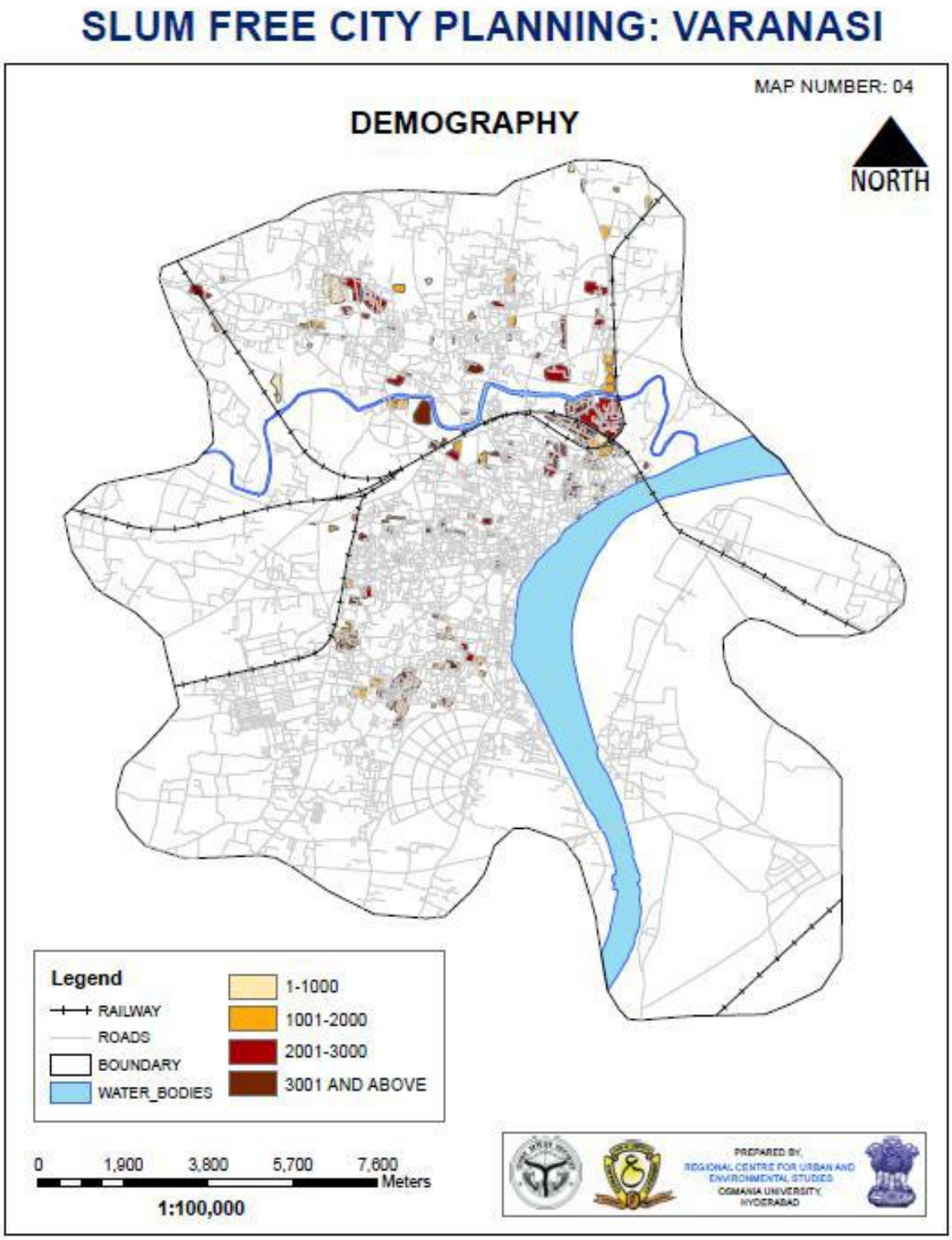
Source: *RAY Primary survey, 2013*

3.4.4 Distribution of slum households by Minority communities

In Varanasi a significant proportion of minority[5] communities are living in slums. About 42% of the slum population belongs to minority communities and constitute about 37% of the total slum households. In terms of BPL population and households, 39% of the minority population in slums stood below the poverty line occupying 43% of total BPL households.

As shown in the table 3-5, the persons with more than 65 years of age constitute 6% of the slum population. About 12% the total households in the slums are women headed households, which is more seen among SC social group of households.

[5] The Muslims, Christians, Sikhs, Buddhists and Zoroastrians (Parsis) were notified as minority communities in India under section 2(c) of the National Commission for Minorities Act, 1992.



Map 3-4 : Slum wise distribution of population

3.4.5 Literacy rate

The literacy rate of slums in Varanasi is 70%, where the male literacy rate is observed to be more compared to female literacy rate. In respect to different social groups, the literacy rate is 42% among OBC, 43% among SC, 2% among ST, and 13 % in others. The literacy rate is 60% among minority groups.

3.4.6 School Dropouts

According to Planning Commission, though most Indian States have done well in enrolling more and more children in schools, their inability to retain them has been a problem. The dropout rate was least for those belonging to the highest income group and maximum for those from the lowest income group and economically weaker sections. Children from poorer sections of the society drop out in the early stages of education due to the fact that either the children or their parents were not interested and nearly as many were on account of economic considerations, compulsion to work for wages or looking after younger siblings.

As per Annexure-I survey, it is found that 4% (15907 children) of the children in slums were school dropouts. The mitigation measures needs to be taken through strict implementation of education policy programmes and provision of elementary education to the deprived groups.

3.4.7 Number of Slums by Disability Status and senior citizens

As per Annexure -1 survey it is found that about 0.5 % of the slum population has people who are either physically handicapped or mentally challenged. The employment provisions needs to be made for those physically challenged person who are skilled enough.

For the well being of these sections of people viz., old, physically handicapped mentally challenged etc., it is essential to make due concessions and provision of adequate social facilities. In addition, the eligible old aged persons in BPL families should be entitled to National Old Aged Pension Scheme (NOAPS).

3.4.8 Number of households by Health Condition

Poor water and unsanitary conditions leads to adverse effects on health of households living in slums. It is quite apparent that slums are characterized by poor/crammed housing conditions, lack of good sanitation and contaminated water supply. Due to contamination of water and outlet of effluents into the river/ water bodies making the households exposed to respiratory problems, chronic and other diseases. In slums of Varanasi, it is found that about 0.1% of the slum population is found to be having HIV/AIDS while 0.8% of the population is suffering with Tuberculosis and 0.9% with respiratory problems

For slum wise details, please refer **Annexure-1C** on social profile.

3.5 Economic profile

Economy in Varanasi is based on various sectors like tourism; export of famous Benarasi sarees, musical instruments and also on the education sector, with world famous universities present in the city. The overall economy of the region is dominated by tourism and rich pilgrimage, with tourists coming not only from all parts of India but also from different countries. There is a huge

significance upon secondary and tertiary economic sectors such as roadside stalls/shops, informal sector and guidance facility for tourist. This form of tourist requirements would make the majority of slum dwellers to establish as their primary source of economy. The predominance of the household sector and small scale industries makes Varanasi distinct. Currently; it is the household sector, the informal sector that accounts for over 33% of the total industrial workforce of the city. The city is renowned for its silk weavers who prepare the finest types of woven silk fabrics. Silk weaving in Varanasi is a cottage industry, which is found in many areas of the city however has been hit with the emergence of power looms and computer-generated designs.

The above mentioned favorable conditions made the city to encompass some decent infrastructure and housing, and as a result, the present economic base continues to fall short of the city's demands for municipal and service agency revenue, and the broader need to create jobs and attract more investment.

3.5.1 Livelihood profile

Two types of labor exist in all economies: skilled and unskilled. Skilled labor is the portion of workers in an economy that have specific, technical industry skills relating to business and the production of goods. Engineers, welders, accountants and scientists are a few examples of skilled labor. Unskilled labor is the cheaper and less technical portion of the workforce that makes up a large part of an economy's labor market. This workforce plays the important part of performing daily production tasks that do not require technical abilities.

The composition of work force conveys a picture of quality of life, associates with their social and economic activities. As per Varanasi City Development Plan 2006, approximately 10.69% of the total population is engaged in different manufacturing activities while the tertiary sector accounts for 6.80% of the total employment. With respect to slums, the development plan also documents that 56% of the households are employed and remaining 44% as unemployed. The unemployment in slum dwellers could be potentially mitigated by implementing schemes such as SJSRY, STEP UP and other livelihood oriented training programmes initiated by Govt. of India.

Majority of the working population in the slums is engaged in silk weaving; making of betel leaves, handicrafts, carpets, rugs, durries, wholesale business, home based small businesses, rickshaw pullers and as safai karmacharis. On the other hand, women in the families are majorly involved in incense stick making, basket making and domestic help. On the other hand, slums households located in urban fringe are involved as agricultural laborers due to the presence of agricultural lands in close proximity.

3.5.2 Distribution of slums households by Occupation Status

As per Annexure –I survey, it is inferred that 33% of the households are found to be working as casual laborers and 27% on regular wage basis which includes domestic help, rag pickers, and vegetable vendors. Only 9% is actually working on monthly salary, indicating a secured position and skilled employment. Therefore, nearly 39% of the slum households do not have access to a dependable occupation and secure income.

As per the recent Annexure–I survey, 39% of the slum households do not have opportunities towards sustainable occupation and secure income. This situation of slum livelihoods need to be

taken into consideration in future development programmes as there is a dire need for an enhanced productivity in the city.

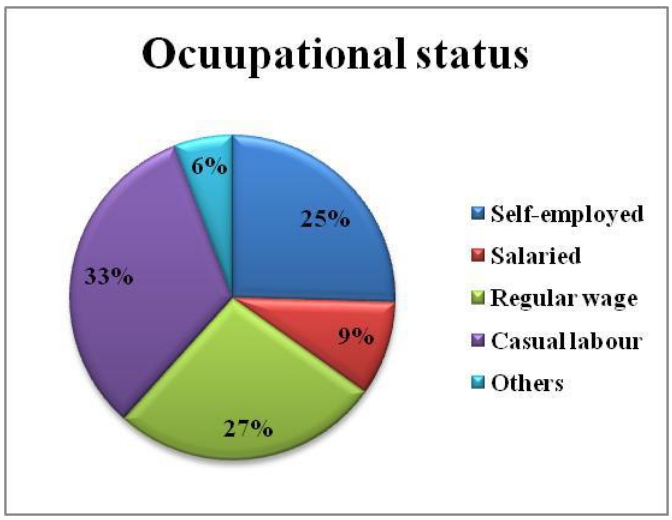


Figure 3-7 : Distribution of slum household's w.r.to occupational status

3.5.3 Monthly Income by Households

In respect to monthly income of households, it is found that, about 17% of the households income ranges between `2000 - `3000. 28% of the households earn in the range of `1500 -`2000. The households earning less than `1500 constitute about 43%.

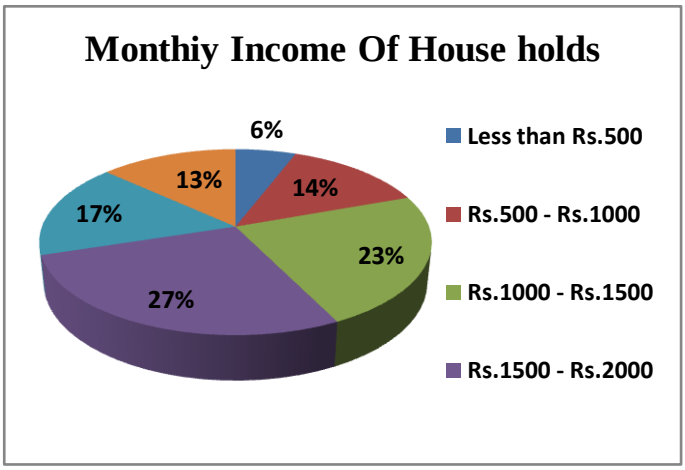


Figure 3-8 : Distribution of household's w.r.to monthly income

Further, the livelihood pattern has become indefinite and irregular for the households, where only 13% of them are earning more than Rs.3000/- per month.

The above statistics reveal that there is urgency in creating economic assistance which has to include training, job placements, credit and technical support to small and marginal businesses, creating new society –owned enterprises, providing micro-finance facilities and loans for housing and financial assistance such as subsidies for building materials.

There is ample scope for programmes like SJSRY projects to be launched particularly STEP UP, UCDN, UWESP in most of the slums as part of livelihood promotion and leads to enhanced productivity.

For slum wise details, please refer Annexure-1D on Economic details.

3.6 Physical Infrastructure

Sustainable growth of a city depends on its infrastructure facilities. Lack of infrastructure and institutional mechanism can lead to collapse of urban system in a city. Access to basic services has now become a criterion for identification of the poor areas in a city. The responsibility for urban service provision in an equitable manner lies with the ULB, where an increasing gap in service levels and the difficulties in providing the same are prevalent. Information on access to services in terms of Physical Infrastructure of slums Varanasi city has been collected and a brief analysis on the current status of Water Supply, sewerage, Storm Water drainage and Solid Waste Management in slums is presented. The numbers indicated in the following are based on Annexure – I survey of 209 slums.

3.6.1 Water Supply

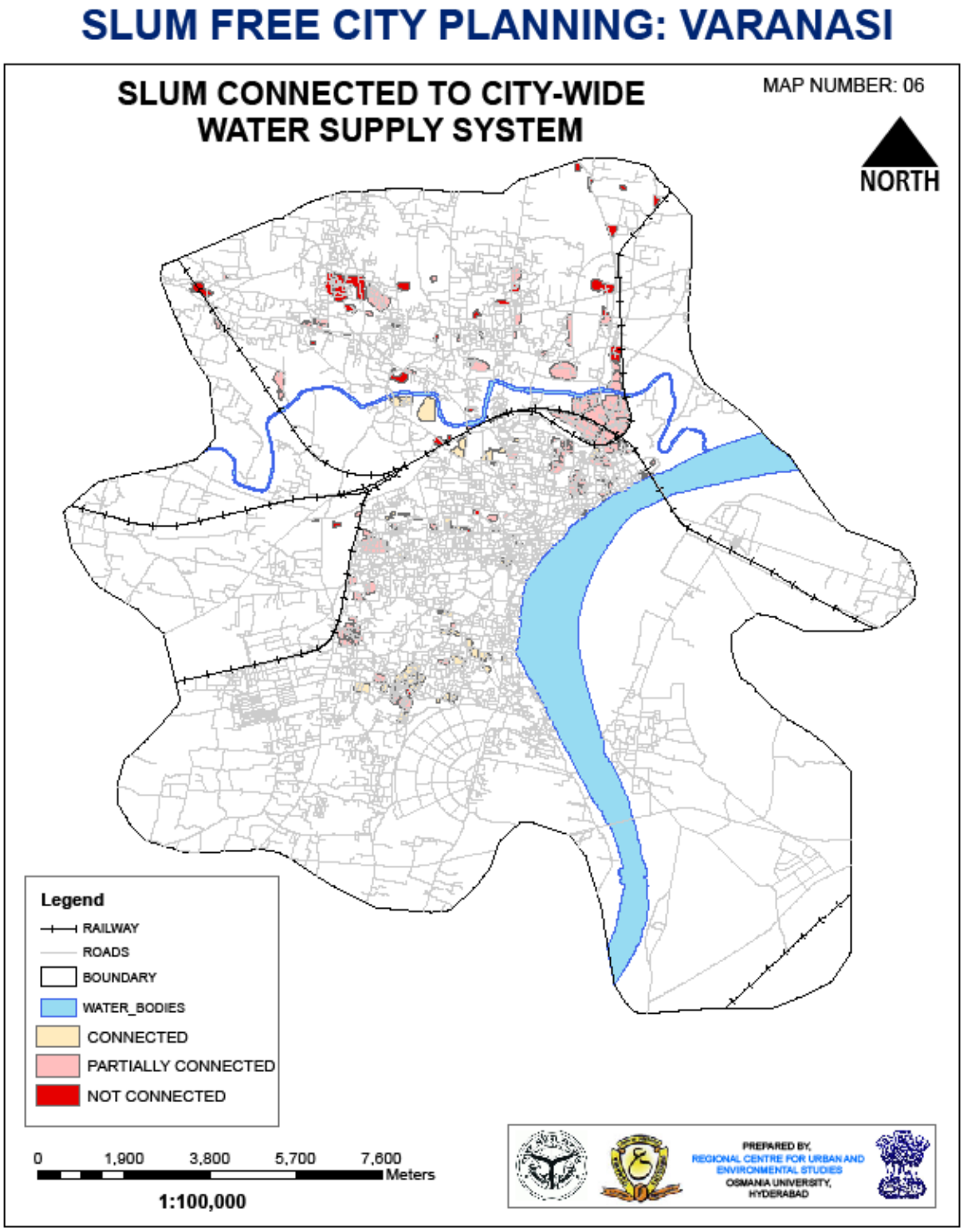
Table 3-6 : Current status of water supply in slums

CONNECTIVITY TO CITY WIDE WATER SUPPLY SYSTEM								
Status	**Fully Connected**		**Partially Connected**			**Not Connected**		
No. of Slums	54		118			37		
SOURCE OF WATER SUPPLY FOR HOUSEHOLDS								
Source	**Individual Tap**	**Public Tap**	**Tube well/ Bore well / Hand pump**	**Open Well**	**Tank / Pond**	**River/Canal/ Pond**	**Water Tanker**	**Others**
No. of Households	36218	13486	15871	3343	20	25	2	9288
WATER SUPPLY SOURCE								
Ownership	**No. of Individual Taps**		**No. of Public taps**		**No. of Tube wells/ Bore wells / Hand pumps**			
No. of Connections	36218		674		1590			
DURATION OF PIPED WATER SUPPLY TO SLUMS								
Duration	**Less than 1 hr daily**	**1-2 hr daily**	**More than 2 hrs daily**	**Once in a week**	**Twice a week**	**Not regular**	**No supply**	
No. of Slums	8	86	72	7	5	6	25	

Source: *RAY Primary Survey, 2011*

a. Connectivity to City Wide Water Supply System

Most of the slum households either have direct access to water supply service or access it through community or common facilities. Of the total slums, 26% of slums are fully connected to the city wide water supply system and 56% slums are partially connected. The remaining 18% of the slums do not have connectivity to city water supply system. The following *Map 3-5* shows the number of slums that are connected to city wide water supply system.



Map 3-5 : Connectivity of slums to City wide trunk water supply system

b. Existing sources of Drinking water

In regard with source of drinking water, over **46%** of the slum households i.e., 36218 households out of 73438 households have their own individual water supply connections, where potable drinking water being supplied by the ULB. A significant portion of **54%** of the slum households does not have own water supply connection. They usually depend on public taps, hand pumps, tube wells and on neighbor households who have access to water supply connections.

c. Duration of Piped Water Supply

The drinking water is supplied usually once in a day or once in couple of days in the city which change in accordance with season. In Varanasi for 41% of the slums (86 slums) the piped water is supplied for duration of 1 to 2 hours daily. In 86 slums, the piped water supply is totally absent and the people majorly depend on hand pumps, wells, tube wells for drinking water.

Picture: 3- 10 Handpump in Sikva ghat slum

Picture: 3- 11 Public tap in Madhopur Hrijan basthi slum

Despite the connectivity to city wide water supply system, the major problem observed to be is the poor quality of water. The source of water supply to the city is through ground water and the quality of water being supplied by the ULB is of standard this is due to the discharge of waste from dying industry, contamination of river through burnt up bodies, garbage at the source of river. Even after treatment, the quality of water is still found to be poor; which needs to be addressed immediately.

d. Sanitation

Sanitation and sewerage system are not only the basic necessities of life, but they are also crucial for achieving the goal of "Health for All". Increased sanitation coverage is directly linked to improvement of health status. Lack of sanitation is a universal problem when it comes to slums and is markedly less than access to other basic services. While, it is worthwhile to note that the proportion of people having access to sanitation in urban areas is considerably greater when compared to their rural counterparts, however the problems are more exacerbated in slums.

Urban sanitation is perceived as being important because of the health and decency is factor. In case of slums, it is observed that sanitation facilities are worst and in pathetic condition. A comprehensive view of the sanitary facilities as well as current sewerage system in the slums is shown in *Table 3-7:*

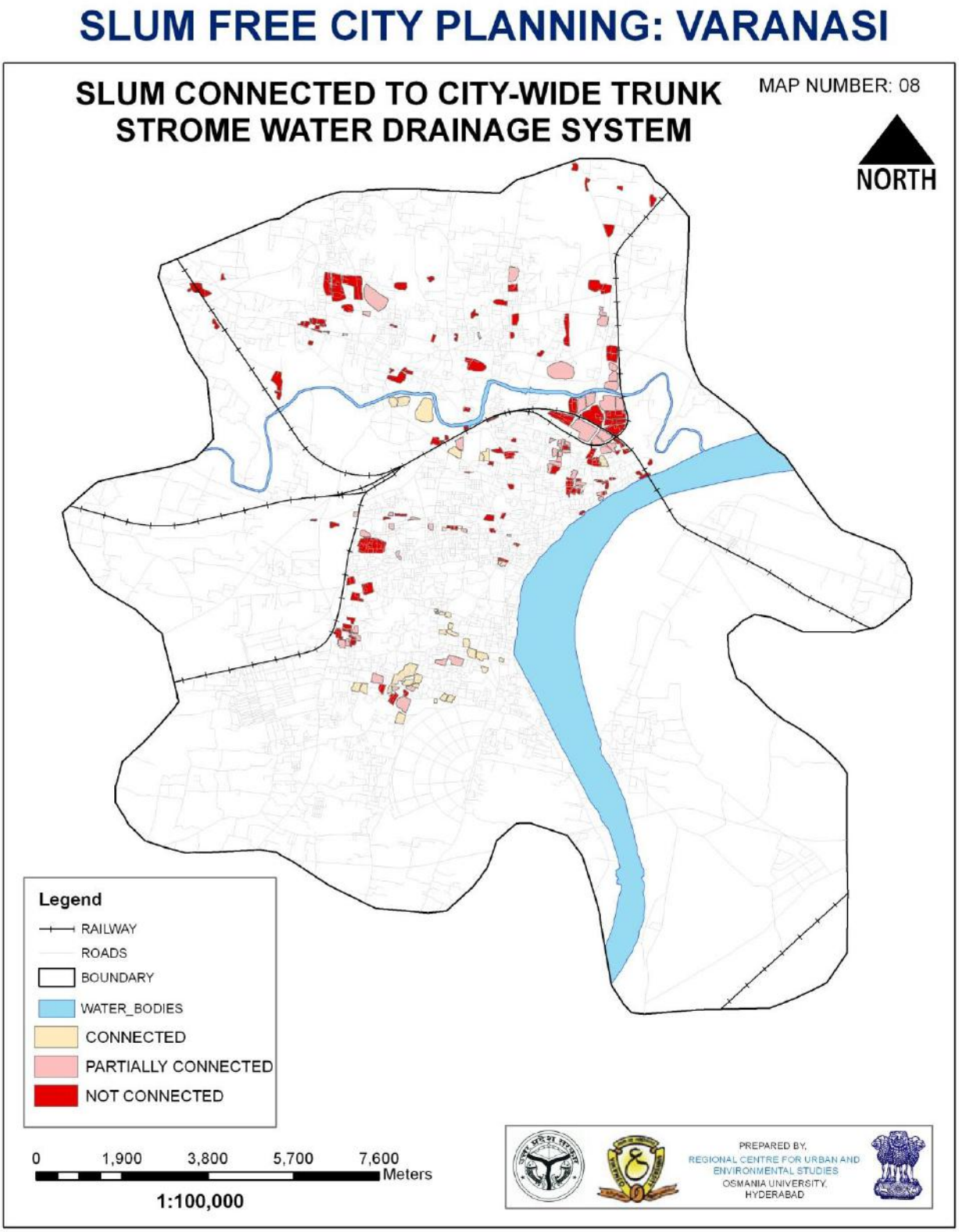
Table 3-7 : Status of Sanitation in slums

DRIANAGE AND SEWERAGE FACILITY										
Type of facility	**Storm water drainage**			**Underground drainage / Sewer lines**			**Digester**			**Not connected to sewer or digester**
No. of Households	9021			40456			604			14748
CONNECTIVITY TO CITY WIDE SEWERAGE SYSTEM										
Status	**Fully Connected**			**Partially Connected**			**Not Connected**			
No. of slums	**51**			**92**			**66**			
CONNECTIVITY TO CITY WIDE STORM WATER DRIANAGE SYSTEM										
Status	**Fully Connected**			**Partially Connected**			**Not Connected**			
No. of Slums	34			59			116			
LATRINE FACILITY USED BY HOUSEHOLDS										
Type of Latrine	**Public Community**			**Shared Latrine**			**Own latrine**			**Open Defecation**
	Septic tank/ flush	**Service latrine**	**Pit**	**Septic tank/ flush**	**Service latrine**	**Pit**	**Septic tank/ flush**	**Service latrine**	**Pit**	
No. of Households	2797	813	690	3375	184	594	41435	4828	4730	18807

Source: *RAY Primary Survey, 2011*

e. Drainage & Sewerage facility

As per Annexure-I survey, it was found that 12% of 78,253 households have access to storm water drainage while 52% has access to underground sewer lines and 1% of the households connected to digester. Even though 65% of the households in the slums have some form of drainage and sewerage facility, still 35% of the households are not connected to a sewerage system. Due to absence of a system, the gray water and waste water from houses are directly dumped into the open Nallah or nearby open drains along with solid waste, makes it overloaded and choked. Due to this discarding, water logging in the slums areas is prevalent and in turn has direct consequences on the health of households (Seen in *pictures 3-12 & 3-13*). About 11% of the slums are prone to flood and other consequences, there is a need for a dedicated storm water drainage/ sewer line network for the uncovered slums to prevent water logging.



Map 3-6 : Connectivity of slums with city wide storm water drainage system

f. Connectivity to City wide Storm water drainage

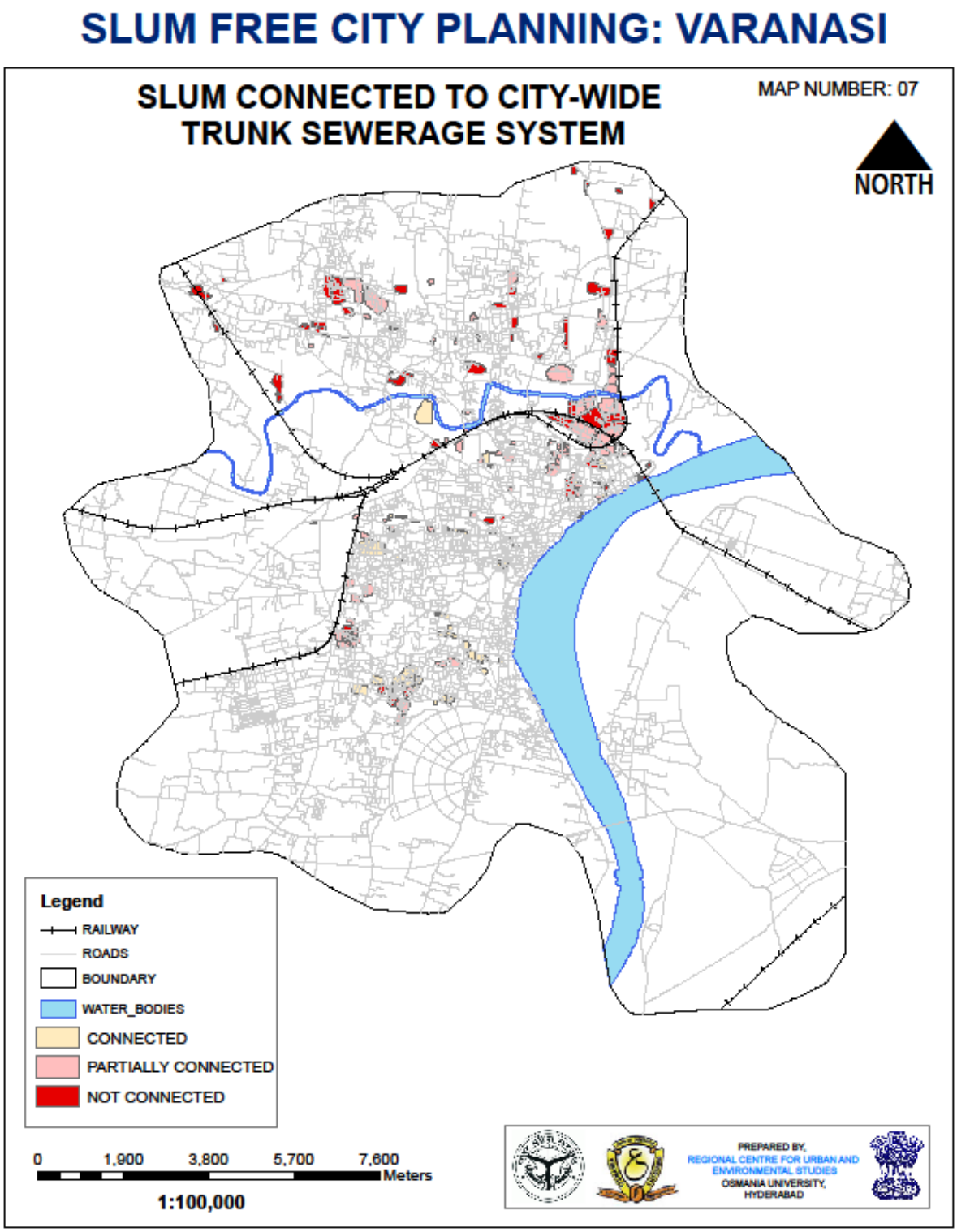
In regard with connectivity of slums with city wide storm water system, about 16% of the slums are fully connected and 28% of slums are partially linked to the system. The rest 56% of the slums does not have connectivity to the city wide system. Given the situation, it is necessary to improve the system as well as provide newer connections before it infiltrates into the environment.

Picture: 3- 12 Open drainage in Jayaprakesh nagarslum

Picture: 3- 13 Storm water drain in slum

g. Connectivity to City wide trunk Sewerage System

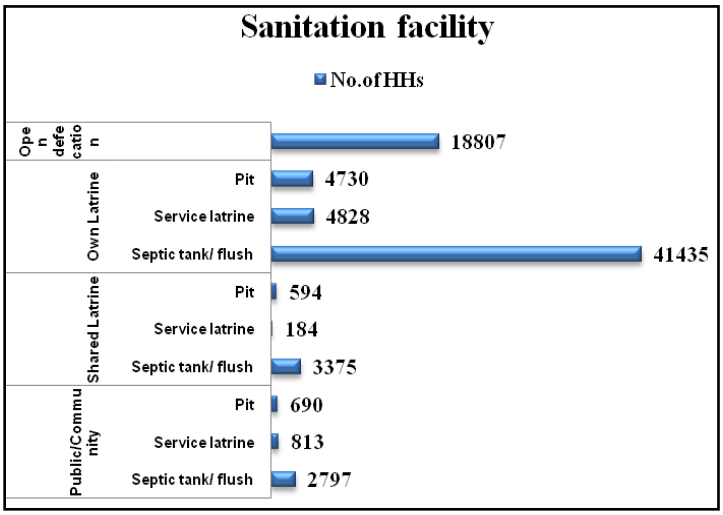
In respect to connectivity of slum with the city wide sewerage system, only 24% of the slums are fully connected to city wide sewerage system while 44% slums are partially connected. There is shortage of the system where 32% slums are not connected (*map 3-7* presents the status of the slums that connected to city wide sewerage system).



Map 3-7 : Connectivity of slums with city wide sewerage system

h. Distribution of Households by use of different type of toilet facilities

Access to toilet/latrine is one of the basic necessities and is an indicator used for measuring quality. In Indian context three different types of toilets were usually used viz., pit, service latrine, and septic tank/flush. Three different ways of access to toilet was considered viz., own latrines, shared latrines and public community toilets. In lack of access to these facilities, the practice of open defecation is widespread.



Source: *RAY primary survey, 2013*

Figure 3-9 : Distribution of Households w.r.to type of toilet use

As evident in *Figure 3-9*, about **65**% of the slum households have access to own latrine with septic tank/flush type of latrine. A low proportion of 5% households use shared latrines. 6% use public toilet system An alarming share of about 24% slum house holds practice defication which leads to unhygenic environment and health related problems.

Even though 76% of the households have access to some form of toilet, it is believed the exisitng toilet system is considered to be of primitive stage with no proper maintenance and lacks general hygienic condition, further deteriorating the environment.

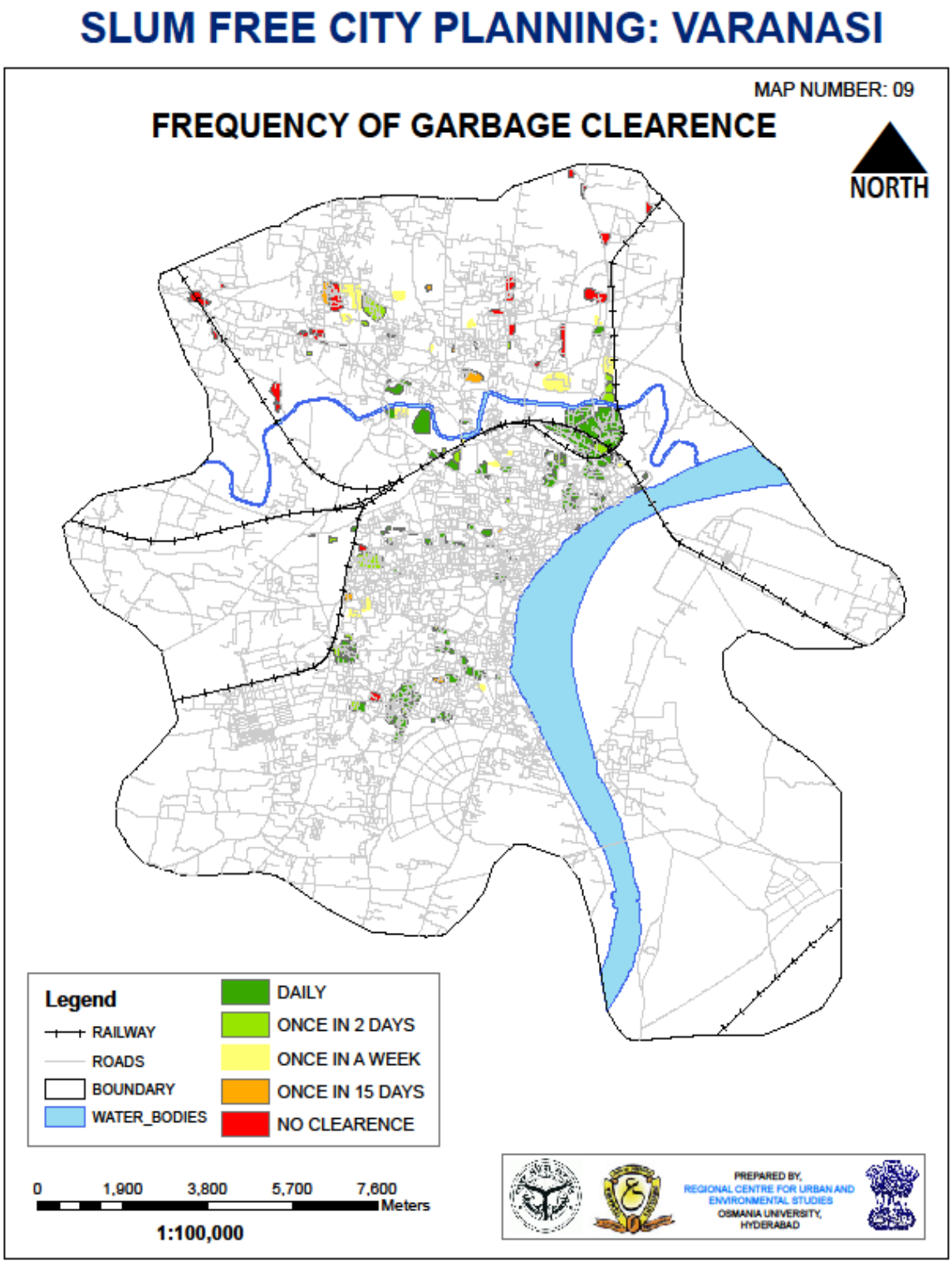
3.6.2 Solid waste management

Well functioning and safe solid waste management system in slum is vital so as to minimize the health hazards and the environmental pollution caused by solid waste. In many areas, garbage disposal services are jagged and sometimes not available. People are forced to live in such environment. An efficient, safe and proper dispose of solid waste generated is the prior need for city, community/slum development.

Table 3-8 : Status of Municipal Solid waste management in slums

Activity	No. of slums	Activity	No. of slums	Activity	No. of slums
Frequency of Garbage Disposal		**Arrangement of Garbage Disposal**		**Frequency of Clearance of Open Drains**	
Daily	125	Municipal staff	53	Daily	17
Once in 2 days	27	Municipal Contractor	123	Once in 2 days	31
Once in a week	19	Residents themselves	3	Once in a week	30
Once in 15 days	10	Others	0	Once in 15 days	22
No collection	28	No arrangement	30	No clearance	109

Source: *Primary Survey, 2011*



Map 3-8 : Frequency of Garbage collection in Slums

a. Frequency of Solid waste disposal

The *Table 3-8* gives an overall picture of the solid waste management in slums, about 60% of slums have daily clearance of garbage, 13% once in 2 days in 14% of slums the waste is collected once in a week or even more. In about 13% of the slums the collection of waste is totally absent. Though the collection of waste is taking place in few slums, majority of the slum areas are found to be affected with insanitary conditions, which require immediate attention from concerned authority.

b. Arrangement of Garbage Disposal

As shown in the *Table 3-8*, in 25% of the slums, the solid waste disposal activity is handled by the municipal staff. In areas where there is lack of solid waste disposal or collection, the disposal activity is taken by the residents themselves. The existing scenario of solid waste collection and disposal reflects the necessity for increased staff and regular clearance to avoid the unsanitary conditions.

Picture: 3- 14 Garbage disposal in Ruppanpur slum

Picture: 3- 15 Dumper Placer in Kajakpura slum

c. Frequency of Clearance of Open drains

In respect with the clearance of open drains, 8% of the slums have daily clearance of open drain; 15% once in 2 days. That 52% of the slums do not have any form of clearance of the open drains, even more or totally absent, further deteriorating environmental conditions and contaminating the ground water.

For slum wise details, please refer **Annexure-1E** on **Physical Infrastructure** details.

3.6.3 Roads - Condition & Connectivity

The network of roads and streets in Varanasi follows a radial pattern emerging from the centre of the city. Most of the roads in the old city are narrow, irregular lanes leading to Ghats and width of these lanes varies from 1 to 2 meters, where only pedestrian movement is possible. The presence of wholesale trade and Mandis in the old city altogether adds to the congestion. On other side, the roads in the central city are wider but are fully encroached on both sides creating chaos for the movement. Lack of connecting roads with other parts in the city and within the slums causes greater inconvenience and affecting the transport connectivity. This is one of the fundamental issues that is generally neglected in slum developments and needs thorough planning and execution.

Table 3-9 : Existing condition of Road network in slums

	No. of Slums
Approach Road/Lane/Constructed Path of the Slum	
Motorable Pucca	115
Motorable Kutcha	41
Non-Motorable Pucca	30
Non-motorable kutcha	23
Distance From the Nearest Mortorable Road	
Less than 0.5 Km	163
0.5 to 1.0 km.	34
1.0 km to 2.0 km.	6
2.0 km to 5.0 km.	4
more than 5.0 km	2
Condition of Internal Roads	
Motorable pucca	77
Motorable kutcha	45
Non-Motorable pucca	54
Non-Motorable kutcha	33

Source: *RAY Primary SURVEY, 2011*

a. Nature of Approach Roads

By and large, 55% of slums in the city are provided/ connected with Motorable Pucca roads and 20% are connected with approach roads being Motorable Kutcha in nature. There is a need to upgrade these roads.

b. Distance from nearest Motorable road

Around 78% of the slums have access to the nearest Motorable road within 0.5 Km and 16% between 0.5 Km to 1 Km. For 2% of the slums, the nearest approach road is at the distance less than 2 km. Manikarnika, Maheshpur, Paramandpur, Navalpur and Navapura slums are having nearest approach road at a distance of more than 2 Km:

Picture: 3- 16 Non- Motorable pucca approach road to Pagalpana Chamratia slum

Picture: 3- 17 Motorable pucca approach road to Dayanagar chitpur slum

c. Type of Internal road

In respect to internal roads in the slums, 37% of the slums have Motorable Pucca internal roads while 22% have katcha internal roads. Around 42% of the slums lack in proper internal roads with BT surface.

Picture: 3- 18 Non Motorable Pucca internal road in Pasinka purva

Picture: 3- 19 Non motorable katcha internal road in Nallaitola slum

Picture: 3- 20 Non Motorable Katcha internal road in Kidakiyaghat slum

Picture: 3- 21 Non-motorable katcha internal road in Sikyaghat slum

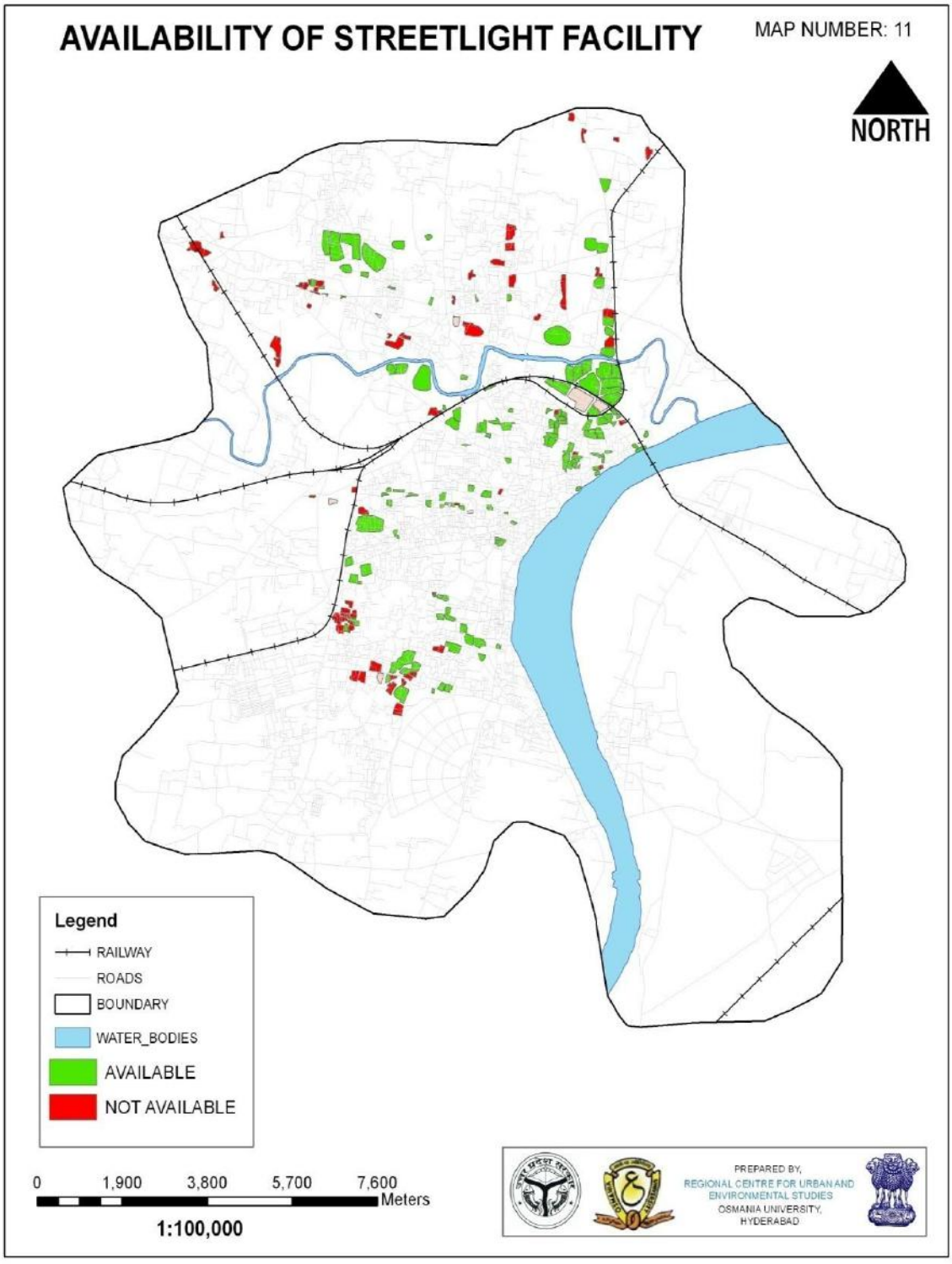
3.6.4 Street Lighting Facility

According to Annexure -1 survey, 67% (140) of the slums have street lighting facilities, not all of which are in working condition and found to be insufficient. For the 33% (69) of the slums, there is no street lighting facility, hence essential to for security, to prevent any kind of accidents and other inconveniences.

Picture: 3- 22 Street light in Pagaipana slum

Picture: 3- 23 Street light in Rajghat slum

For slum wise details, please refer **Annexure-1F** on **Roads & Street lights.**



Map 3-9 : Availability of Street light facility in slums

3.7 Social infrastructure

The quality of life in any urban centre depends upon the availability of and accessibility to quality social infrastructure. Development of social infrastructure includes education, health, social welfare, livelihood centers and recreational facilities, instrumental in contributing to substantial improvements in physical quality of life, which in turn, initiates and accelerates economic development in a city. The following are a list of elements that forms the social infrastructure:

- Educational facilities
- Health facilities
- Community halls & rooms
- Livelihood centers & Youth centers
- Social welfare facilities
- Old age homes
- Night shelter
- Parks
- Public utilities such as fire services

Following section details out the level of social infrastructure available to the slum households.

3.7.1 Education facilities

Anganwadi is a part of the Indian public health care system. The responsibility of Anganwadi workers includes basic health care activities like contraceptive counseling and supply, nutrition education and supplementation, as well as pre-school activities. The access to Anganwadi is very essential especially in places like slums where children, pregnant women suffer with lack of proper nutritional diet. As indicated in *Table 3-10*, about 74% of slums have Anganwadi facility within the slum. For about 16% of slums the facility is located within a reachable distance of 0.5 kms. For the remaining 10% of slums the facility is located at a distance of 0.5 to 2kms. A part from the Anganwadi, the pre-primary schools were found in some slums run by private people.

Table 3-10 : Distance of the slums from the nearest Anganwadi and Pre-primary schools

Distance	Within the slum	< 0.5KM	0.5 to 1.0 KM	1.0-2.0 KM	More than 2 Km
Pre- Primary Schools (Anganwadi)					
No of slums	154	33	9	4	9
Pre- Primary Schools (Municipal)					
No of slums	86	39	18	8	58
Pre- Primary Schools (Private)					
No of slums	56	80	24	16	33

Source: *RAY primary survey, 2011*

As shown in *Table 3-10*, in 41 slums the primary schools run by state government are located within the slums. The majority of the slums have access to primary schools run by state government within a distance of 0.5 km to 2 km. A part from primary schools run by state government, the slums have access to primary schools run by private people. In the same line, the slums have access to high schools run by both state government and private with in a considerable distance of less than 2 kms.

Table 3-11 : Distance of slums from the nearest Primary and High schools

Distance	Within the slum area	< 0.5KM	0.5 to 1.0 KM	1.0-2.0 KM	More than 2 Km
Primary Schools (State government)					
No of slums	41	41	32	17	78
Primary Schools (Municipal)					
No of slums	77	47	10	14	61
Primary Schools (Private)					
No of slums	51	72	41	10	35
High Schools (State government)					
No of slums	35	36	36	19	83
High Schools (Municipal)					
No of slums	42	37	13	15	102
High Schools (Private)					
No of slums	31	65	47	18	48

Source: *RAY Primary Survey, 2011*

3.7.2 Health facilities

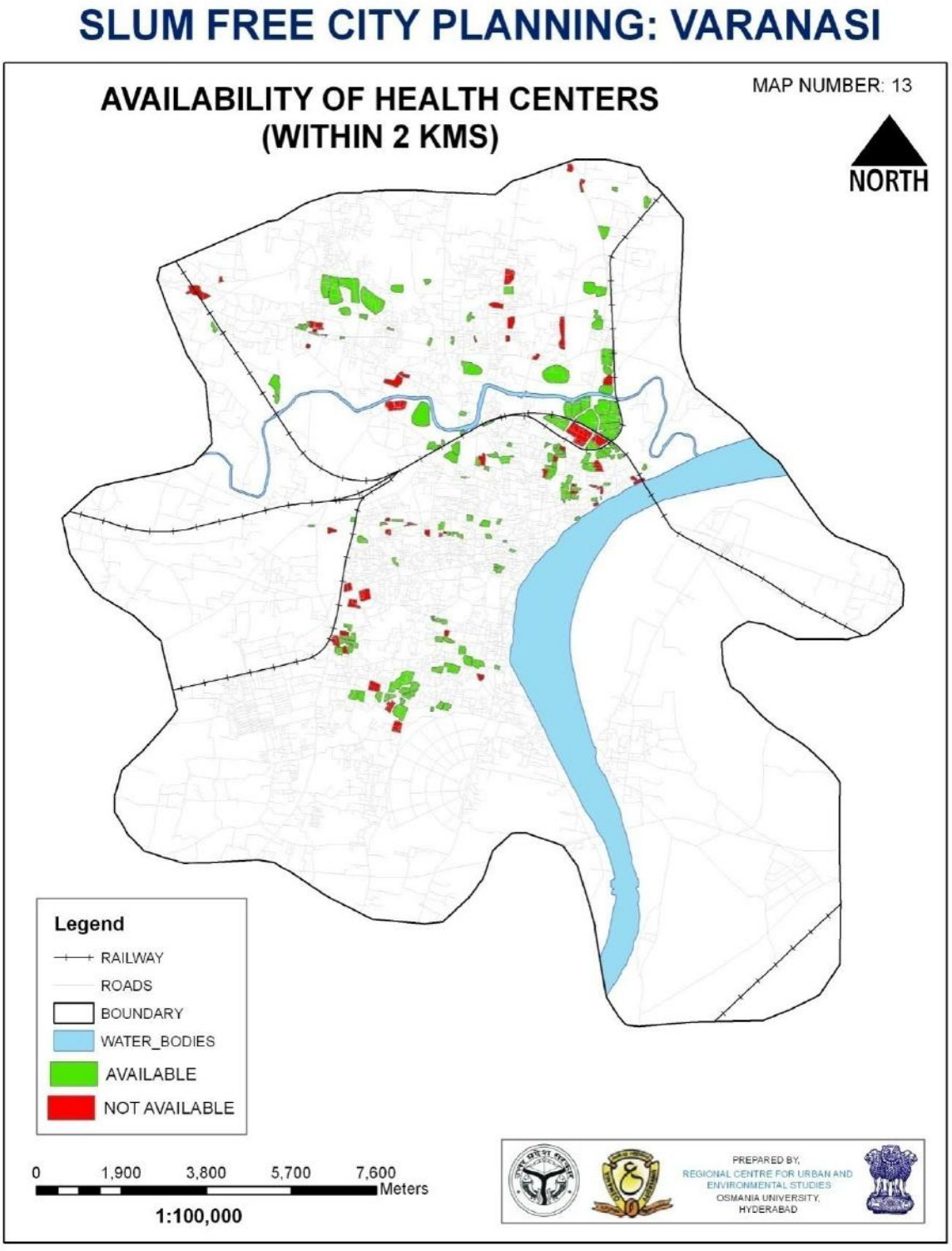
Majority of the health problems in urban slums stem from lack of access to or demand for basic amenities. Basic service provisions are either absent or inadequate in slums. Lack of drinking water, clean, sanitary environment and adequate housing and garbage disposal pose series of threats to the health of slum dwellers, women and children in particular, as they spend most of their time in and around the unhygienic environment. Inadequate nutritional intake due to non-availability of subsidized ration or availability of poor quality to ration makes the slum dwellers prone to large number of infections and lack of education or information, further aggravates the situation.

Table 3-12 : Distance of slums from the nearest health facilities

Distance	Within the slum area	< 0.5KM	0.5 to 1.0 KM	1.0-2.0 KM	More than > 2.0 Km
Urban Health post					
No. of Slums	0	0	0	0	0
Primary Health Centre					
No. of Slums	30	62	26	37	54
Government Hospital					
No. of Slums	23	36	24	38	88
Maternity Centre					
No. of Slums	30	39	41	34	65
Private Clinic					
No. of Slums	23	110	44	11	21
Registered Medical Practitioner (RMP)					
No. of Slums	21	58	27	16	87
Ayurvedic Doctor/Vaidhya					
No. of Slums	15	46	20	12	116

Source: *RAY primary survey, 2011*

As per Annexure –I data, within an accessible distance of 2kms, 74% of slums have primary health centre, 58% of the slums have Government Hospital. For about 90% of slums the private clinics are situated at an accessible distance. Health as well as medical facilities is provided and is serving the ailing people belonging to the slum areas item wise particulars are shown in *Table 3-12.*



Map 3-10 : Availability of Health facilities in Slums

3.7.3 Social welfare facilities

Similar to the above sections in social infrastructure, the following *Table 3-13* presents availability of social welfare facilities in 209 slums:

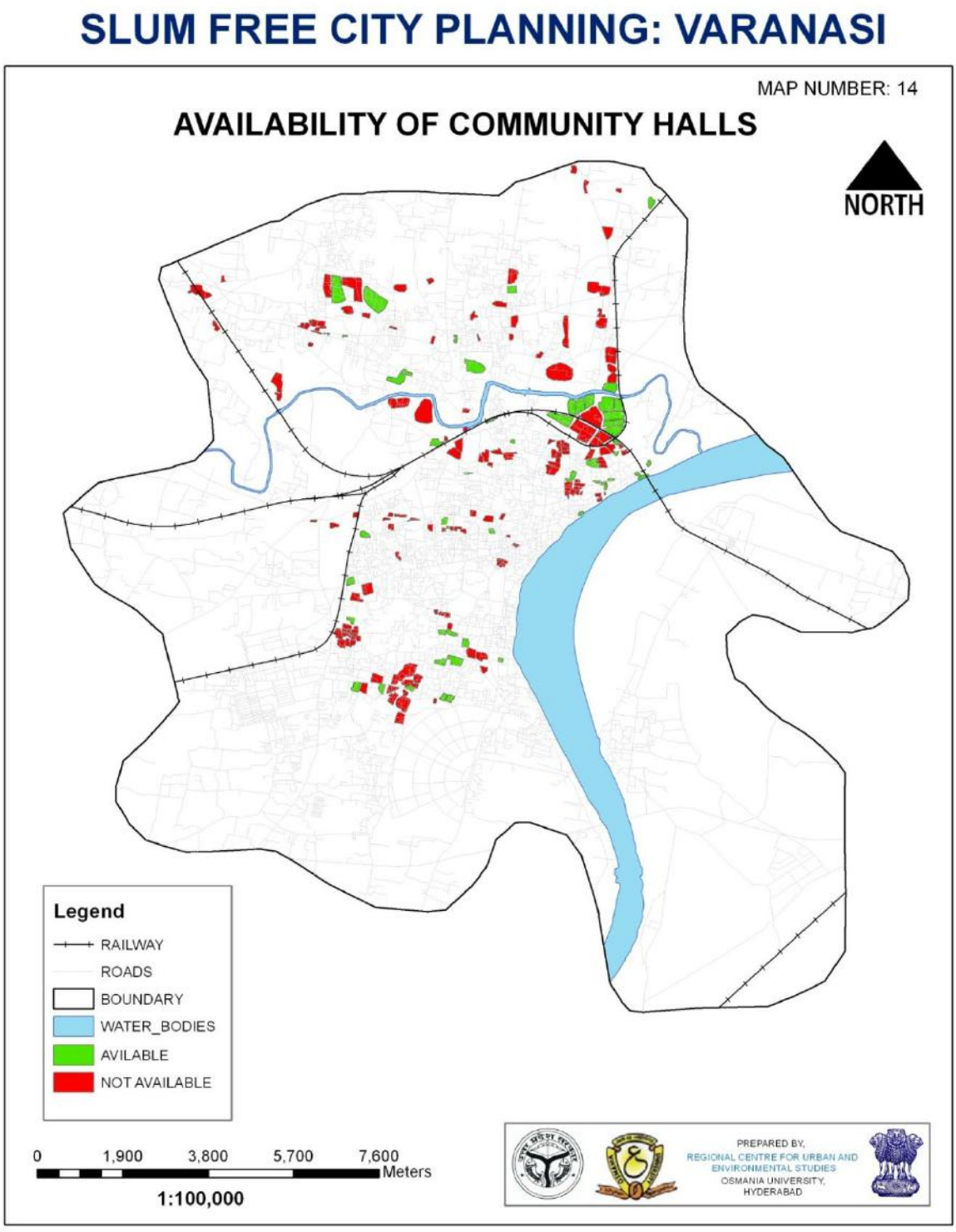
Table 3-13 : Availability of Social Welfare facilities in slums

Availability of Facilities within Slum	No. of Slums
Community Hall	76
Livelihood/Production Centre	2
Vocational training/Training-cum-production Centre	10
Street Children Rehabilitation Centre	1
Night Shelter	13
Old Age Home	295
Social Welfare Facilities	**No. of Holders**
Old Age Pensions (No. of Holders)	5254
Widow Pensions (No. of Holders)	3305
Disabled Pensions (No. of Holders)	1203
General Insurance (No. covered)	6023
Health Insurance (No. covered)	4526
Self Help Groups/DWCUA Groups in Slum	201
Thrift and Credit Societies in Slum	178
Slum-dwellers Association	**No. of Slums**
Slum dwellers Associations	43
Youth Associations	19
Women's Associations/ Mahila Samithis	153

Source: *RAY primary survey, 2013*

The community hall is available in 76 slums out of 209 slums. The Self Groups/DWCUA groups are formed in 201out of 209 slums. 178 thrift and credit societies are formed.

For slum wise details, please refer **Annexure-1F** for **Social Infrastructure**



Map 3-11 : Availability of Community Halls in slums

CHAPTER 4 – SLUM REHABILITATION STRATEGY

4.1 Rehabilitation Strategy

The major factors that influence the design of upgrading programs are scale of the problem, the severity of conditions, tenure, and relevant support for social and economic development, community participation, the institutional framework, the financial structure, political will, and good governance. As part of community up-gradation, there are factors that need to be considered in the planning and implementation of initiatives. Most of the up-gradation programmes undertaken throughout the world are one of three types: provision of *basic infrastructure to the community, tenure security, and comprehensive up-gradation.* The appropriateness of their use is driven by the status of existing conditions in the slums.

First component is the provision of basic infrastructure to the community. Improvement of basic services is necessary when the environmental conditions and physical infrastructure are poor, but tenure is relatively secure. For improving the services, both the physical and social infrastructure elements such as sanitation, water supply, drainage, and often some community facilities are taken into account. This type of program tends to cost less per capita than more complex programs. The improvements can be financed easily by a program like RAY.

The second component is the incremental buildup of tenure security when the land tenure status is found to be insecure. In these circumstances, lack of tenure is a threat to the security of livelihoods, and a significant barrier to households investing in upgrading their own homes. The threat of forced evictions also looms over such settlements. In such cases rapid tenure regularization may lead to increased land values and, as a consequence, market driven displacement of beneficiaries. An incremental approach based on a 'continuum of land rights' and flexible tenure arrangements would be recommended. Temporary occupancy rights, lease agreements, possession rights, anti-eviction rights are among flexible and effective tenure systems that do not place unrealistic demands on local governments with weak resources, do not disrupt municipal land markets, and provide beneficiaries with adequate and incremental security of tenure. When and where it becomes appropriate and affordable, lot titling through the sale or allotment of land should be considered as a way of providing the strongest form of tenure security.

The third type of upgrading program – a mixture of the previous two – is comprehensive upgrading. It combines both provision of basic infrastructure and tenure security. It is appropriate where environmental conditions and physical infrastructure is poor, where population densities are high, and where tenure is insecure.

The comprehensive upgrading program is relatively complex and time-consuming because it has more administrative requirements, implicates more stakeholders, and depends on greater community involvement.

In order to best apply RAY objectives and create Varanasi a Slum free city, an imperative slum rehabilitation strategy would be necessary depending on the expected outcomes from the findings or analysis of existing slum situation of a city.

The rehabilitation strategy comprises of several components such as:

- Physical targets – relocation, in-situ and up gradation

- Law and legislation for slum dwellers
- Stakeholder/ community participation
- Financial framework
- Institutional mechanism

The following flowchart details the rehabilitation proposed for Slum free Varanasi.

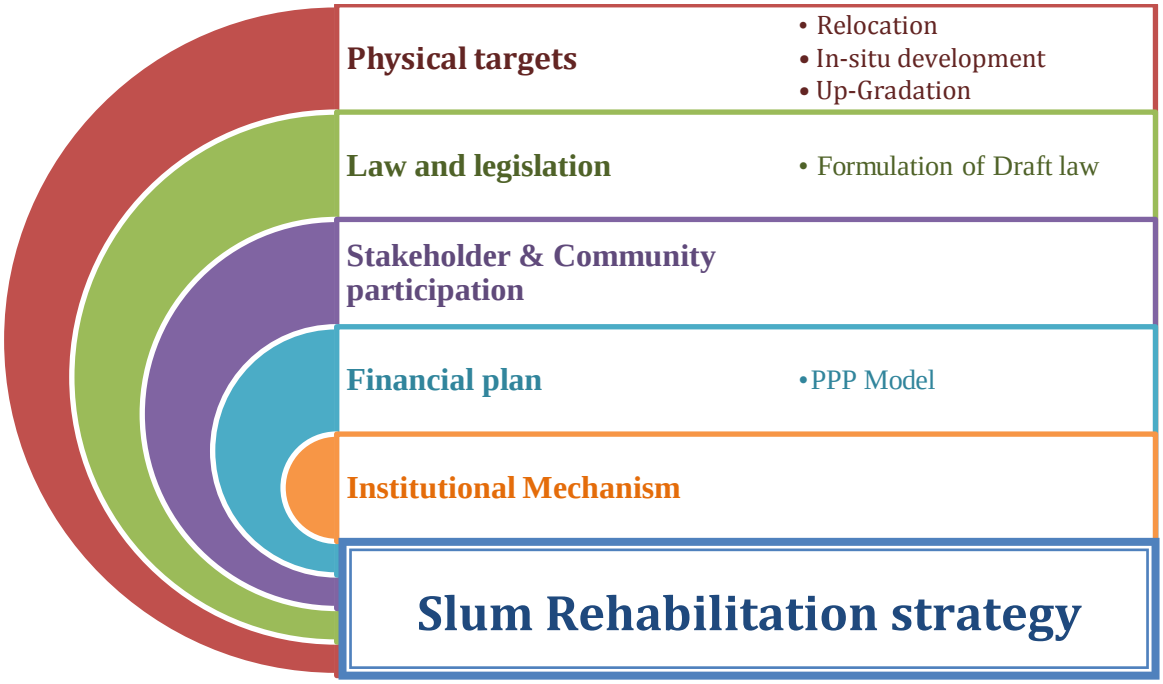


Chart 4-1 : Components of Slum Rehabilitation strategy

4.1.1 Physical Targets

For the slum rehabilitation, the top most priority would be given to the redevelopment/ rehabilitation of identified slums and measures to prevent future slums. The following three options of redevelopment that will be categorized based housing tenure, tenability, physical location, density and ownership:

a. Relocation mode

- Depending on the physical location of slums such as hazardous sites and environmental conditions and where there is no alternative
- Involves communities in identification of alternative sites
- Ensures that education, health, transport, basic services and infrastructure and provided before relocation

b. In situ mode

- Involves redevelopment of whole site to provide more living space and improved environmental conditions such as those in high density areas.
- Provision of transit accommodation and including of all residents, especially the extremely poor critical to success

- In this mode, new mixed-use mixed income communities can be created with a viable cross-subsidy model, which is a function of local land values, socio-economic needs and general context of the area.

c. Slum Up-gradation

- Involves a mixture of provision or upgrading of service and infrastructure levels, incremental housing improvements or selective replacement of katcha houses.

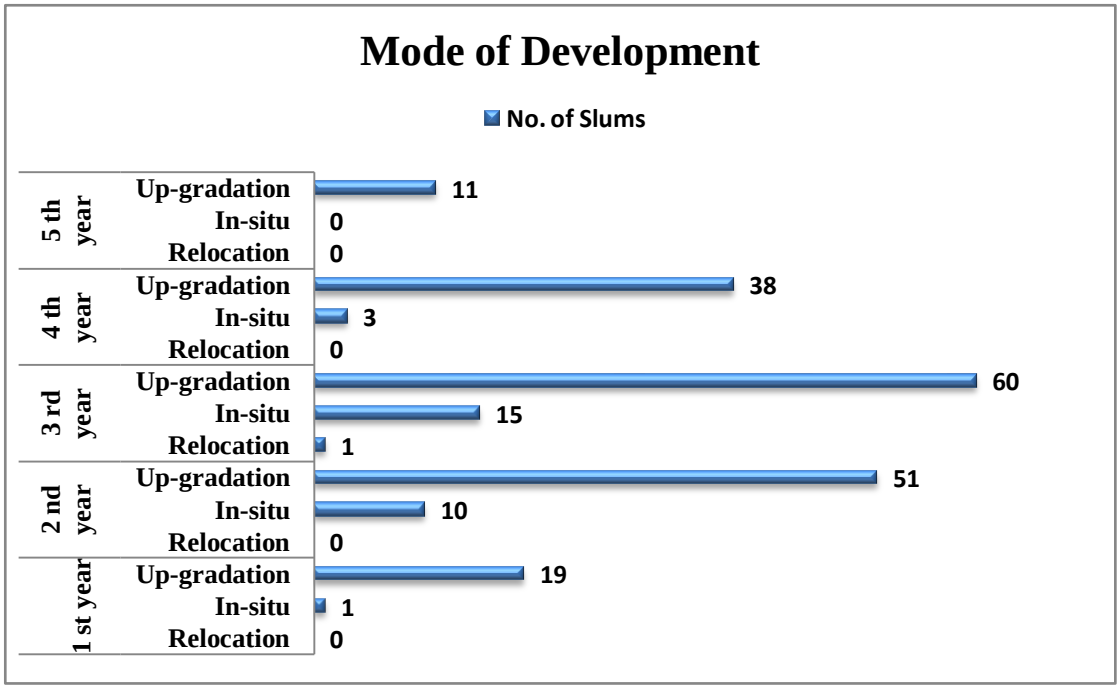


Chart 4-2 : Mode of Development

a. Law and Legislation

An appropriate legislation is a necessity to achieve and implement the development strategies formulated for Slum Free Varanasi. RAY promises a secured housing, provision of urban basic services helps the slums to become "slum free" through rehabilitation strategy. Legislation forms an important tool for Government to assign property rights, provide basic services and achieve the holistic mission of RAY. Hence, suitable implementable and customized legislation forms an integral part of Slum rehabilitation strategy.

b. Stakeholder/ community participation

It has been proved by several previous schemes for slum development that community /stakeholder participation is a key aspect in implementing rehabilitation strategy to achieve Slum Free Varanasi. Community Participation calls for a strong and active participatory chain which would be involved throughout the implementation of RAY starting from surveys until project implementation and monitoring. This particular strategy would actually make the slum dwellers realize the motive behind the programme as an opportunity to raise their standard of living, achieve higher dignity and provide better facilities for present as well as future families. Community participation strategy is a promising bridge between the governments and the beneficiaries to understand the mutual benefits of the programme.

c. Financial framework

RAY has posed a significant challenge to the state, ULB and beneficiaries by announcing its 50% contribution towards the project. This calls for development of exclusive financial development strategy to meet the remaining 50% finances through various sources and mechanism. The alternatives as proposed by Govt. of India.

The development strategy has been finalized after careful observations/scores that have been evolved through derived matrix preparation according to the Govt. of India guidelines. The strategy would enable the most needed slums to be taken care in first year in a strategic manner and continue to do so in the coming five years. The strategically financial framework would enable the project implementation smoothly without any finance hurdle.

d. Institutional mechanism

RAY is a challenging task right from policy making until project implementation and monitoring. However the city should comprise of several teams which have to be coordinated within each other and successfully channelize step by step. The roles vary from Center, State, ULB, Slum clearance boards, RAY technical cell, NGOs and other associated agencies. The city should be able to actively involve the various agencies with various tasks as the programme advances yearly. There has to be hiring done at necessary levels/positions to complete coordination cycle. Hence institutional mechanism enables and proves to be a significant strategy for slum rehabilitation.

It is a necessary exercise to assess the existing slums to propose for a development strategy. A matrix analysis was prepared for Varanasi slums to identify the level of urban services. The matrix details the infrastructure and housing services among the slums.

4.1.2 Infrastructure Deficiency and Vulnerability Matrix

According to RAY guidelines, an infrastructure deficiency and vulnerable matrix the existing slums is to be prepared using the scoring and ranking method. The matrix is based on three important parameters: Housing, Infrastructure, BPL, SC/ST population. Within these, Housing and Infrastructure are the physical parameters that are directly related to the existing quality of the housing condition.

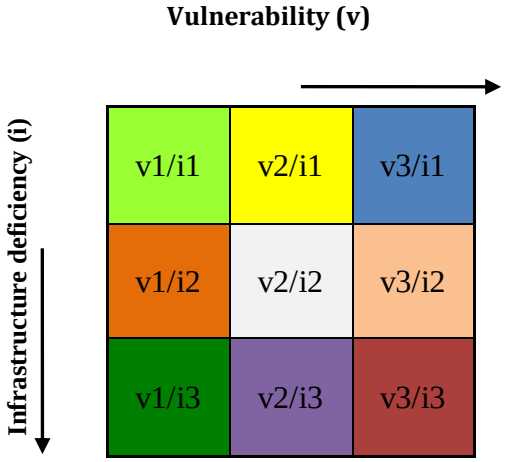


Figure 4-1 : Model Infrastructure deficiency and vulnerability matrix

For evaluating infrastructure deficiency and vulnerability the following parameters are considered:

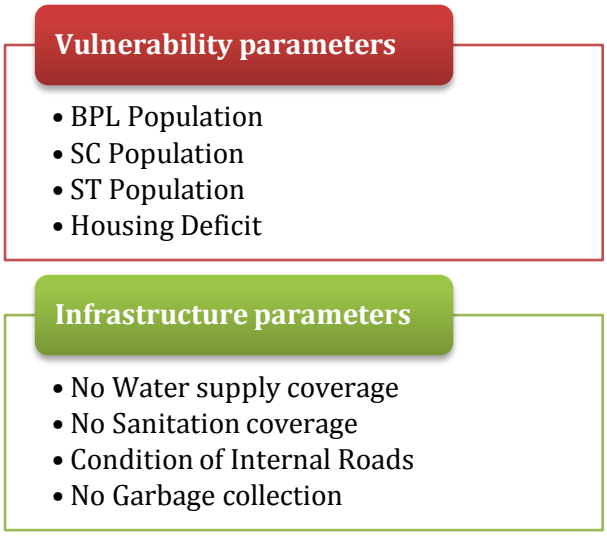
Infrastructure deficiency parameters:

i. Percentage of households not covered with piped water supply
ii. Percentage of households not covered with individual toilets
iii. Percentage deficiency of condition of internal roads
iv. Percentage of households without access to facilities of disposal of solid waste.

Vulnerability Parameters

- Housing condition based on structural condition (Pucca, Semi-Pucca and Katcha)
- Below the poverty line (BPL) Population, SC/ST population

The scoring is provided to all the slums by comparing the infrastructure deficiency and vulnerability parameters against the same criteria. The average scores for vulnerability and infrastructure are determined separately and clustered into different ranges representing the worst, average and best slum settlements. For that 5 percentage ranges from 100 to 0 with an interval of 20 is considered and the scores were provided accordingly and represented in the matrix.



Percentage range	Score
100 - 80	1
81 - 60	2
61 - 40	3
41 - 20	4
21 - 0	5

Chart 4-3 : Vulnerability and Infrastructure deficiency parameters

Based on the above individual scores, a final composite score for each slum is calculated using the parameters infrastructure and vulnerability. Once the score is obtained, the slums are then classified into:

- Least vulnerable and Good Infrastructure
- Least vulnerable with moderate infrastructure
- Least vulnerable with bad infrastructure
- Moderate vulnerable with Good Infrastructure
- Moderate vulnerable with Moderate Infrastructure
- Moderate vulnerable with Bad Infrastructure
- Most vulnerable with Good Infrastructure
- Most vulnerable with Moderate Infrastructure
- Most vulnerable with Bad Infrastructure

4.2 Slum Categorization

The Categorization of Slums is done based on the scoring and ranking method where certain parameters are taken into account to identify the deficiencies and make suitable decisions. The three important parameters that play equal role in determining the slums that are deficient are **Housing, Infrastructure and Tenure status**. In this section, the following parameters such as ***Tenability, Abutting Land use, Tenure status, Ownership of the land, density and land value*** *are being discussed.*

4.2.1 Tenability

As a first step, the slums and vacant lands will be categorized as tenable, semi-tenable or untenable. Untenable slums will be only those which are 'unsafe' or 'health hazard' to the inhabitants or to their neighborhoods, even if redeveloped. Such untenable sites or portions will be earmarked for relocation to other redevelopment/vacant sites, preferably within the same zone.

Table 4-1 : Categorization of slums based on tenability

Status	Tenable	Semi - Tenable	Un- Tenable
No of Slums	186	11	12

Of 209 slums in the city, 186 slums are tenable and 11 slums are semi – tenable due to surrounding non – residential land uses and any other land. In order to make these slums tenable it is recommended to change the present land use zoning, however it will be decided by competent authority.

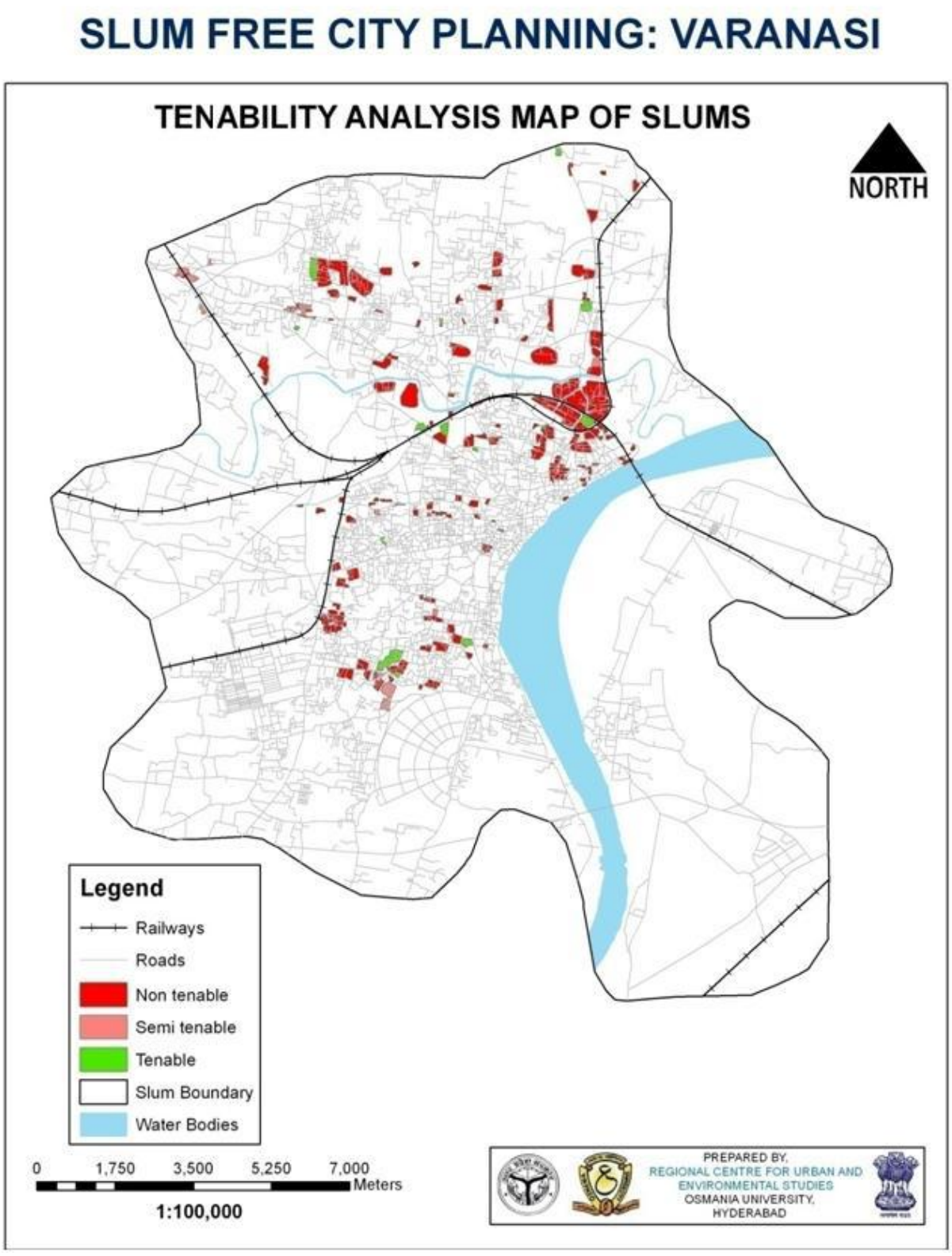
For visual illustration of tenability analysis of slums, please refer *Map 4-1* and for slum wise details refer **Annexure – 1A**

4.2.2 Abutting Land use

Table 4-2 : Categorization of slums based on abutting status

Abutting Land use	No. of slums	No. of Households	% of slums to the total slums	% of slum households to the total slum households
Residential	195	73944	93%	94%
Industrial	3	596	2%	1%
Commercial	9	2944	4%	4%
Institutional	0	0	0%	0%
Others	2	769	1%	1%
Total	209	78253	100%	100%

From the above *table 4-2*, it is established that 94% of the households are situated in the areas surrounded by the residential use and followed by 4% under commercial and 1% by industrial use. To identify vacant lands for slum rehabilitation and prevention, the information to be procured is of vital importance to enable further classification of the slums based upon land value and to decide upon redevelopment models for each slum pocket.



Map 4-1 : Categorization of slums based on Tenability

4.2.3 Land tenure of slums

The categorization based on land ownership of slums can be used in assigning strategies for development and priorities for implementation under various strategies for development. The following *table 4-3* classifies the legal status of the slum households based on the ownership and land tenure status.

Table 4-3 : Categorization of dwelling units (DU's) in slums based on Land tenure status

Land tenure Status	Pattas	Possession certificate	Encroached public land	Encroached private land	On Rent	Others
No. of DU's	725	54775	3619	2773	8612	2934

As shown in the *table 4-3*, about 74% of the slum households are registered with possession certificates while 1% are registered and have pattas for their respective lands. On the contrary, 12% of slum dwellers reside on rented lands. 4% of households others and 9% of slums are encroached on public and private lands.

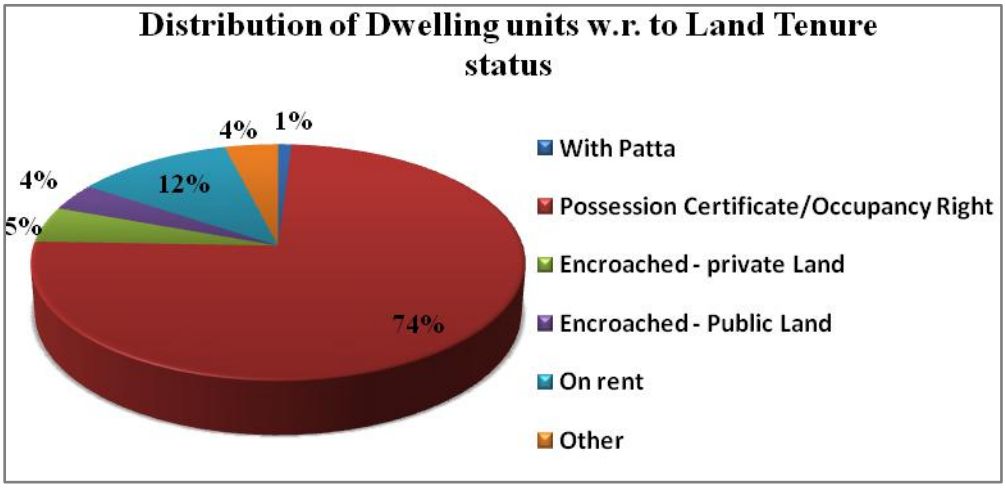
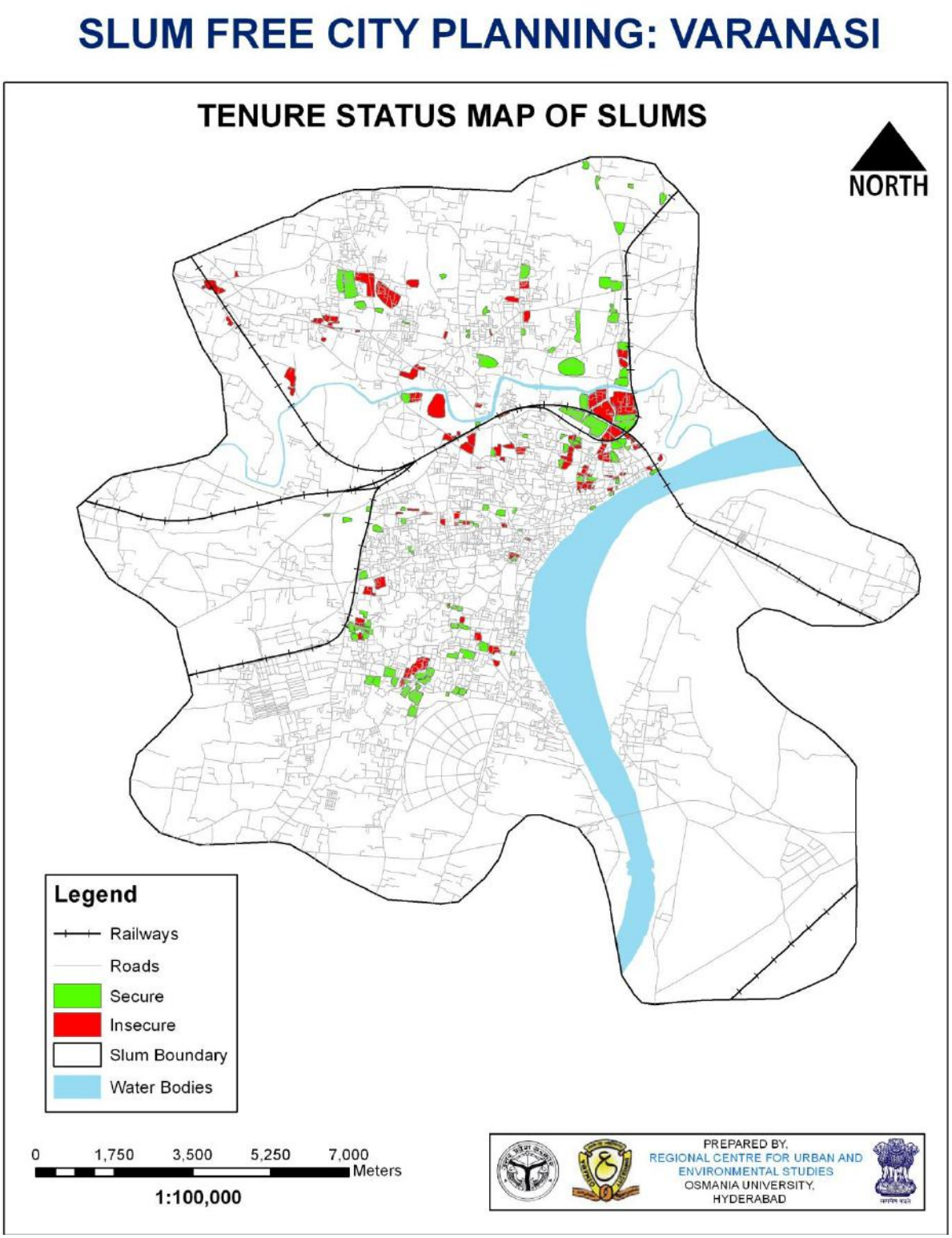


Figure 4-2 : Distribution of dwelling units in slums w.r.to land tenure status



Map 4-2 : Tenure status of slums

4.2.4 Ownership of Land

Table 4-4 : Categorization of dwelling units based on ownership of land in slums

Ownership of Land/ Land tenure (No of DU's)		ULB	State government	GoI other than Railways, Defense	Private
Registered	Pattas	345	0	0	380
	Possession certificate	6318	29	557	47871
Un - Registered	Encroached	2024	184	0	4184
	On Rent	333	85	13	8181
	Others	111	22	0	2801

About 76% of total households have registered and the remaining 24% are not registered with any agency. Under the ownership of ULB, 9% of the households are registered and 3% are unregistered. Similarly 66% are registered and 21% households are unregistered, belong to the private ownership of the land. Overall under the state and central Govt. owned lands, 1% belongs to registered and unregistered. Speaking of ownership, private ownership is termed to be the highest with 86% of the households under it. Still 87% of the households need a secured status in order to avail better infrastructure

Table 4-5 : Categorization of slums based of land ownership

No of Slums	ULB	State government	Central government	Railways/ Airport	Defense	Private
Notified	29	3	1	0	0	176
Non - Notified	0	0	0	0	0	0

Out of 209 slums in the city about 14% of the slums are under the ownership of ULB and 84% built on lands owned by private agencies, thus making it the largest owner

4.2.5 Dwelling unit Density

In this context, due consideration is given to existing density of each slum pocket in order to propose a suitable development option. Based on assessment of existing slum data analysis, the classification of the slums is based on the values of density where:

- **Low** where density is less than 350 dwelling unit per hectare
- **Medium** where density ranges from 350- 500 dwelling unit per hectare
- **High** where density is greater than 500 dwelling unit per hectare

The following *table 4-6*; presents the mode of development and additional accommodation of density for the slums based on its classification:

Table 4-6 : Categorization of slums based Dwelling unit density of slums

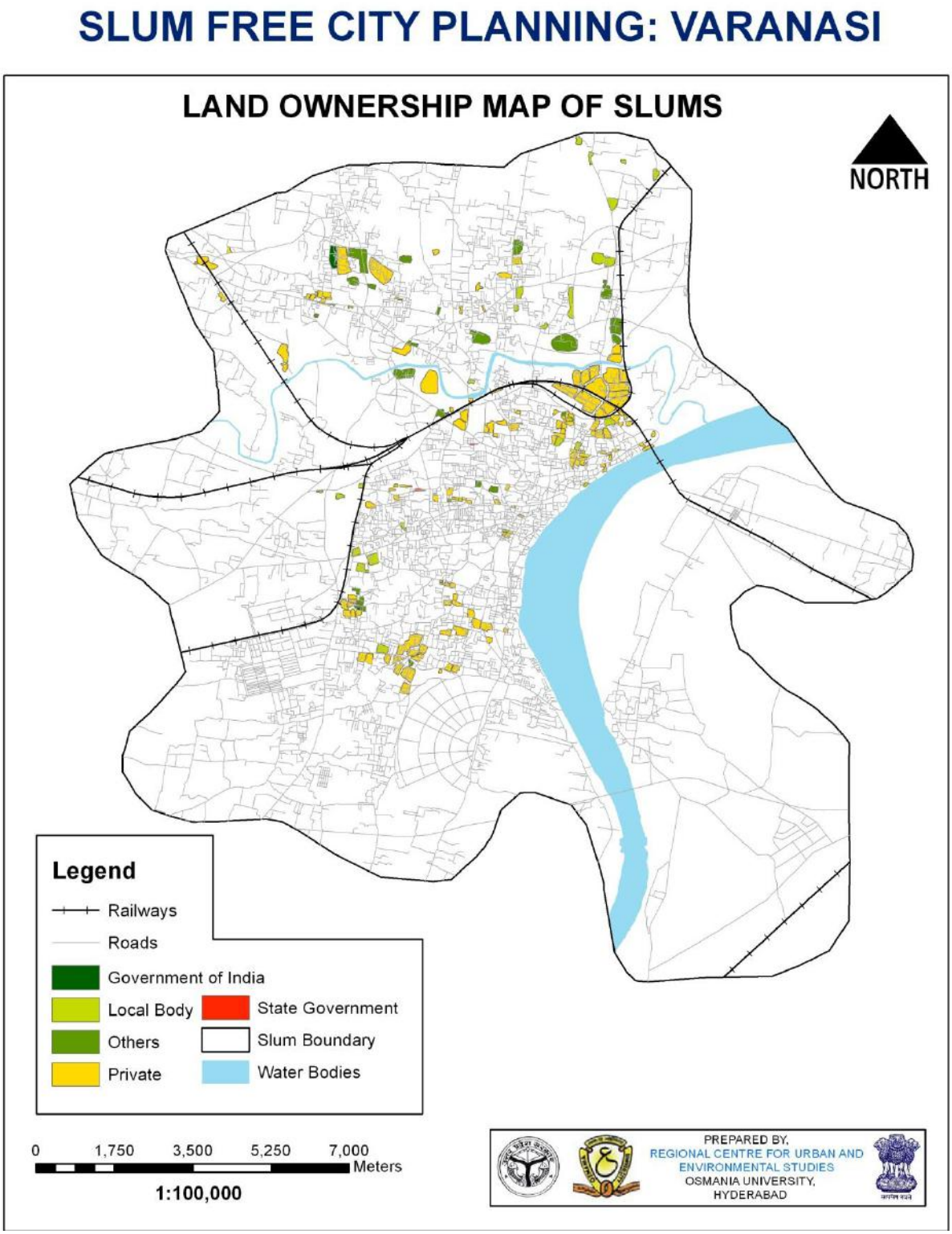
Mode of Development (No. of Slums)	Low Density	Medium Density	High Density	Total
Relocation	0	0	1	**1**
In - Situ development	24	4	1	**29**
Up gradation	138	16	25	**179**
Total No. of Slums	**162**	**20**	**27**	**209**

As per the prioritization, it was found that 27 slums have high density while 20 slums are moderately dense and the remaining 162 slums are low densified. Under the category of low density, 24 slums have been chosen for In-situ mode and 138 slums for up-gradation. At the same time, 16 slums which are moderately dense have selected for up-gradation and 4 slums for In-situ development. On other side, 25 of the highly dense slums have selected for up-gradation, 1 for in situ programme and only one slum for relocation to other sites. (*Map 4.4* gives dwelling unit density)

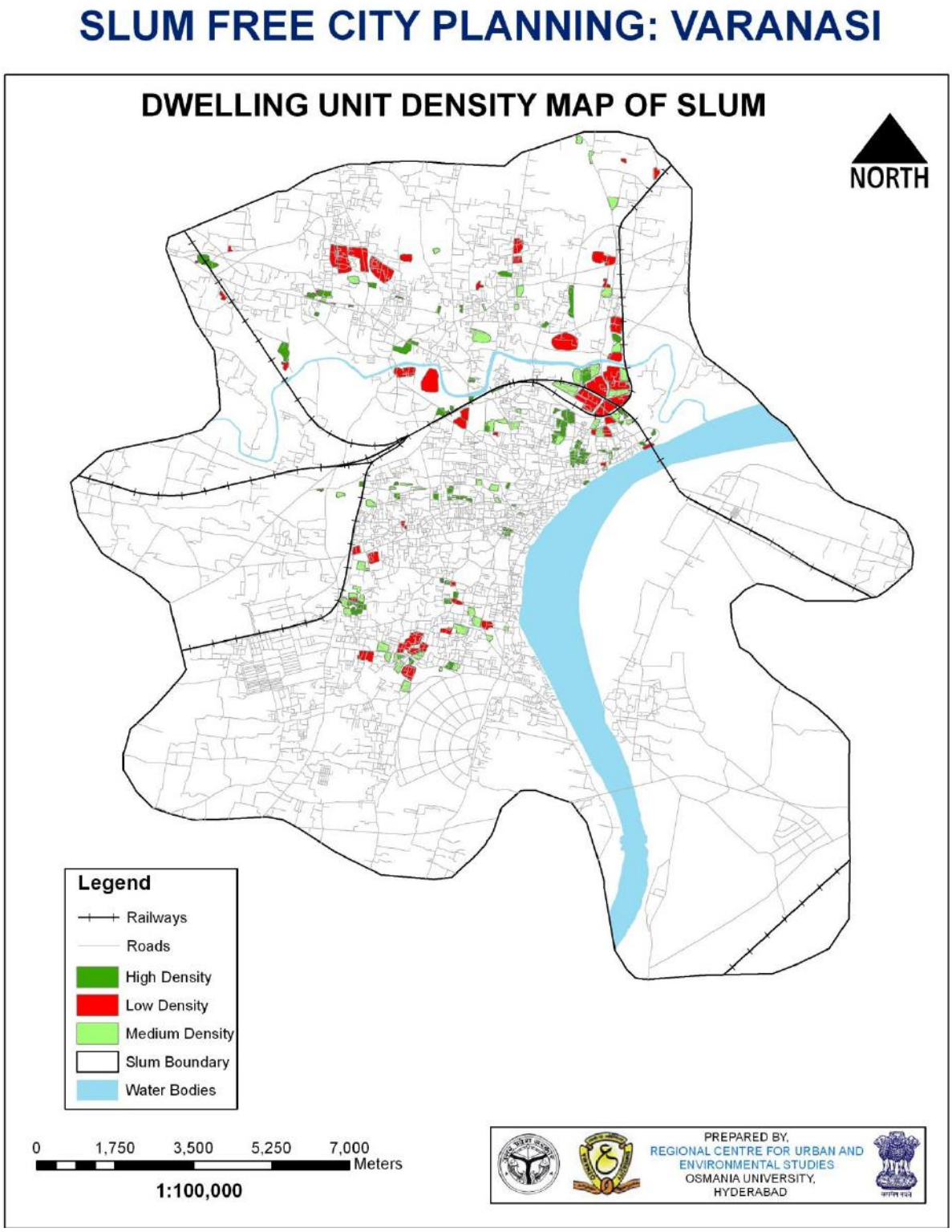
For slum wise details please refer *Annexure-II D*

4.2.6 Land value

For Varanasi City, the land values will be determined with reference to the slum and it is case specific and based on the mode of development, which will be calculated during preparation of DPR. At this is stage, it might be difficult to determine the land value as it is expected to vary in concord with market rate.



Map 4-3 : Categorization of slums based on ownership of land



Map 4-4 : Density of dwelling unit in slums

4.3 Slum Rehabilitation Framework

According to RAY guidelines, analysis and prioritization of housing condition, infrastructure deficiency and vulnerability of slum settlements is evaluated based on scoring and ranking method. The matrix is based on two parameters: Infrastructure deficiency and Vulnerability. Apart from these parameters the housing condition, land tenure, slum tenability, land ownership, demography, employment etc., were considered.

4.3.1 Observations / Findings of Analysis of Existing Situation

a. Housing

- 97% of the slums have been into existence for more than 40 years in the city with old-fashioned infrastructure
- 26 slums found to be located along water bodies and 7 slums are on hazardous sites
- 99 slums are found to be flood prone with rain water remnant for up to 15 days or even more, indicating lack of safety to the slum dwellers.
- Even though 59% of the total houses are Pucca in nature, a significant portion of them are found to be in bad condition. 41% of the houses are Semi pucca & Katcha in nature making them vulnerable to any kind of disaster.
- In respect to electricity connections, nearly 29% of the total houses do not have access to electricity.

b. Demography & Employment

- Nearly 44% of the total slum population is living under below poverty line (BPL) accounting 31160 households.
- About 79% of the slum population belongs to back ward social communities (OBC &SC).
- About 42% of the slum population belongs to minority communities constituting 37% of slum households.
- It is found that 43% of the households are earning an average income of less than `1500 per month. Majority of the slum dwellers derive their livelihood as working labor, street vending, domestic helpers etc.,

4.3.2 Infrastructure

a. Water Supply

Table 4-7 : Water Supply Details

Water Supply			
	Notified Slums		% HH's out of total Households
	No of slums	No of HH's	
Connectivity of slums			
Fully connected	54	20940	26%
Partially Connected	118	46615	60%
Not Connected	37	10698	14%
Total	209	78253	100%
Duration of Water Supply			
Daily Less than 1 hr	8	3122	4%
Daily 1-2 hrs	86	35794	46%
Daily more than 2 hrs	72	24778	31%
Once a week	7	2118	3%
Twice a week	5	1414	2%
Not regular	6	2137	3%
No Supply	25	8890	11%
Total	209	78253	100%
Source of Drinking Water			
Individual tap	190	36218	46%
Public tap	166	13486	17%
Tube wells/Bore well/hand pump	170	15871	20%
Open well	73	3343	4%
Tank/pond	4	20	0%
River/canal/lake/spring	6	25	0%
Others	1	2	0%
Water tanker	104	9288	13%
Total		**78253**	

- Out of 209 slums in the city, 172 slums were either fully connected or partially connected with city wide trunk water supply system. The remaining 37 slums, which account about 18%, are not connected with city system.
- About 46% of slum households have access to individual tap connections as primary source of water supply and the remaining 54 % are dependent on public taps, tube wells, open wells, hand pump, well etc., These households need to be addressed for provision of individual taps.

b. Sanitation

Table 4-8 : Sanitation Details

Sanitation			
	Notified Slums		% HH's out of total Households
	No of slums	No of HH's	
Connectivity to wide Sewerage system			
Fully Connected	51	17613	22%
Partially Connected	92	37989	49%
Not Connected	66	22651	29%
Total	209	78253	100%
Connectivity to Storm water drainage			
Fully Connected	34	12813	16%
Partially Connected	59	24394	31%
Not Connected	116	41046	53%
Total	209	78253	100%
Drainage & Sewerage facilities			
Storm water Drainage	33	9021	10%
Underground Drainage/Sewer Lines	127	40456	41%
Digester	6	604	1%
Not Connected to Sewer or Digester	95	14748	19%
Total		78253	
Latrine Facilities			
Public/Community latrine- Septic tank/flush	42	2797	4%
Public/ Community latrine- Service latrine	8	813	1%
Public/ Community latrine-Pit	12	690	1%
Shared latrine -Septic tank/flush/	40	3375	4%
Shared latrine- Service latrine	4	184	0%
Shared latrine-Pit	10	594	1%
Own latrine -Septic tank/flush/	160	41435	53%
Own latrine- Service latrine	27	4828	6%
Own Latrine-Pit	65	4730	6%
Open Defecation	150	18807	24%
Total		78253	

- Of 209 slums, only 24% (50 slums) are fully connected and 76% (159 slums) are either partially connected or not at all connected to city wide sewerage system. Hence there is a deficiency in overall sewerage and storm drainage system which needs to be upgraded to a complete as well as sustainable underground drainage system.

- With regards to storm water drainage, 16% of slums are connected & 84% of slums do not have connectivity to city wide Storm water system.

- Around 24% of slum households do not have proper individual toilet system. Hence resulting in open defecation.

c. Solid waste management

Table 4-9 : Solid Waste Management Details

Solid Waste Management		
	No of slums	**% of slums**
Arrangement of Garbage Disposal		
Municipal Staff	53	28%
Municipal Contractor	123	61%
Residents themselves	3	1%
Others	0	0%
No Arrangements	30	10%
Total	209	100%
Frequency of Garbage Disposal		
Daily	125	66%
Once in 2 days	27	11%
Once in a week	19	8%
Once in 15 days	10	5%
Not Collected	28	10%
Total	209	100%
Frequency of clearance of open drains		
Daily	17	12%
Once in 2 days	31	20%
Once in a week	30	12%
Once in 15 days	22	10%
No clearence	109	46%
Total	209	100%

- 10% of slums are not adequately covered with solid waste disposal activity.
- On other side, 10% of slums lack in arrangement for regular garbage collection. In areas where there is no frequent collection, the arrangement is taken care by the slum dwellers, constituting 1%.
- 46% of the slums lack in frequent clearance of open drains, leading to further deterioration of environmental conditions and thereby contaminating the ground water quality.

d. Roads and street lighting

Table 4-10 : Roads and Street lights Details

Road & Street Lights		
	Notified Slums	**% Slums of total slums**
Approach Road/Lane/Constructed Path to the slum		
Motorable Pucca	115	55%
Motorable Katcha	41	20%
Non Motorable Pucca	30	14%
Non Motorable Katcha	23	11%
Total	**209**	100%
Internal Road		
Motorable Pucca	77	37%
Motorable Katcha	45	22%
Non Motorable Pucca	54	26%
Non Motorable Katcha	33	15%
Total	**209**	100%
Distance from Nearest Motorable Road		
Less than 0.5 Km	163	78%
0.5-1 Km	34	16%
1-2 Km	6	3%
2-5Km	4	2%
>5 Km	2	1%
Total	**209**	100%
Availability of Street Lighting		
Yes	140	67%
No	69	33%
Total	209	100%

- 55% of slums have Motorable pucca roads and 20% with Motorable katcha roads; 25% of households have non Motorable approach roads, which need to be upgraded.
- 63% of slums lack in proper internal roads with BT surface.
- In case of street lighting, 67% of slums have Street lights and 33% lack in street lighting facility, hence essential for security to prevent any kind of accidents and other inconveniences.

e. Slum Deficiency Matrix & Development Options

With reference to process for generating deficiency matrix (refer Chapter 4.1.3) and based on the data analysis, 209 slums in Varanasi City have been categorized based infrastructure deficiency and vulnerability. Based on this, the existing condition of slums is assessed in the following way:

The following matrix presents the Infrastructure deficiency and vulnerability status of slums

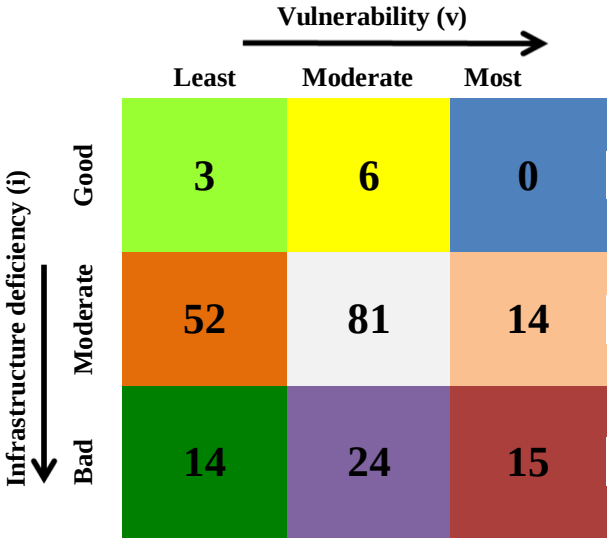


Table 4-11 : Slum Deficiency Matrix & Development Options

The No. of slums falling under different categories is as follows:

- Least vulnerable and Good Infrastructure – 3 slums
- Least vulnerable with moderate infrastructure – 52 slums
- Least vulnerable with bad infrastructure – 14 slums
- Moderate vulnerable with Good Infrastructure – 6 slums
- Moderate vulnerable with Moderate Infrastructure – 81slums
- Moderate vulnerable with Bad Infrastructure – 14 slums
- Most vulnerable with Good Infrastructure – No slums
- Most vulnerable with Moderate Infrastructure – 14 slums
- Most vulnerable with Bad Infrastructure – 15 slums

For more details please refer **Annexure 2D** for slum wise evaluation index and choice of development.

CHAPTER 5 – REQUIREMENT & INVESTMENT

5.1 Physical requirements

5.1.1 Housing

As seen in earlier section, the variables of tenure status, tenability, density, housing type, housing condition and age of the structure have been considered to calculate the housing deficiency and similarly for infrastructure levels. To determine the mode of development for the identified slums based on their deficiencies, following criterions has been taken into account:

Relocation of slums

- Physical location of slums -along Nallah and hazardous
- Flood prone – water logging for a month or more
- Land ownership under Local bodies : earmarked land use zones in master plan
- Slums in close proximity to High transmission lines such as 220KV.

In-situ

- Semi Pucca and katcha houses greater than 75%

Up-gradation of slums

- Semi Pucca and katcha houses less than 75%

Table 5-1 : Housing Requirements

Mode of development	Hazardous	Non-Hazardous	
		Semi-Pucca + Katcha houses More than 75%	Semi-Pucca + Katcha houses Less than 75%
	Relocation	In – Situ	Up-Gradation
No. of Slums	1	29	179
No. of Households	1057	8754	68442
Hosing Deficit	1057	8754	27526
Housing Deficit	37337		

From the above *table 5-1*, it was identified that there is a housing deficient of **37337** households in 209 slums. From development point of view, of the total 209 slums 1 slum is consider as relocation because of low laying area 29 slums are found to be having Semi-Pucca and Katcha houses greater than 75%, hence considered for In-Situ development while 179 slums with semi Pucca and katcha houses less than 75% for slum up gradation.

5.1.2 Infrastructure

With reference to RAY and UDPFI guidelines, additional requirement for the existing slums have been calculated for each element where the following assumptions were made in terms of:

Water supply

- For sub line running length, 98% of the total internal roads
- Raising main length = Total Households x 3m (In -Situ)
- Raising main length = Proposed taps x 3m (Up gradation)
- Proposed number of taps = Total households - Existing taps
- For every 2500 population, an overhead tank of capacity 1 lakh litre

Sanitation

- Additional length of underground sewer lines and Storm water drainage line = 80% of the total road length
- Proposed toilets = Total households - Existing individual toilets (Up gradation)

Solid waste management

- For every 30 households = 1 garbage bin

Street lighting

- For every 45 mts of road length = 1 street light/light pole

Roads

- Approach road = 2% of the total road length with width of 4.5 m
- Internal roads = 98% of the total road length with width of 3 m

The following table 5-2 and 5-3 presents the proposed requirements for each element of the physical and social infrastructure that needs to be implemented.

Table 5-2 : Physical Infrastructure Requirements

S. No	Sector	Services - Unit	Requirement for existing slums
1	Water supply	Running length of sub line (Km)	321.20
		Raising Main (Km)	133.40
		Individual taps (No)	42035
		Overhead water tanks (No)	79
2	Sanitation	Length of Underground Drainage/Sewer Lines (Km)	267.56
		Length of storm water Drainage Lines (Km)	267.56
		Individual toilets (No)	50993
3	Solid Waste management	Garbage dumping Bins (No)	2613
4	Roads	Total length of Approach roads (Km)	2.65
		Total length of Internal roads (Km)	198.96
5	Street Lighting	Street lights (No)	1885

Table 5-3 : Social Infrastructure Requirements

S.No	Sector	Unit	Requirements
1	Education facilities	Anganwadi (No)	42
		Primary school (No)	4
		High school (No)	1
2	Health Facilities	Primary Health Centre (No)	0
3	Social development	Community Room (No)	35
4	Recreation & Open spaces (Ha)		18.19

As per UDPFI Guidelines, for every 7500 population, a secondary school is required, for every 2500 population a pre-primary school and a primary school for 5000 persons has been recommended. Similarly for every 5000 population, a community hall is required hence 35 community halls have been proposed In addition to this open space of area 18.19 Ha (181989.97 mts) has been proposed.

5.2 Implementation Plan

A DPR would be recommended for each and every slum for implementation of slum development plan. The plan implementation and modalities would be discussed in detail through slum level community participation.

5.2.1 Prioritization of slums

Parameters for prioritization of slums for implementation of in-situ improvement / redevelopment for first phase of implementation for tenable slums are suggested below:

- **Insecure tenure of slum pockets:** Settlements without any security of tenure are most vulnerable and therefore should be given priority in selection for improvement.
- **Housing conditions and infrastructure deficiency**: Settlements with poor housing conditions and infrastructure deficiency should be given high priority for improvements.
- **Public land ownership**: Slum pockets on public sector owned land should be prioritized for improvement, as slums on private land would either require negotiations with owner or time consuming acquisition. Slum improvement/redevelopment should first be taken up where land is owned by Government agencies.
- **Dwelling unit Density**: - Priority should be given to small and medium size slums with low or moderate densities as it is difficult to improve very high density /large slums.

The total percentage is divided into 5 ranges and five (5) ranks have been given for prioritization. Then, addition of ranks for each indicator has done for all the slums. Mean from this total have been taken to prioritize slums year-wise for period of 5 years.

All the slums in the ULB are proposed to be covered under RAY in the phased manner indicated in the *Table 5-4*. As mentioned above, three different mode of development has been chosen to improve the existing slum conditions as well prevent future growth of the same. The following gives a brief of these modes and its characteristics:

Relocation

- Depending on the location and where there is no alternative
- Involves communities in identification of alternative sites

- Ensures that education, health, transport, basic services are provided before relocation

In situ

- Involves redevelopment of whole site to provide more living space and improved environmental conditions such as those in high density areas.
- Provision of transit accommodation and including of all residents, especially the extremely poor critical to success

Slum Up gradation

- Involves a mixture of provision or upgrading of service and infrastructure levels, incremental housing improvements or selective replacement of katcha houses

The following *table 5-4* gives a brief picture of the year wise phasing of development that needs to be taken up to improve the living conditions of the already existing slums for the next 5 years. The mode of development was taken up exclusively as a separate exercise thoroughly discussing with the stake holders. The mode of development for the pilot DPR slums/first year slums have also been double checked and clarified by project officer and other associated stake holders.

Table 5-4 : Slums to be covered under RAY in the Next 5 Years

Year of Development	Period	No of the Slums	Mode of Development
I	**2013-14**	0	Relocation
		8	In - Situ Development
		12	Up gradation
Total Slums		**20**	
II	**2014-15**	0	Relocation
		8	In - Situ Development
		36	Up gradation
Total Slums		**44**	
III	**2015-16**	0	Relocation
		9	In - Situ Development
		78	Up gradation
Total Slums		**87**	
IV	**2016-17**	1	Relocation
		2	In - Situ Development
		38	Up gradation
Total Slums		**41**	
V	**2017-18**	0	Relocation
		2	In - Situ Development
		15	Up gradation
Total Slums		**17**	
Total targeted Slums for 5 Years		**209**	

5.2.2 Proposed Model Layout

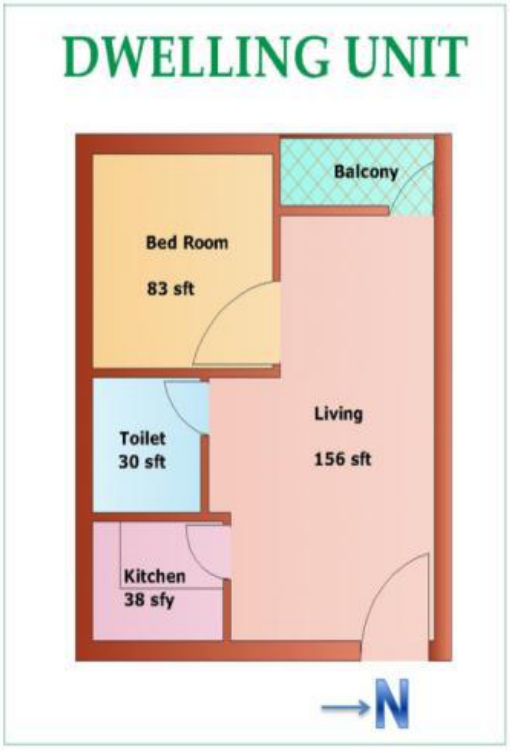
a. Housing

To make Varanasi a slum free city, there is a need to redevelop housing for **37337** households estimated. Based on the physical location, ULB land ownership and surrounding land use, three slums have been chosen to replicate the future development and improved livelihood in terms of housing layout shown with all services. The layouts developed are in accordance with byelaws,

JNNURM standards and facilitated with infrastructure services. According to Norms and Standards of Municipal Basic Services in India given by Jawaharlal Nehru National Urban Renewal Mission (JNNURM) for Housing, each flat has a plinth area of 330.60 square feet including common area.

Proposed Layout

All proposed housing units will be facilitated with a living room, single bedroom, kitchen and toilet and with provision of 8 houses on each floor to minimize the common area. The proposed structure would consist of ground +1, with 15% ground coverage and a proposed density of 100 dwelling units per acre. The following table and plan provides a brief specification of a single unit:



COMPONENT	DIMENSION
Living room	11.63 Sq.m
Bed room	7.68 Sq. m
Kitchen	3.4 Sq.m
Bath	1.85 Sq.m
W.C	0.9 Sq.m
Passage in front of Bath & W.C	0.68 Sq.m
Total area	**26.14 Sq. m**

The plan and specifications of single block are as follows:

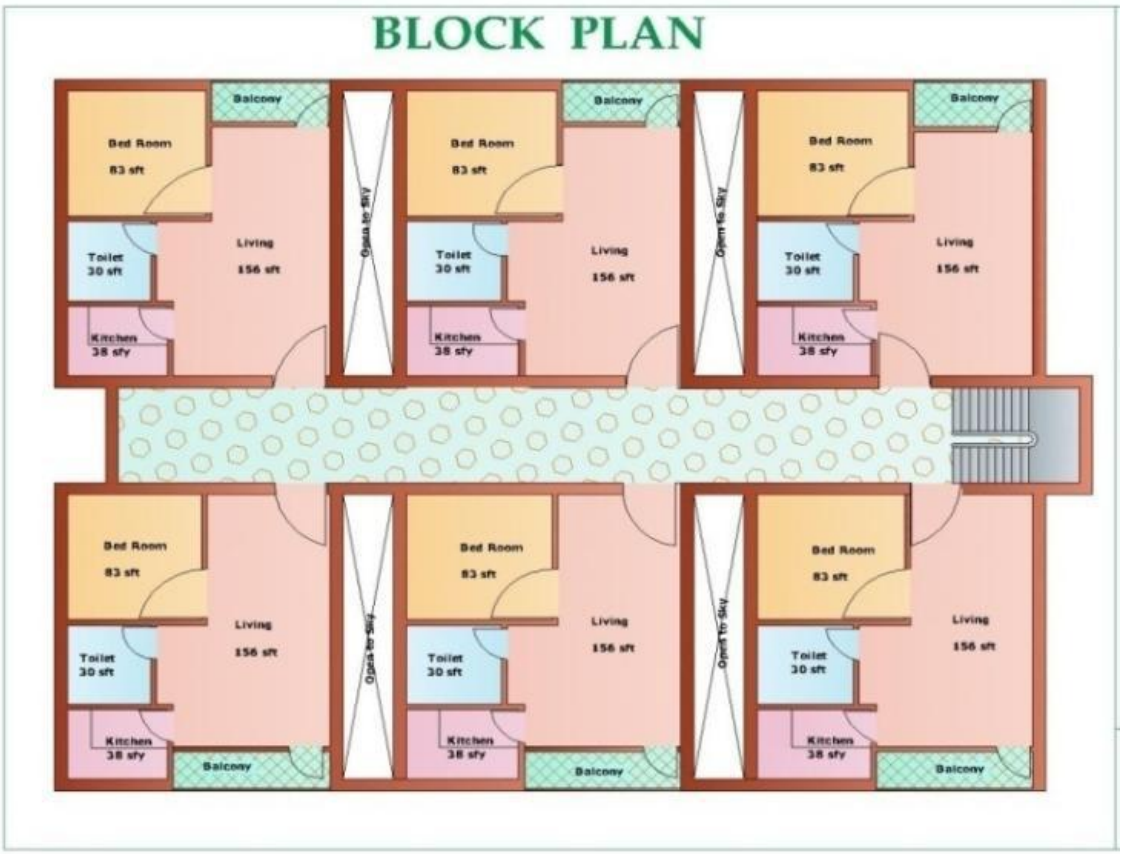
DESCRIPTION	UNIT
Area of Block	2670.40 sq. ft.
No. Of DU's per block	6
Corridor width	7 ft
Stair case	45 Sq.ft
Area of layout	3.5 Ha
No of Blocks	46
No of Dwelling units	(46 X 18) = 828

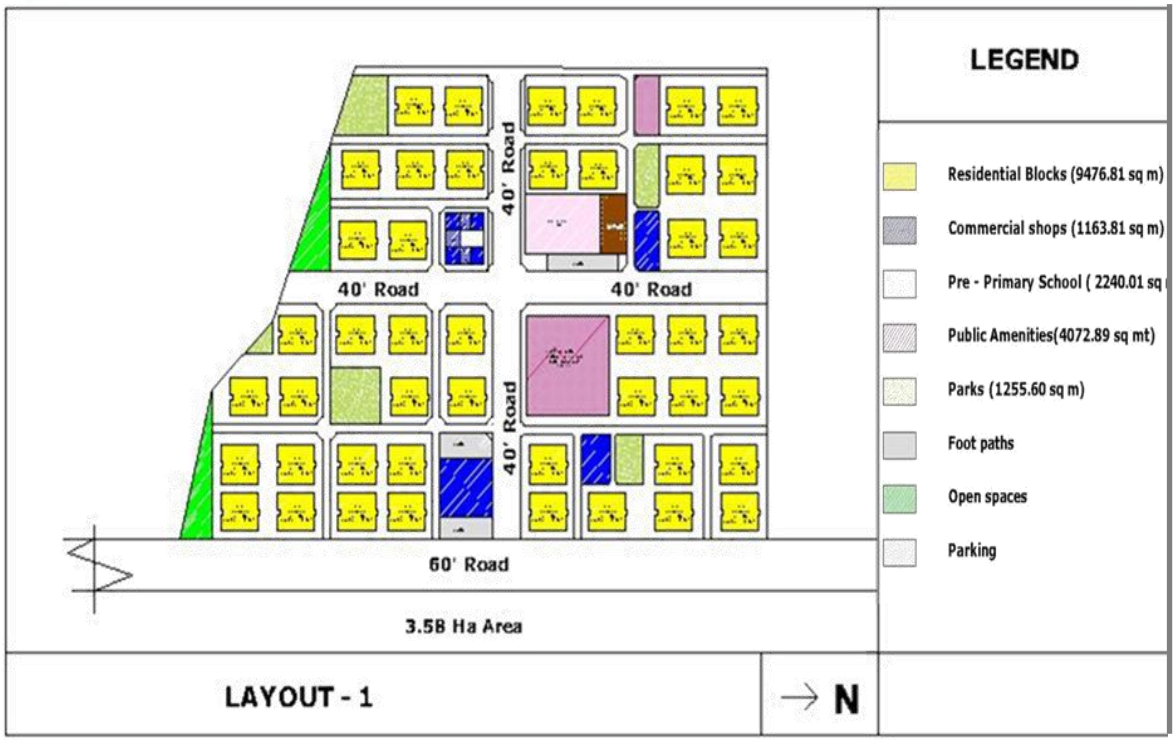
b. Infrastructure

Provision for individual sump tank, over head LDPE tanks and pumps with all utilities will be made available to each of the building blocks for water supply arrangement.

Construction

The type of construction will vary with several factors like soil conditions, local requirements and cost of the land. Generally in the smaller towns, which basically have rural culture, multistoried buildings are not acceptable but with circumstances, G+3 has been proposed for slums where ever required. The type of of housing would generally be small but independent houses/ combined houses with some free space around the houses. Given the occupation status of the slum households, some of them might have push carts or some of them may use this space for cottage industries or vegetable gardening. Structure wise, a permanent housing unit with a plinth area of 330.60 Square feet will be constructed. The walls shall be built with solid concrete blocks and slabs shall be RCC. Ready mixed concrete shall be used in all RCC elements of the building for quality assurance and providing a smooth finish to the surface requiring less finishing.





Map 5-1 : Model layout

5.3 Modalities / Approach

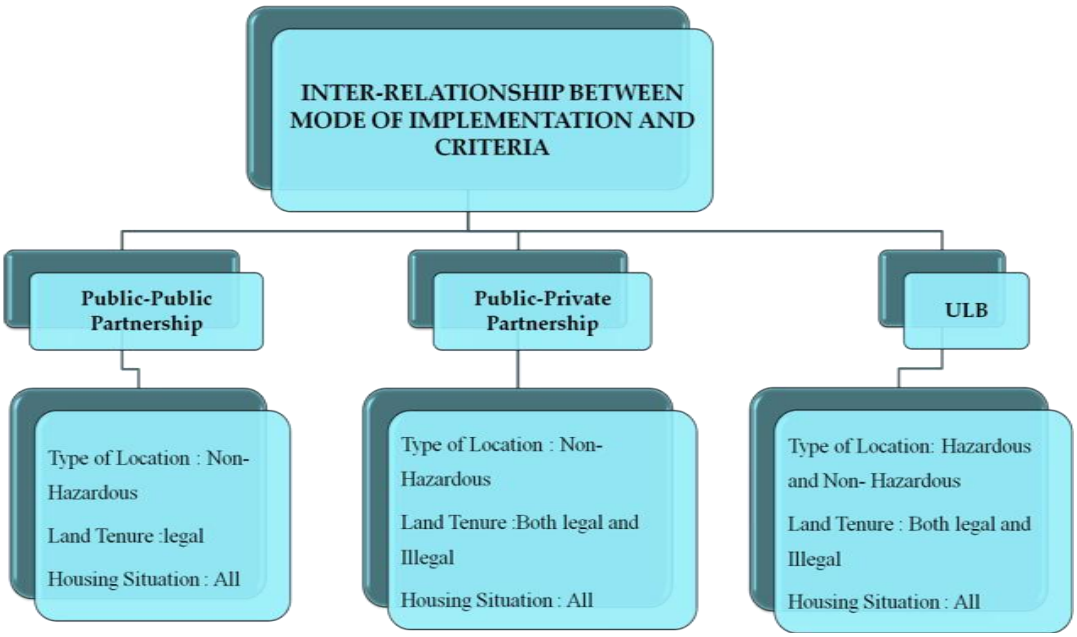


Chart 5-1 : Modalities & Approach

A gap is sometimes called "the space between where we are and where we want to be." A gap analysis helps bridge that space by highlighting which requirements are being met and which are not. The tool provides a foundation for measuring the investment of time, money and human resources that's required to achieve a particular outcome.

5.3.1 Slum Up-gradation/Redevelopment Options

With spatial analysis and situation assessment done as above, a participative process will need to be undertaken with slum communities with the assistance from NGOs/CBOs active in the area of slum housing/ development to identify the possible development options. The table 5-4 provides an indicative list of alternative development options and implementation modalities. The dialogue for choice of the model will also explore the possibilities of relocating slum households from high density/untenable slums to low-density tenable slums within the same zone. The following physical development options are possible

- **Slum Improvement**: Extending infrastructure in the slums where residents have themselves constructed incremental housing.
- **Slum Up gradation**: Extending infrastructure in the slums along with facilitation of housing unit up gradation, to support incremental housing.
- **Slum Redevelopment**: In-situ redevelopment of the entire slum after demolition of the existing built structures
- **Slum Resettlement**: In case of untenable slums to be rehabilitated on alternative site.

5.3.2 Potential for Private Sector Participation

Private sector participation can be envisaged in redevelopment of slums where reasonable returns are expected for the investor. In order to assess the potential for PPP, ULB will need to map and tabulate land values in immediate environs of all slum pockets.

a. Outputs of the Slum Redevelopment Plans

- Development options and cost of each option for different categories of slums, which are to be proposed and vetted by community.
- Identification of options for development model proposed for each slum.
- Selection of development model for the slums to be followed by project development in consultation with the communities
- Identification of resettlement pockets
- Identification of slums to be densified
- Creation of vacant land
- Identification of TDR loading corridors
- Integrated infrastructure planning including the identification of trunk infrastructure alignments and capacities(existing & proposed)

b. In relation to slum pockets

- Analysis of slums with low densities to assess slum pockets with possibility of densification to rehabilitate households from other slum pockets and creating vacant land pockets
- Exploring relocating possibility of untenable slums in nearby (within the zone) vacant pockets/ existing low density slum keeping their relation to employment centres

c. Outputs

- Development options for different categories of slums
- Implementation Structure.

5.4 Investment Requirements

Accurate assessment of investment requirements and devising a suitable financing strategy are the key components for any sustainable slum rehabilitation program. It is of vital importance that implementing bodies recognize and measure the various costs of developing infrastructure and housing, including the costs for subsequent maintenance of the same. The success of the slum rehabilitation program would depend on matching the investment needs with the vibrancy/buoyancy of the various elements of the proposed finances. The following section describes the costs projected for various sectors from 2013-2018.

5.4.1 Housing

Based on the mode of development, the slums in view of housing condition, and physical location, has been categorized accordingly. The following *table 5-5* presents the required cost for each type of development for the slums.

Table 5-5 : Housing Investment Requirements

Mode of development	Hazardous	Non-Hazardous	
		Semi-Pucca + Katcha houses More than 75%	Semi-Pucca + Katcha houses Less than 75%
	Relocation	In – Situ	Up-Gradation
No. of HHs	1057	8754	68442
Deficit	1057	8754	27526
Housing Deficit	37337		
Costing ('Lakhs)	3725.89	30151.23	64862.51
Total Cost ('Lakhs)	98739.62		
Total Cost ('Crores)	987.39		

As illustrated in *table 5-5*, 4% of the total estimated cost is allocated for Relocation mode of development 31% for slum In-situ development and remaining 66% of the slums developed under up-gradation in Varanasi City. For calculation purpose, costing per unit is taken as 3.05 lakh per house for the first year. Additionally for a duration of 5 years, an increase of 5% in the costs has been assumed with due consideration to changing market rate.

5.4.2 Infrastructure

This section covers the existing physical and social infrastructure and also the requirements for the same in **all slums** of the ULB including **perspective plan for 5 years.** Taking into account the additional requirement as mentioned in *tables 5-2* and *5-3*, the costing has been calculated for each sector shown in *table 5-6*.

Table 5-6 : Investment Requirement for Infrastructure

S. No	Sector	Sector - Unit	Proposed Cost for 2013-18 (in ` Lakhs)
Physical Infrastructure			
1	**Water Supply**	Running length of sub line (Km)	1338.57
		Raising Main (Km)	265.84
		Individual taps (No)	---
		Overhead water tanks (No)	1389.61
		Sub Total	**2994.02**
2	**Sanitation**	Length of Underground Sewer Line (Km)	4460.04
		Length of storm water Drainage Lines (Km)	4460.04
		Individual toilets (No)	2919.62
		Sub Total	**11839.71**
3	**Solid waste management**	Garbage dumping Bins (No)	243.56
		Sub Total	**243.56**
4	**Roads**	Length of Approach roads (Km)	136.51
		Length of Internal roads (Km)	5282.24
		Sub Total	**5418.75**
5	**Street Lighting**	Street lights (No)	235.78
		Sub Total	**235.78**
Total Physical Infrastructure			**20731.82**
Social Infrastructure			
6	**Education facilities**	Anganwadi (No)	143.96
		Primary school (No)	11.33
		High school (No)	8.10
		Sub Total	**163.39**
7	**Health Facilities**	Primary Health Centre (No)	0.00
		Sub Total	**0.00**
8	**Social development**	Community Room (No)	194.85
		Recreation park (sq.mts)	547.27
		Sub Total	**742.12**
Total Social Infrastructure			**905.51**
Grand Total Cost (Physical + Social) for Infrastructure			**21637.33**

The total cost estimates for infrastructure up gradation and provision is **216.37** Crores, where physical infrastructure is estimated for **207.31** Crores and social infrastructure is around **9.06** Crores.

The following table presents sector wise cost estimated for five years (2013-18) by taking into consideration the cost calculated for the additional provisions/requirements, mentioned in earlier section:

Table 5-7 : Sector Wise Estimated Cost (in lakhs)

Sector	Estimated Cost for 2013-14	Estimated Cost for 2014-15	Estimated Cost for 2015-16	Estimated Cost for 2016-17	Estimated Cost for 2017-18	Total Project Cost for 5 years
Housing	8639.12	23015.88	39499.45	21133.94	6451.22	**98739.62**
Water Supply	193.47	515.80	1262.20	761.09	261.48	**2994.02**
Sanitation	849.22	2139.44	5316.77	2568.61	965.6714	**11839.71**
Solid waste management	15.88	40.13	100.67	63.3	23.58	**243.56**
Roads	645.49	950.75	2404.69	975.48	442.35	**5418.75**
Street Lighting	38.60	51.93	109.82	21.39	14.03	**235.77**
Education	8.69	19.32	71.22	46.14	18.02	**163.39**
Health	0.00	0.00	0.00	0.00	0.00	**0.00**
Social development	56.44	135.71	314.16	164.12	71.69	**742.12**
Others	626.81	1612.14	2944.74	1544.05	494.88	**7222.62**
Total	**11073.71**	**28481.10**	**52023.71**	**27278.12**	**8742.92**	**127599.57**

As shown in above table, the total cost projected for 5 years is **1275.99** Crores, in which 77% is allocated for housing as top priority; 16% for physical infrastructure and 1% for social infrastructure. Under others head 6% of the housing, physical and social infrastructure is considered.

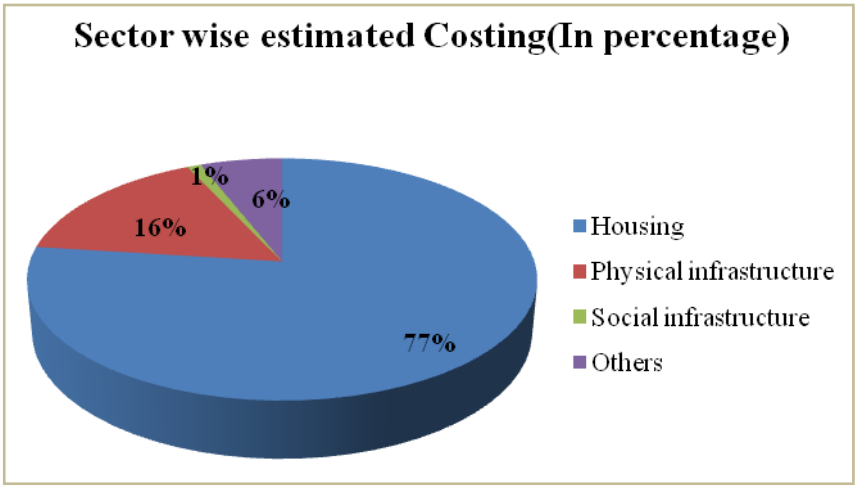


Figure 5-1 : Sector wise estimated Costing

Among physical infrastructure elements, due priority is given for sanitation for the next 5 years followed by roads and water supply. About 57% of the costing in physical infrastructure is allocated for sanitation. About 26% of the cost is allocated for roads, 15% for water supply, 3% for street lighting, 1% of the cost allocated for solid waste management.

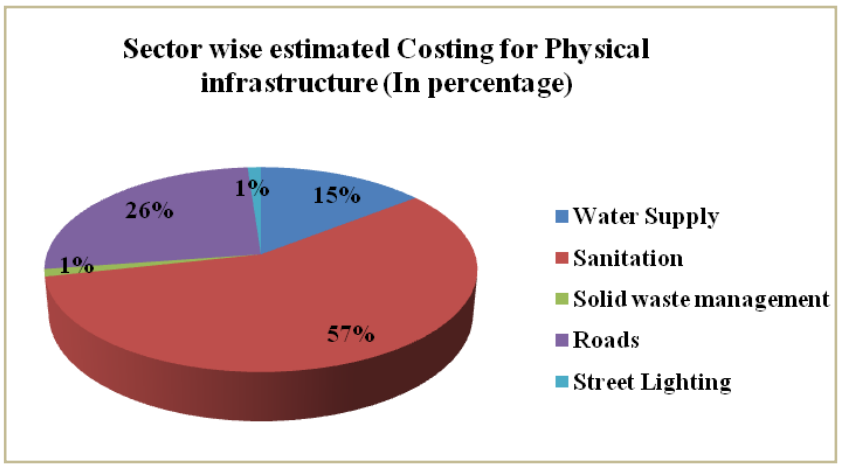


Figure 5-2 : Sector wise estimated Costing for Physical infrastructure

5.4.3 Other Costs

In general, operation and maintenance costs form a sizeable share of a slum redevelopment budget. In case of Varanasi slums, other cost makes up 6% of the total estimated cost for each year. The following list of related costs that will be incurred during the implementation of a slum rehabilitation/redevelopment includes:

- O&M (2%)
- DPR (1%)
- Project Implementation (1%)
- Capacity Building (1%)
- Offsite cost (1%)

Table 5-8 : Operation and maintenance costing for 5 years

Year Wise	O & M	DPR	Project implement ation	Capacity building	Off site Costing	Annual estimated other costs (in Lakhs)
Ist Year	208.94	104.47	104.47	104.47	104.47	**626.82**
IInd Year	537.38	268.69	268.69	268.69	268.69	**1612.14**
IIIrd Year	981.58	490.79	490.79	490.79	490.79	**2944.74**
IVth Year	514.68	257.34	257.34	257.34	257.34	**1544.04**
Vth Year	164.96	82.48	82.48	82.48	82.48	**494.88**
Total	**2407.54**	**1203.77**	**1203.77**	**1203.77**	**1203.77**	**7222.62**

Depending upon the mode of development, the operation and maintenance costs will vary from slum to slum. Seen in *table 5-8*, the others cost catering to the housing and infrastructure investment requirements as set out earlier includes 5 (five) sectors where 72.22 crores has been estimated for a period of 5 years. Of the total estimated costs under others head, 33% is allocated for Operation and maintenance (O&M).The remaining initial costs such as Project implementation, and DPR, capacity building and offsite costing expenses alone constitute 67%.

5.5 Capacity Building

Through the medium of District Urban Development Authority (DUDA), Urban Local Body (ULB) and community organizations, SJSRY Schemes will be integrated with Ministry of Housing and Urban Poverty Alleviation (MoHUPA), GoI.

5.5.1 Slum dwellers

Slum dwellers also act as **stakeholders** in planning for slums as they understand the slums, strategies implemented in those slums and future requirements. Hence they should be trained in developing their respective slums, otherwise the aims of SJSRY staff not be fulfilled.

5.5.2 Intermediaries

CO's, CBO's and community volunteers are the **Intermediary stakeholders** to train the trainer's. Capacity building for them is convincing & managing the slum association to accept proposals. Training and adequate guidance to the CBO's and the community volunteers can be organized by the concerned cells/agencies/lead NGO to build common understanding on their role and purpose of data collection for the SFCP. The capacity building activities can also be undertaken by the National Network Resource Centres (NNRCs), empanelled by the Mo/HUPA.

It is expected that the SFCPoA is prepared with active participation of community during the planning process. To enable the same suitable structures (cooperatives/ societies) might need to be formed, where necessary. The communities would need to demonstrate willingness to adopt the implementation option, plan for livelihood/ economic activities within the slum. Communities are also expected to assist in generating the beneficiary contribution.

5.5.3 Government stakeholders

Being the main sponsor of the RAY scheme, ULB would prepare the SFCPoA as a first step to clearly articulate the action plan for making the city "slum free". During the preparation of Slum Free City Plan of Action, ULB would continuously consult with the community in the planning process. During the process, ULB would categorize and prioritize for rehabilitation/ redevelopment, and would provide/ facilitate provision of infrastructure. ULB, in consultation with the community, will also allot dwelling units and enable provision of the legal titles to the beneficiaries.

CHAPTER 6 - SLUM PREVENTION STRATEGY

6.1 Introduction of Slum Prevention Strategy

Strategy for prevention of slums in future will include prevention of encroachments and illegal structures and further supply of affordable housing on the other. The plan of action should encompass proposed action to be undertaken by the city to commensurate the lands and promote the construction of affordable housing in consonance with the housing demand. City-wide policies for slum prevention should include:

- Inventory of Vacant and underutilized lands through GIS mapping
- Assessment of Housing demand for current slum population and future using Master Plan estimated values
- Formulation of demand side as well as supply housing strategies through exploration for various development options such as PPP model, direct subsidies and incentives

Land Reservation/Land pooling

- Reservation of 20-25% of developed land for EWS/LIG housing
- Land assembly mechanisms and policy obstacles to land supply
- Ensure continuous supply of developed land for EWS/LIG housing

Allocation of land to various organizations

- In new cases where land is allotted to various organizations or institutions by the government for development of work space, or industries, or institutions etc., there shall be reservation of land for economically weaker sections and low income groups of persons in respect of all municipalities, municipal corporations and urban development authorities.
- In respect of land where it has already been allotted, the unutilized portion may be reserved for economically weaker sections

Rental housing

The provision of rental housing is a major task which needs to be worked out. The provision of affordable housing by the respective state/city government or through provision of incentives to private land owners, Public Private Partnership etc would definitely help as a preventative step for future formation of slums. The government of Maharashtra recognizes the importance of rental housing in providing affordable housing to the EWS/ LIG category and this is explicitly reflected in its housing policy. In pursuance of the Maharashtra State Housing Policy 2007, Mumbai Metropolitan Regional Development Authority (MMRDA) formulated a scheme to build small rental tenements targeted towards the LIG category to be made available at a reasonable rent. Hence, it could be a recommended practice to implement in Uttar Pradesh state to promote Rental Housing. The rental housing provisions could be assets when State Government/ULB plans to build them in dynamic strategic location where ideally people would migrate in search of work and move further for search of same.

The provision of rental housing will also make sure that the poor people will not be forced to stay in a particular slum if they would have a facility of rental homes at several parts of the city. 50 % of the projected housing demand will be considered for provision of rental housing.

- Decide eligibility of tenants
- Standards for rental housing
- Decide for rental housing policy for rents, modalities for allotment, evictions
- Mechanisms for maintenance and management
- Incentives for rental housing

6.2 Housing Stock Assessment in slums

6.2.1 Population Projections

Population projection is important and basic requirement for the provision of basic services to the people. It is also required to plan for service provision and revenue realization from the users in a city, which is the direct function of the population and population growth. Varanasi being a head quarters of the district and encompasses educational and agricultural related activities, an increase of 1% per year is expected.

Table 6-1 : Projected population for 5 years

Population projection		
Year	**Increase in population**	**Projected population**
2013-2014	4083	411119
2014-2015	4107	415204
2015-2016	4146	419371
2016-2017	4199	423562
2017-2018	4234	427805
Total	**20769**	---------

At the end of five years, a total population of 427805 is estimated for 209 slums in **Varanasi.**

6.2.2 Household requirement for slums

The future housing supply has been computed in accordance with the existing growth rate of respective slums. The identified housing shortage also termed as housing demand would help avoid formation of new slums, provide basic facilities to the incoming poor migrants. Similar to estimated population in slums, the additional requirement of households in the slums has been projected for a 5 year period assuming a growth rate of 1%. Assuming that the growth rate would be constant for every year, an increase of **3480** households has been projected for five years (seen in *table 6-2*).

Table 6-2 : Housing requirements for 5 years

Households Projection	
Year	**Households**
2013-14	685
2014-15	690
2015-16	698
2016-17	700
2017-18	707
Total	**3480**

6.2.3 Infrastructure requirements

Using the model layout, the cost for proposed infrastructure elements has been calculated. The proposed dwelling units are 3480 which indicate 4 model layouts are required for future demand. Hence the infrastructure requirement is indicated in the *table 6-3*:

Table 6-3 : Infrastructure requirement for 5 years

S. No	Sector	Sector - Unit	Requirement for 2013-18
Physical Infrastructure			
1	Water Supply	Running length of sub line (Km)	49.16
		Raising Main (Km)	8.00
		Individual taps (No)	3480
		Overhead water tanks (No)	8
2	Sanitation	Length of Underground Sewer Line (Km)	40.96
		Length of storm water Drainage Lines (Km)	40.96
		Individual toilets (No)	0
3	Solid waste management	Garbage dumping Bins (No)	116
4	Roads	Length of Approach roads (Km)	1.00
		Length of internal roads (Km)	50.16
5	Street Lighting	Street lights (No)	1137
Social Infrastructure			
6	Education facilities	Anganwadi (No)	8
		Primary school (No)	4
		High school (No)	3
7	Health Facilities	Primary Health Centre (No)	1
8	Social development	Community Room (No)	0
		Recreation park (Ha)	1.43

6.3 Implementation Plan

6.3.1 Options for Generating Stock

Public Private Partnership

The rationale behind creating public-private partnerships is that the private sector typically has access to upfront capital and a track record of delivering products efficiently, while the public sector/state/central Govt. controls the regulating environment and, occasionally, crucial resources needed to implement a project, such as land. The following illustrates three different slums chosen for PPP model wherein the housing type with infrastructure has been proposed.

CHITTUPUR DAYANAGAR

Chittupur Dayanagar is one among 156 slums located in the core area of Varanasi City. It has a total population of 700 with 140 households and an area of 10005.42 Sq.m. Under the ownership of Varanasi City Corporation, Chittupur Dayanagar slum is located in the Core area and surrounded by residential use. Of the 140 houses, 87% are katcha in nature. As far as water supply is concerned, 64% of the slum is not covered. Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Chittupur Dayanagar slum.

PROPOSALS

Based on the above information, in situ mode of development has been recommended to make the areas habitable and for provision of tenure rights to the slum dwellers. As part of in situ development, 180 dwelling units have been proposed with each unit of area 331.50 Sq.ft and comprises of living room, single bedroom, a kitchen and toilet .The following gives a description of a single housing unit:

Description	Dimensions (Feet)
Bed room	9.0 x9.0
Living	8.6 x 17.0
Toilet	6.0x5.0
Kitchen	7.0x5.6
Balcony	10.0x2.6
Total area of Dwelling unit	331.5 (sq.ft)

Specifications for Doors & Windows in a single Dwelling unit:

Description		Dimensions (Feet)
Doors	D1	3.11 x 6.5
	D2	3.30x 6.5
Windows		3.3x4.11
ventilators		1.12x4.11

Housing Plan

Per block 18 dwelling units (DU) has been proposed with a total area of 2636.10 sq. ft. A total of 10 blocks has been proposed preferred floors to be G+2 for each. The specifications and plan of a single block has been shown below:

- Area of Block – 2636.10 sq ft.
- No. Of Dwelling Units – 6 per floor , total 18 units
- Corridor – 6’ wide
- Stair case

S.No	Description	Units
1	Earth Work Excavation for RCC footing	3.28' depth
2	CC 1:4:8 for footing	4'' thick
3	VRCC footing M20	5'X5'X12''thick
4	VRCC columns M20	9'' x12'' size
5	VRCC Plinth beam M20	9''x 12'' size
6	PCC BED for plinth beam	4'' depth
7	Earth Filling to foundation & Basement	1'5'' Depth
8	40x15x22.5 cms CC solid Blocks for walls	9'3'' height
9	40x10x22.5 cms CC solid Blocks for partition walls	9'3'' & 6'10'' height
10	VRCC M20 for lintel	9'' Width
11	VRCC roof Slab M20	4'' Thick
12	Ceiling plastering	CM 1:4 of 2'8''thick
13	Wall plastering inside	CM1:4 of 2'8'' thick
14	Wall plastering outside	CM1:3 of 4'' thick
15	MS hallow Door with shutters for main Door & Bedroom	2'11'' X 6'5'' & 2'5''x 6'5''
16	NCL Windows & Ventilators	2'11'' x 6'5'' ,1'11'x 6'5'' etc
17	Acrylic Emulsion Paint	Inside walls & Ceiling
18	Acrylic Emulsion Paint	outside
19	Flooring	Inside houses
20	Internal Electrification	Provided
21	Internal Sanitation	Provided
22	Internal Water supply	Provided
23	Painting to Doors & Windows	Provided
24	Rooftop Plastering	Provided
25	Staircase	Provided

***Source**: 25th Revised Edition Estimation and Costing in Civil Engineering. (By B.N. DUTTA)*

LAND USE

The following table presents the proposed land use for Chittupur Dayanagar Slum:

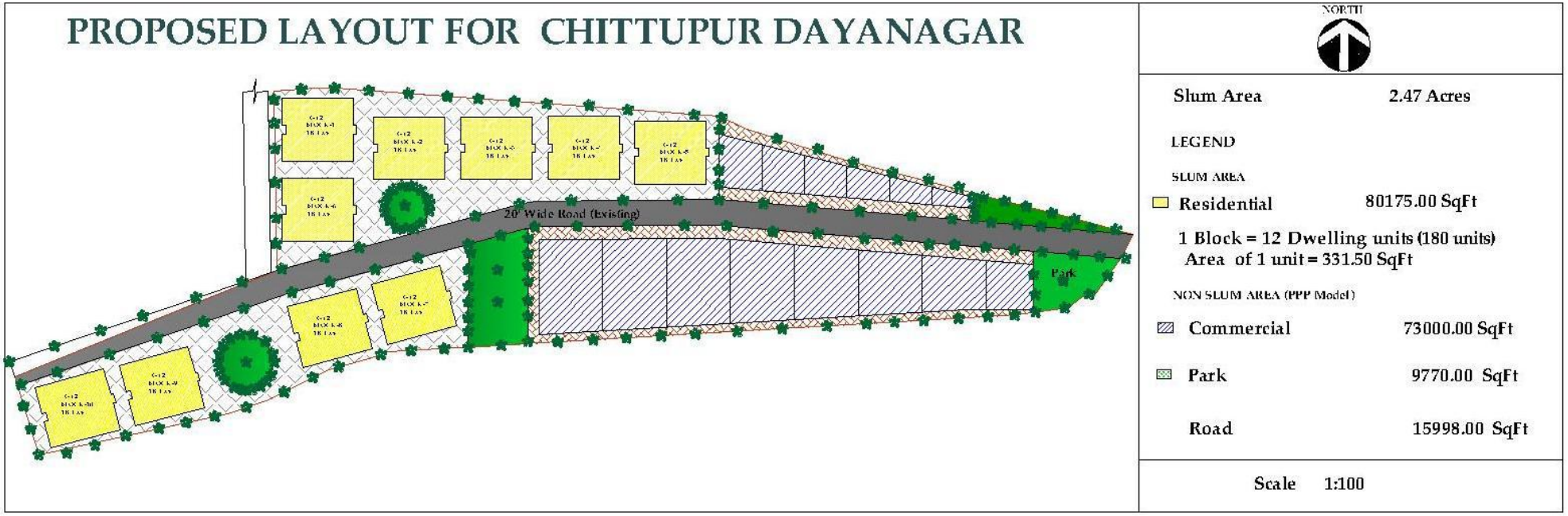
Description	Area (Sq.ft)
Slum Area	2.47 Acres
Proposed Slum Area	80175.00
Commercial use	73000.00
Park and recreation	9770.00
Roads	15998.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 73000.00 Sq.ft of land is allocated for commercial space and 15% of land for roads has been reserved .Under this model, potential business opportunities can be created as well as better access to improved infrastructure, thus fostering Chittupur Dayanagar slum development in the long run.

PHYSICAL INFRASTRUCTURE

- **Roads** - B.T. are proposed as per the requirement
- **Surface / storm water drains** -RCC U-Shape drains are proposed on both sides of the road to drain out the Surface water as per the site requirement.
- **Sewerage** -Provision for sewerage distribution system has been made and the same will be connected to main Sewer line nearby wherever sewer facility is available.
- **Water Supply** -water supply distribution network linked to city wide has been proposed as per the requirement and individual sumps and overhead tanks have also been proposed.
- **Electricity -**Lump sum provision for layout electrification has been made along with provision for individual house connection. Obtaining the electricity Service Connection will be the responsibility of the dweller and observing the necessary formalities by metering. The houses will be provided with internal and external wiring for getting service connection from the electricity authorities concerned.

The following page presents the model layout for **Chittupur Dayanagar** slum:



Map 6-1 : Proposed Layout for Chitturpur Dayanagar

Option 2: PPP model (Housing Layout)

LAKSHMANPUR – Slum

Lakshmanpur is one among 156 slums located in the Fringe area of Varanasi City. It has a total population of 1357 with 271 households and an area of 17127.56 Sq.m. Under the ownership of Varanasi City Corporation, Lakshmanpur slum is located in the Fringe area and surrounded by residential use. Of the 271 houses, 81% are katcha in nature. As far as water supply is concerned, 100% of the slum is not covered. Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Lakshmanpur slum.

PROPOSALS

Based on the above information, in situ mode of development has been recommended to make the areas habitable and for provision of tenure rights to the slum dwellers. As part of in situ development, 288 dwelling units have been proposed with each unit of area 331.50 Sq.ft and comprises of living room, single bedroom, a kitchen and toilet .The following gives a description of a single housing unit:

Description	Dimensions (Feet)
Bed room	9.0 x9.0
Living	8.6 x 17.0
Toilet	6.0x5.0
Kitchen	7.0x5.6
Balcony	10.0x2.6
Total area of Dwelling unit	331.5 (sq.ft)

Specifications for Doors & Windows in a single Dwelling unit:

Description	Dimensions (Feet)
Doors D 1	3.11 x 6.5
D2	3.30x 6.5
Windows	3.3x4.11
ventilators	1.12x4.11

Housing plan

Per block 12 dwelling units (DU) has been proposed with a total area of 2636.10 sq. ft. A total of 24 blocks has been proposed preferred floors to be G+1 for each. The specifications and plan of a single block has been shown below:

- Area of Block – 2636.10 sq ft.
- No. of Dwelling Units – 6 per floor , total 12 units
- Corridor – 6’ wide
- Stair case

Block construction specifications

S.No	Description	Units
1	Earth Work Excavation for RCC footing	3.28' depth
2	CC 1:4:8 for footing	4'' thick
3	VRCC footing M20	5'X5'X12''thick
4	VRCC columns M20	9'' x12'' size
5	VRCC Plinth beam M20	9''x 12'' size
6	PCC BED for plinth beam	4'' depth
7	Earth Filling to foundation & Basement	1'5'' Depth
8	40x15x22.5 cms CC solid Blocks for walls	9'3'' height
9	40x10x22.5 cms CC solid Blocks for partition walls	9'3'' & 6'10'' height
10	VRCC M20 for lintel	9'' Width
11	VRCC roof Slab M20	4'' Thick
12	Ceiling plastering	CM 1:4 of 2'8''thick
13	Wall plastering inside	CM1:4 of 2'8'' thick
14	Wall plastering outside	CM1:3 of 4'' thick
15	MS hallow Door with shutters for main Door & Bedroom	2'11'' X 6'5'' & 2'5''x 6'5''
16	NCL Windows & Ventilators	2'11'' x 6'5'' ,1'11'x 6'5'' etc
17	Acrylic Emulsion Paint	Inside walls & Ceiling
18	Acrylic Emulsion Paint	outside
19	Flooring	Inside houses
20	Internal Electrification	Provided
21	Internal Sanitation	Provided
22	Internal Water supply	Provided
23	Painting to Doors & Windows	Provided
24	Rooftop Plastering	Provided
25	Staircase	Provided

Source: *25th Revised Edition Estimation and Costing in Civil Engineering. (By B.N. DUTTA)*

Land Use

The following table presents the proposed land use for Lakshmanpur Slum

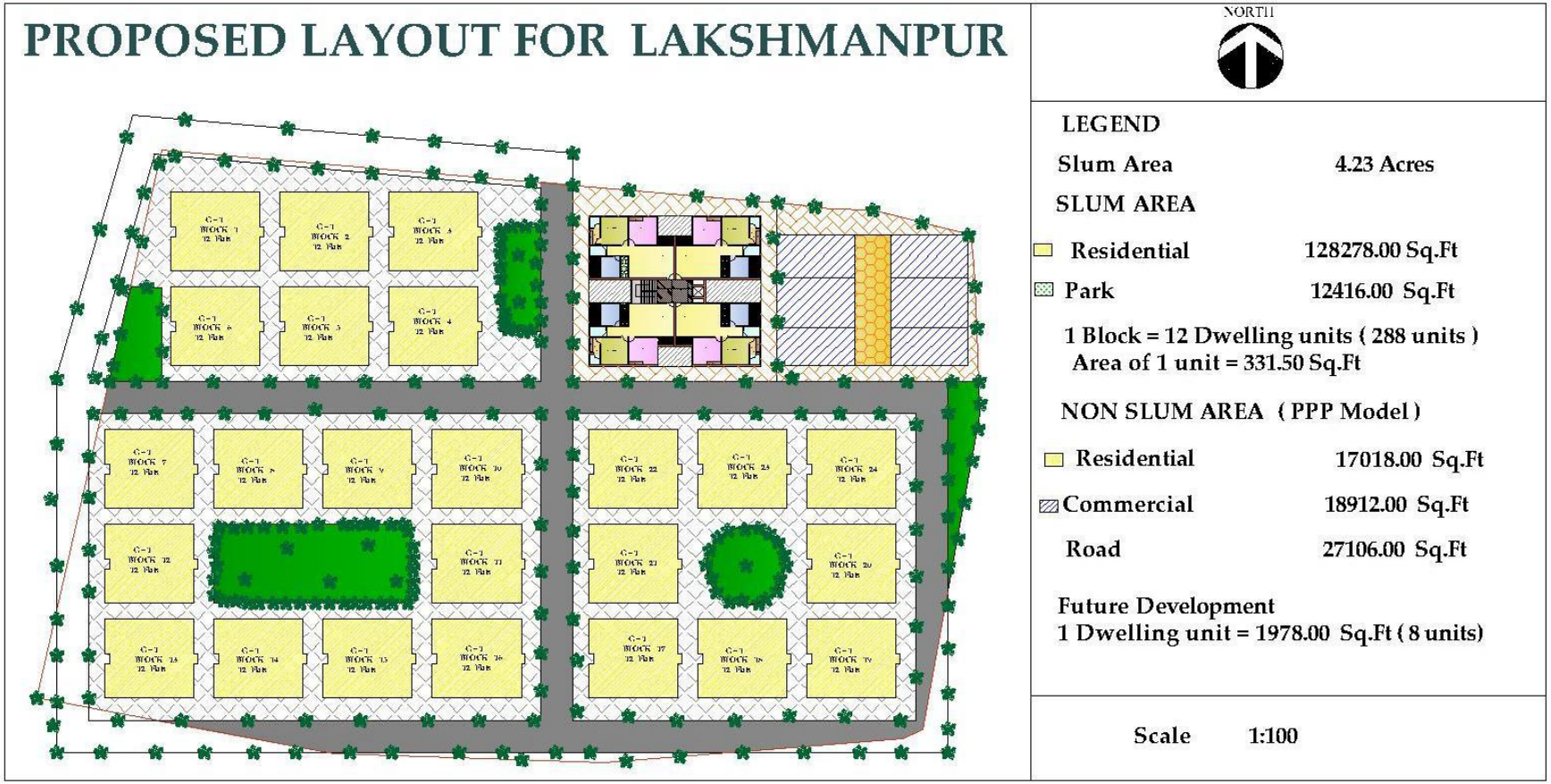
Description	Area (Sq.ft)
Slum Area	4.23 Acres
Proposed Slum Area	128278.00
Residential Area	17018.00
Commercial use	18912.00
Park	12416.00
Roads	27106.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 17018.00 Sq. ft of regular residential, 18912.00 Sq.ft of land is allocated for commercial space and 15% for roads has been reserved. Under this model, potential business opportunities can be created as well as better access to improved infrastructure, thus fostering Lakshmanpur slum development in the long run.

Physical Infrastructure

- **Roads** - B.T. are proposed as per the requirement
- **Surface / storm water drains**-RCC U-Shape drains are proposed on both sides of the road to drain out the Surface water as per the site requirement.
- **Sewerage** -Provision for sewerage distribution system has been made and the same will be connected to main Sewer line nearby wherever sewer facility is available.
- **Water Supply** -water supply distribution network linked to city wide has been proposed as per the requirement and individual sumps and overhead tanks have also been proposed.
- **Electricity -**Lump sum provision for layout electrification has been made along with provision for individual house connection. Obtaining the electricity Service Connection will be the responsibility of the dweller and observing the necessary formalities by metering. The houses will be provided with internal and external wiring for getting service connection from the electricity authorities concerned.

The following page presents the model layout for **Lakshmanpur** slum:



Map 6-2 : Proposed Layout for Lakshmanpur

Option 3: PPP model (Housing Layout)

MADHOPUR – Slum

Madhopur is one among 156 slums located in the Core area of Varanasi City. It has a total population of 250 with 40 households and an area of 11870.13 Sq.m. Under the ownership of Varanasi City Corporation, Madhopur slum is located in the Core area and surrounded by residential use. Of the 40 houses, 25% are semi Pucca and 38% are katcha in nature. As far as water supply is concerned, 87%of the slum is not covered. Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Madhopur slum.

Proposals

Based on the above information, Relocation mode of development has been recommended to make the areas habitable and for provision of tenure rights to the slum dwellers. As part of in situ development, 46 dwelling units have been proposed with each unit of area 793.00 Sq.ft and comprises of living room, single bedroom, a kitchen and toilet .The following gives a description of a single housing unit:

Description	Dimensions (Feet)
Bed room	9.0 x9.0
Living	8.0 x 17.0
Toilet	5.0 x 4.0
Kitchen	7.0 x 6.0
Sit out	6.3 x 8.0
Total area of Dwelling unit	793.00 (sq.ft)

Specifications for Doors & Windows in a single Dwelling unit:

Description	Dimensions (Feet)
Doors D 1	3.11 x 6.5
D2	3.30x 6.5
Windows	3.3x4.11
ventilators	1.12x4.11

Housing Plan

In addition, 46 dwelling units have been proposed with a total area of 793.00 sq. ft. with preferred type has row housing. The specifications and plan of a single Dwelling unit has been shown below:

- Area of Block – 2636.10 sq ft.
- No. of Dwelling Units – 6 per floor , total 12 units
- Corridor – 6’ wide
- Stair case

Block construction specification

S. No	Description	Units
1	Earth Work Excavation for RCC footing	3.28’ depth
2	CC 1:4:8 for footing	4’’ thick
3	VRCC footing M20	5’X5’X12’’thick
4	VRCC columns M20	9’’ x12’’ size
5	VRCC Plinth beam M20	9’’x 12’’ size
6	PCC BED for plinth beam	4’’ depth
7	Earth Filling to foundation & Basement	1’5’’ Depth
8	40x15x22.5 cms CC solid Blocks for walls	9’3’’ height
9	40x10x22.5 cms CC solid Blocks for partition walls	9’3’’ & 6’10’’ height
10	VRCC M20 for lintel	9’’ Width
11	VRCC roof Slab M20	4’’ Thick
12	Ceiling plastering	CM 1:4 of 2’8’’thick
13	Wall plastering inside	CM1:4 of 2’8’’ thick
14	Wall plastering outside	CM1:3 of 4’’ thick
15	MS hallow Door with shutters for main Door & Bedroom	2’11’’ X 6’5’’ & 2’5’’x 6’5’’
16	NCL Windows & Ventilators	2’11’’ x 6’5’’ ,1’11’x 6’5’’ etc
17	Acrylic Emulsion Paint	Inside walls & Ceiling
18	Acrylic Emulsion Paint	outside
19	Flooring	Inside houses
20	Internal Electrification	Provided
21	Internal Sanitation	Provided
22	Internal Water supply	Provided
23	Painting to Doors & Windows	Provided
24	Rooftop Plastering	Provided
25	Staircase	Provided

Source: *25th Revised Edition Estimation and Costing in Civil Engineering. (By B.N. DUTTA)*

Land Use

The following table presents the proposed land use for Madhopur Slum:

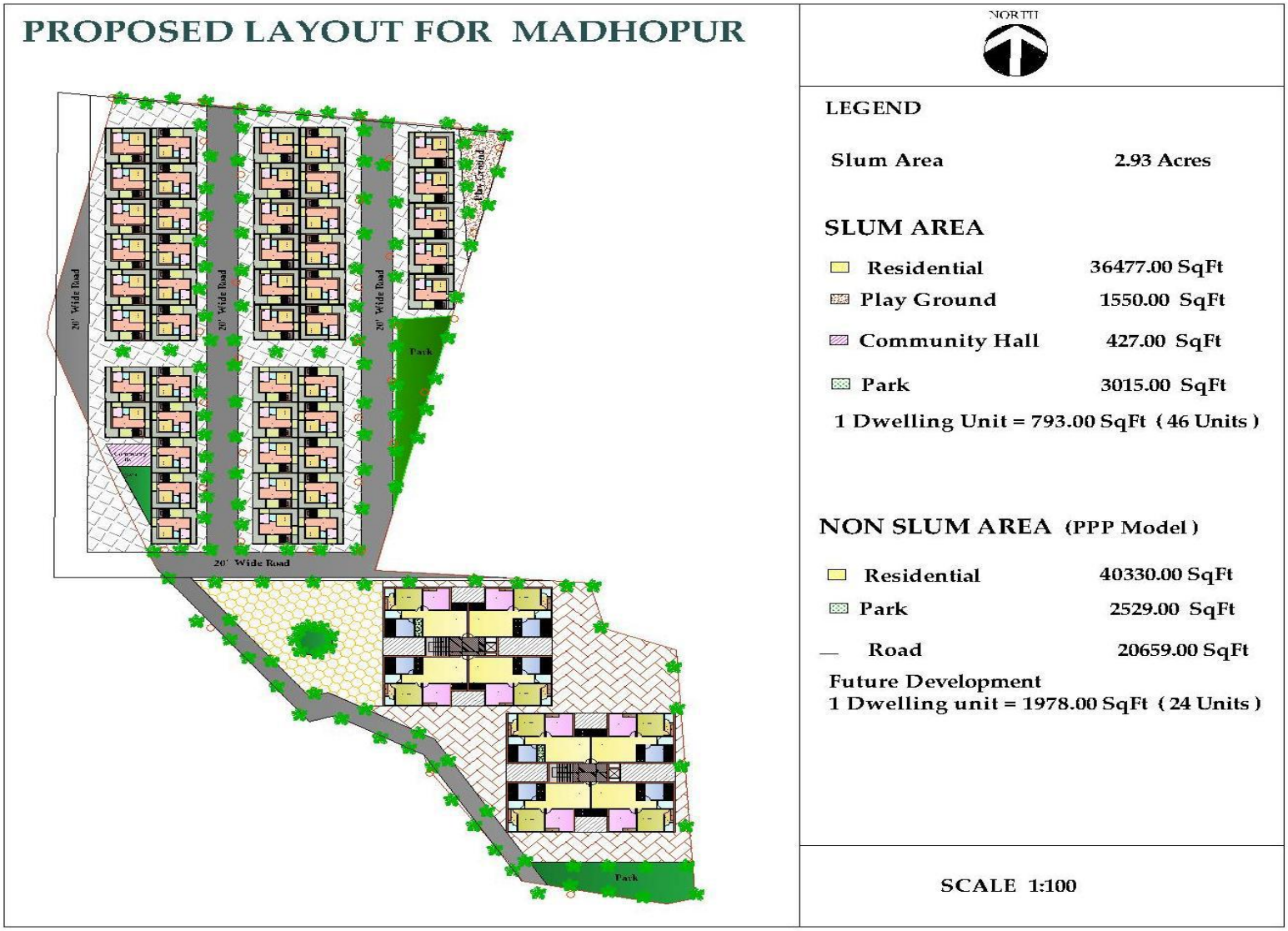
Description	Area (Sq.ft)
Slum Area	2.93 Acres
Proposed Slum Area	36477.00
Residential Area	40330.00
Commercial use	427.00
Park	5429.00
Roads	1550.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 40330.00 Sq.ft of land is allocated for regular residential, and 15% for roads has been reserved .Under this model, potential business opportunities can be created as well as better access to improved infrastructure, thus fostering **Madhopur** slum development in the long run.

Physical Infrastructure

- **Roads** - B.T. are proposed as per the requirement
- **Surface** / **storm water drains** -RCC U-Shape drains are proposed on both sides of the road to drain out the Surface water as per the site requirement.
- **Sewerage** -Provision for sewerage distribution system has been made and the same will be connected to main Sewer line nearby wherever sewer facility is available.
- **Water Supply** -water supply distribution network linked to city wide has been proposed as per the requirement and individual sumps and overhead tanks have also been proposed.
- **Electricity -**Lump sum provision for layout electrification has been made along with provision for individual house connection. Obtaining the electricity Service Connection will be the responsibility of the dweller and observing the necessary formalities by metering. The houses will be provided with internal and external wiring for getting service connection from the electricity authorities concerned.

The following page presents the model layout for **Madhopur** slum:



Map 6-3 : Proposed Layout for Madhopur

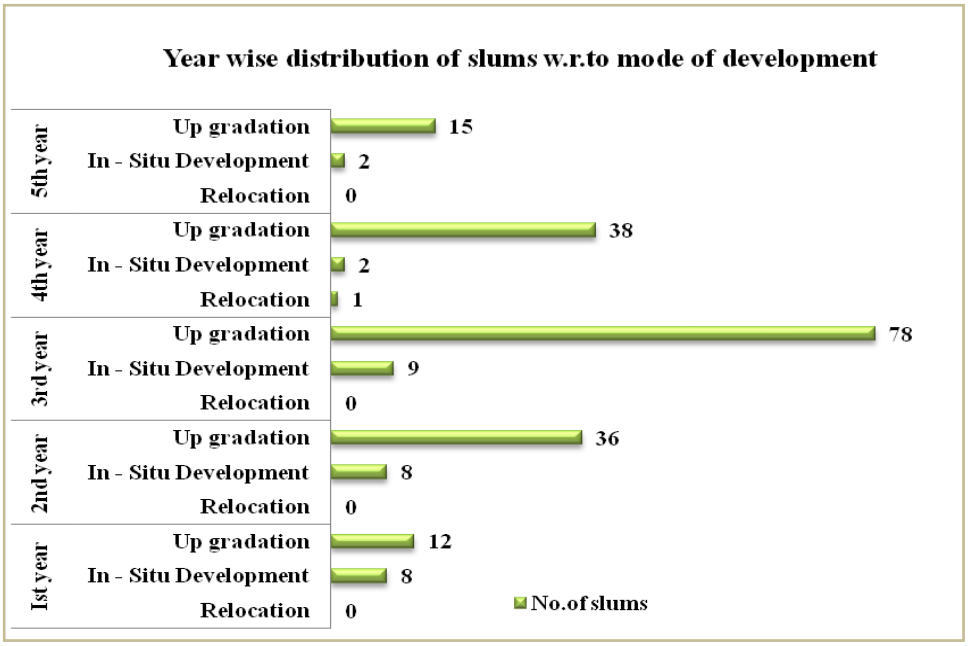
Rental Housing

Rental housing shall be developed in partnership with the private sector and ULBs may determine rents to be paid by the households. Families may also contribute to a maintenance fund. Both amounts shall be based on an assessment of affordability by the ULB. Developers, where applicable, may be permitted to collect rentals to recover the cost of construction in BOT arrangements, as appropriate. Maintenance charges may be collected by the cooperative/Resident Welfare Association/land trust, as the case may be. The following are the list of options available under rental housing:

- Rental housing by employers/industries/SEZ - Employees housing for high paid employees
- Rental housing by employers/industries/SEZ - Employees housing for low paid employees
- Dormitory housing
- Subsidy housing / FAR incentive
- Others- Group housing

6.3.2 Targets & Timelines

Figure 6-1 : Mode of Development



As seen in the slums in Varanasi city, 29 slums are proposed under in-situ mode of development, 179 for up-gradation and only one slum for Relocation based on assessment of the living conditions in those areas. Given the magnitude of problems faced, the slums have been prioritized and to be implemented year wise respectively. Once the redevelopment process is initiated, it is imperative that slum wise targets should be set and adhered in order for the rehabilitation process to be accomplished within the set time frame. For this to happen, it is necessary that there needs to be high level coordinating mechanism between wide group of stakeholders such as Govt. officials, professionals from different disciplines, NGOs/CBOs, and slum dwellers.

6.4 Investment requirements

6.4.1 Housing

The following table shows the finance costing for projected households for 5 years (2013-2018).

Table 6-4 : Costing for projected Households

Costing for projected households		
Year	**Households**	**Estimated cost (in ` Lakhs)**
2013-14	685	2085.83
2014-15	690	2206.10
2015-16	698	2343.26
2016-17	700	2464.00
2017-18	707	2616.76
Total	**3480**	**11715.95**

As seen in the above table, an increase of 3480 households is expected, for which the estimated costs for 5 years is **11715.95** lakhs with an increase of **5%** (construction inflation cost) per year.

6.4.2 Infrastructure

For the purpose of calculations, the following factors were taken into consideration:

- For sanitation, the total city wide trunk is considered to be as 1% of the total project cost
- For roads, costs was calculated for non Motorable Pucca and katcha roads at the new formation costs, while for Motorable katcha the costs was calculated at re-carpeting and repair rates.
- For in situ/ relocation mode of development – the costs are almost equal to construction a new layout.
- For up-gradation – equivalent to renovation costs.

The following table shows the estimated costs for physical infrastructure components for a period of 5 years (2013-2018).

Table 6-5 : Costing for projected Infrastructure

S. No	Sector	Sector - Unit	Cost for 2013-18 (in ` lakhs)
Physical Infrastructure			
1	Water Supply	Running length of sub line (Km)	185.83
		Raising Main (Km)	14.62
		Individual taps (No)	0
		Overhead water tanks (No)	126.00
		Sub Total	**326.46**
2	Sanitation	Length of Underground Sewer Line (Km)	619.31
		Length of storm water Drainage Lines (Km)	619.31
		Individual toilets (No)	0
		Sub Total	**1238.62**
3	Solid waste management	Garbage dumping Bins (No)	9.74
		Sub Total	**9.74**
4	Roads	Length of main roads (Km)	11.00
		Length of internal roads (Km)	474.01
		Sub Total	**485.01**
5	Street Lighting	Street lights (No)	131.32
		Sub Total	**131.32**
Total Physical Infrastructure			**2,191.15**
Social Infrastructure			
6	Education facilities	Anganwadi (No)	24.53
		Primary school (No)	10.25
		High school (No)	22.05
		Sub Total	**56.83**
7	Health Facilities	Primary Health Centre (No)	3.78
		Sub Total	**3.78**
8	Social development	Community Room (No)	19.00
		Recreation park (sq.mts)	39.09
		Sub Total	**58.09**
Total Social Infrastructure			**118.70**
Grand Total Cost (Physical + Social) for Infrastructure			**2,309.85**

6.4.3 Other costs

The following table shows the estimated costs for additional components and other costs for Varanasi slums for a period of 5 years (2013-2018):

Table 6-6 : Proposed Operation & Maintenance

Proposed Other cost (in ` lakhs)						
Year	**O & M**	**DPR**	**Project implementation**	**Capacity building**	**Offsite costing**	**Total Other costs**
2013-14	56.10	28.05	28.05	28.05	28.05	**168.30**
2014-15	56.10	28.05	28.05	28.05	28.05	**168.30**
2015-16	56.10	28.05	28.05	28.05	28.05	**168.30**
2016-17	56.10	28.05	28.05	28.05	28.05	**168.30**
2017-18	56.10	28.05	28.05	28.05	28.05	**168.30**
Total	**280.50**	**140.25**	**140.25**	**140.25**	**140.25**	**841.50**

A total of **841.50** lakhs has been estimated for the additional costs that are going to be incurred during and after the implementation of the project.

Housing + Infrastructure +Operation and Maintenance = 11715.95+2309.85+ 841.50

= 14867.30 Lakhs

The total of **14867.30** lakhs has been estimated tentatively for the proposed development.

6.5 Slum Prevention Reforms

For any city, preventing the formation of newer slums is quite critical and pretty much the same as dealing with the existing slums. A key component in preventing future slums is the availability of developed lands at affordable prices, set aside for meeting the needs of the urban poor. To prevent further growth of slums and improve the social status of existing ones along with reconstruction, the states need to make the following provisions in terms of amendments to certain legislations, reservation of lands, as well as formulate newer laws such as:

a. Assignment of property rights

The property rights shall not be assigned to the slum dwellers in the slum Areas notified and located on any of the following categories:

Objectionable government lands, such as tank beds, burial grounds, solid waste land fill cities etc., central government, defense , industrial units, disputed lands, protected monuments, public sector lands and other lands which are specified by government for a specific purpose and usage.

The legal title should be entitled either on the woman or jointly with the main male householder, provided it should be made on the house or the land and it must be alienable as per the transfer of title to state after a certain period.

b. Formation of Slum Redevelopment Authorities

A slum redevelopment authority is to be created at state level with induction of members from various departments. The role of the authority would be to provide guidance in identification of slums, formulate policies and programmes for redevelopment and rehabilitation of slums, special zoning regulations and to administer the funds released by govt. of India, state govt. and other agencies. On similar lines of the slum redevelopment authority at state level, a district level authority can be formed to function as well as monitor the slum rehabilitation for each district.

c. Land Acquisition

Just in case where no suitable government or ULB lands are available, For implementation of Projects in Public Sector viz providing housing stock, State highways, canal, power and so on the process of land acquisition would be initiated by following the Rules & Regulations as provided in the Land Acquisition Act 1894, from the land owners. But the compensation of land would be fixed by mutual consent as per the provisions of the Uttar Pradesh Land Acquisition (Determination of Compensation and Declaration of Award by Agreement) Rules, 1997. Those land owners whose land is acquired for these projects would be given all the benefits of the Rehabilitation & Resettlement Policy 2010 (as amended) of the Government.

d. Land pooling

In land pooling/town planning scheme, the owner or developer undertaking the development shall reserve and earmark the land in the proportions of 5% for the economically weaker sections (EWS) and 5% of land for low income group persons for housing purpose. In case of vertical development, 20% of built up space shall be earmarked for EWS and low income groups.

Once implemented, in the long term, availability of affordable land /housing will discourage squatting by poor on public lands and create slum free cities. It will also sustainably reduce urban poverty levels by providing legal access to better services and economic opportunities.

e. Land use conversion and development permission process w.r.to time

It is generally abide by the master plan provision of that particular area; however the land use change and development permission process has to be dealt with in a time frame **30 days** by the development or controlling Authority, as per the norms of Town and country planning Department, Uttar Pradesh.

f. Building & Layout Plans of Regulated areas

The powers to formulate building bye laws lie in the municipal legislations/ acts of local government or development authority within its jurisdiction or the municipal acts of State Government. Formulation of building byelaws is generally facilitated by the provisions made under common municipal law/ act for the State, which also covers those urban areas that do not have separate building bye laws.

'NO OBJECTION' certificate for building plans having total covered area more than 250 Sq.m and Lay-out plans of more than 1.0 hectare area are also to be dealt with in a time frame of **30 days** by the development or controlling Authority, as per the norms of Town and country planning Department, Uttar Pradesh. However the Model building and layout plans prepared in this report are as per the standards of National building code.

g. Transferable Development Rights (TDR) /Incentive Zoning

TDR is aimed at providing to a land owner /builder additional FAR in another property/part of the city in exchange for presently occupied land so that the land could be consolidated. This method has been extensively used in other parts of India.

h. Microfinance for shelter up-gradation

To make cities slum free, it is necessary to build partnerships with Self Help Groups and Micro Finance Institutions both formal and informal to help poor access money to purchase land /houses. Often Financial Institutions prefer to provide loans through NGOs, who works as intermediaries, to disburse loan to beneficiaries. State/ city administration can facilitate this process by standing guarantee or by framing appropriate regulations so that benefits of these transactions reach the target group.

i. Other legislations

- Under the 7- Point Charter of JNNURM in order to make serviced land available for the poor for the future and to prevent slums – there is a necessity to reserve 10%--25% of the land for every new public/private housing projects.
- Amendment to enactments to enable revision of population density norms, FAR, land use, etc. and to allow private sector participation wherever reasonably possible.
- Extension of basic network services including health and education to slum settlements
- Provision of skills and training and nonwage, self employment assistance, the self-employment component in the SJSRY
- Microfinance for shelter up-gradation
- Changes in Master Plans that allows for slum renewal and redevelopment, legislation and building byelaws

j. ULB's role

The implementing agency/ULB would need to continue fiscal reforms that have already been initiated under the JNNURM and other relevant schemes. Approach to financing of the ULB contribution would need to be a combination of initiatives that ring-fence and maximize internal accruals, and developing a framework for sustainable community participation/ unlocking other sources of revenues.

6.6 Capacity Building

With the launch of RAY, capacity building efforts received a significant boost in terms of scale as well as scope. It is usually focused on provision of technical assistance, training and knowledge support to enable implementation of programmes and related components. Through incremental approach and comprehensive framework, capacity building requires in selecting the appropriate mode of training and should imply the flow of ideas, systems and processes, knowledge management through the creation of networks of sector managers for sharing emerging trends, ideas and best practices towards implementing slum free cities.

At State level,

The state needs to prepare state specific capacity building strategy should map existing arrangements/requirements/gap analysis/identify specific measures for strengthening existing facilities and expertise. This framework should incentivize knowledge and skill development and provide an environment for the use of skills acquired.

At ULB level,

Given the legal implications, it is essential for ULB staff to improve levels of performance in order to reduce evasion. Hence to gain expected outcomes, it is necessary for orienting ULB personnel to the role expected out of them in the context of rising expectations from the citizens in terms of service delivery, greater transparency and accountability etc.

At NGO's level,

Implementation of projects and reforms involves increased stakeholders participation among the general public, NGOs and the private sector. There is a need to create forums where different stakeholders can articulate their demands for better service delivery and governance levels.

Slum dwellers

Slum dwellers also act as stakeholders in planning for slums as they understand the slums, strategies implemented in those slums and future requirements. Hence they should be trained in developing their respective slums, otherwise the aims of SJSRY staff not be fulfilled.

An amount up to 5% of the total annual allocation of RAY scheme will be set aside for capacity building activities, of which 1% would be utilized by the Centre, 4% by the States/UTs. In addition, up to 5% of the total scheme allocation will be earmarked for preparatory activities regarding development of Slum-Free City Plans including pilot projects, preparation of DPRs, community mobilization, IEC, planning and administrative expenses for both the Centre and the States/UTs and creation of institutional space and capacities.

CHAPTER 7 - FINANCING STRATEGY

7.1 Touchstone Principles

7.1.1 Institutional Framework

A number of agencies are responsible for various activities pertaining to housing for urban poor. Although it is primarily the responsibility of the ULB, other departments/ agencies such as the Urban Development Department, Town Planning Department Slum Clearance (or Redevelopment) Board, Housing Board and NGOs, all have a role to play in provision of housing and infrastructure services to the urban poor.

The following institutional methodology has been adopted for the state.

The institutional responsibility for slum improvement vests with the State Urban Development Agency (SUDA), the apex policy making and monitoring agency for urban areas in the state. It executes various government schemes for urban renewal like – Balmiki Ambedkar Awas Yojana, Integrated Urban Slum Sewerage Plan, National Slum Development Program, and Golden Jubilee Urban Employment Scheme etc. SUDA executes all its programs using beneficiaries for prioritization of needs and execution of schemes.

In case of Rajiv Awas Yojana, SUDA is the nodal agency at state level to implement surveys for the scheme. As per the directions of Government of India, Slum Survey started in Uttar Pradesh from the year 2009. Initially the survey was taken up under USHA programme, which had similar survey format of RAY. Various meetings were conducted by calling different para-statal agencies to discuss the required methodology for conducting surveys and initiate the steps for survey. Several discussions were held at length and depth about the conduction of surveys and to finalize a methodology.

SUDA as State level authority and DUDA as city level authority have been the Nodal agencies to monitor the quantity and quality of surveys performed by individual cities. DUDA is headed by Project Officer (PO) who is in charge for one city, a nodal officer for a ULB and number of supervisors for quality and quantity check upon the enumerators who have completed the surveys. Member of Community Development Societies (CDS), Self Help Groups constituted under SJSRY and other schemes have been involved in conducting surveys and a minimum qualification of SSC was taken as eligibility for selecting Enumerators to collect information and to fill up the survey forms. The various stakeholders involved in the survey process comprised of CDS, Nehru Yuva Kendra societies, NGO's working in the local areas. In addition, key stakeholders involved along with SUDA in the process of implementing RAY scheme comprises of City Commissioners, Regional Center for Urban and Environmental Studies (RCUES) Hyderabad, UP Remote Sensing Center, NHG's, NHC's, CDS and reputed NGO's working in the local areas.

7.1.2 Assessment of Implementation Options

The assessment for implementing a mode of development for any slum in Varanasi city would be based on the prevailing land value. The implementation could be both public and private depending on the public and stakeholders consensus with due approval of the city with respect to its land ownership and project implementation.

7.2 Investment creation for creation of new affordable housing including rental housing

Earmarking land for the poor alone may not be sufficient guarantee that land /housing will be available to the poor. There will be need to help the poor access this land. This will require creating awareness among the poor on where the lands have been allocated, include their development in the Ward Plans, tap potential of local /small private builders for housing the poor, engage with local NGOs to increase the voice of poor in local area planning and access to city resources.

The ULB's has to strictly execute the mandatory reform of "Earmarking at least 20-25 percent of developed land in all housing projects (developed by public and private agencies) for Economically Weaker Section (EWS) and Lower Income Group (LIG) category with a system of cross subsidization"

Under the Community Participation Law, ULBs are expected to set up Ward and Area Sabhas with adequate representation of poor people. These may be used as opportunities to proactively disclose the upcoming housing projects for poor within the city. This would also fit in with the provisions of the Public Disclosure Law.

Apart from large Public Private Partnerships, cities must also forge partnerships with Self Help Groups and Micro Finance Institutions both formal and informal to help poor access money to purchase land /houses. Often Financial Institutions prefer to provide loans through NGOs, who works as intermediaries, to disburse loan to beneficiaries. State/ city administration can facilitate this process by standing guarantee or by framing appropriate regulations so that benefits of these transactions reach the target group.

7.3 Financing Plan

7.3.1 Summary of Investments

Table 7-1 : Summary Investments (in lakhs)

Sector	Estimated costing for existing slums	Estimated costing for prevention of new slums	Total Project Cost
Housing	98739.62	11715.95	**110455.57**
Water Supply	2994.02	326.46	**3320.48**
Sanitation	11839.71	1238.62	**13078.33**
Solid waste management	243.56	9.74	**253.3**
Roads	5418.75	485.01	**5903.76**
Street Lighting	235.77	131.32	**367.09**
Education	163.39	56.83	**220.22**
Health	0	3.78	**3.78**
Social development	742.12	58.09	**800.21**
Others	7222.62	841.50	**8064.12**
Total	**127599.57**	**14867.30**	**142466.86**

The present plan of action is proposed the investment details in two options i.e. estimated existing costing **(1275.99 Crores)** and cost for prevention of new slums (**148.67 Crores).** Hence, the total Project cost is **1424.66 Crores.**

For slum wise line estimates please refer annexure 2E

7.3.2 Financing Structure

Implementing slum free city requires the concerned authorities to develop a legal framework based policy for internal earmarking of funds, ensuring the preparation of separate budget for urban poor, creating BSUP Fund etc.

Chart 7-1 : Financing Structure

a. Central Share

Speaking of the Government of India share in RAY project funding, 50% of the cost for provision of basic civic and social infrastructure and housing, including rental housing,- and transit housing for in-situ redevelopment -in slums would be borne by the Centre, including O&M of assets created under RAY scheme. The remaining half required the states or ULBs to use PPP models innovatively to generate resources for slum housing through land use concessions, etc to the private industry partners, and use of the central share as viability gap funding. States which demonstrate an innovative use of PPP models resulting in utilization of less than the specified central share of 50% in any project shall be incentivized by allowing them to use this saving in other projects in the city.

An amount of nearly 5% of the total annual allocation would be set aside for capacity building activities, of which 1% would be utilized by the Centre, 4% by the States/UTs. In addition, upto 5% of the total scheme allocation will be earmarked for, preparatory activities regarding development of Slum-Free City Plans including pilot projects, preparation of DPRs, Community mobilization, IEC, planning and administrative expenses.

b. Beneficiary Contribution

In order to ensure the communities interest and active participation, financial contribution by the beneficiaries is considered to be critical. As specified, the share of beneficiary contribution in the housing sector is anticipated to be a minimum of 12% of total cost and 10% in case of different social groups and other weaker sections. Options such as aggregation of loans to a community of beneficiaries wherever feasible, will be encouraged. Adequate security and credit enabling structures for such participation including mortgage insurance would need to be structured and made available

to the beneficiaries. The option of linking to the Mortgage Risk Guarantee Fund (MRGF) to which the State has to contribute could be explored.

There are various initiatives that can be undertaken by the States/ ULBs to facilitate beneficiary contribution and to make finances available during the 5 year span of the RAY scheme. These include the following:

- Facilitating long-term concessional interest rate/differential interest rates to the beneficiaries
- Access to microfinance and alternate funding options
- Rajiv Awas Shelter Fund, to be used:
- To keep the slum/urban poor beneficiary from turning defaulter due to unemployment, death or other genuine distress and thereby risk forfeiture of dwelling unit and foreclosure on loan
- To share the lender's costs of servicing the loan.

7.3.3 Strategy for Sustenance

Local bodies need to explore options for raising finance through other avenues such as PPP, shared mortgage and pooled financing mechanisms. For sustenance, it is essential for a ULB to prioritize in a way that the maximum benefit is derived for the investments proposed to be made for implementing development works and service delivery for slums. This can be achieved only through beneficiary participation and consensus.

7.3.4 ULB Finances

To undertake financing for slum rehabilitation, ULBs need to adopt a different approach or a well designed strategy for financing by:

- Internal earmarking of funds for RAY in the municipal budgets., allocation of available surplus for slum rehabilitation under RAY
- Earmarking of property taxes, trade license fee, hawker-license fees, SWM cess etc.,
- Share of other devolutions, whenever applicable
- Proceeds from PPP projects
- Unlocking alternate revenues, using land based instruments such as FSI, TDR, land banking etc.

The reforms/other initiatives that ULBs would need to evaluate include the following:

- Setting up of a revolving fund for continued O & M of the infrastructure & housing
- Evaluate and converge with other existing schemes, as applicable.

7.3.5 Earmarking for Slum Rehabilitation & Prevention Strategy

For all new housing projects developed by public or private agencies, it would be mandatory to construct houses for LIG/EWS groups. Suitable amendment may be made to State/local enactments for this purpose. The percentage of housing units to be earmarked for LIG/EWS in apartments or group housing projects in large and small cities will be between 20-25% as prescribed under RAY. In case of vertical development, 20% of built up space shall be earmarked for economically weaker sections and low income groups of persons.

7.3.6 Community Participation

Community participation is critical for a successful slum rehabilitation and development. ULBs need to ensure that appropriate community processes and organization of community structures for planning and implementation of housing and upgrading projects. In addition, the local bodies need to facilitate Area and Ward Committees with representation of slum communities, in accordance with the Community Participation Law for participatory area and ward level planning and monitoring.

7.4 Monitoring & Review

RAY would be monitored at three levels: City, State and Government of India. The following agencies and departments would be monitoring at their respective levels:

- Ministry of Housing and Urban Poverty Alleviation will periodically monitor the scheme.
- State Nodal Agency would send Quarterly Progress Report (on-line) to the Ministry of Housing and Urban Poverty Alleviation. Upon completion of a project, the State Nodal Agency, through the State Government, would submit completion report to the Central Government.
- Central Sanctioning-cum-Monitoring Committee will meet as often as required to sanction and review/monitor the progress of projects sanctioned under the Mission.
- Monitoring of quality of projects executed by the implementing agencies in the States/Cities will be facilitated through independent quality control/ assurance/ third party teams at various levels that may be outsourced to specialized/technical agencies.
- Monitoring of projects by States/Urban Local Bodies by conducting Social Audit in conformity with guidelines to be prescribed, right from the stage of project preparation.
- The processes of implementation will be monitored by undertaking concurrent evaluation through reputed independent institutions to ensure that corrections to distortions, oversights or shortcomings can be made in time.

7.5 Reforms

Major Policy Initiatives & Reforms initiated in order to unlock land, acquiring land and liberalizing building approval plans for EWS/LIG housing etc, credit options for urban poor under SUHP-1995 are as follows.

- Model Building Bye-laws-2000
- Land Use Conversion Policy-2001
- Model Zoning Regulations – 2002
- EWS & LIG Housing Policy-2011
- Land Acquisition Bill-2011

During 11th five year plan a total of 10.45 lac houses were constructed, in which public and co-operative sectors were able to release 2.59 lac, private sector contributed 5.20 lac houses and under BSUP & IHSDP 0.98 lac houses were constructed, etc. EWS & LIG housing constituted about 70% of the total units provided by the Public Sector Agencies

A draft slum free act has been already in place in state of Uttar Pradesh. ULB/State Govt. agencies need to suggest the sequencing of steps and timelines to be adopted during implementation of slum redevelopment programmes for a period of five years.

LIST OF ANNEXURES

List of Participants of stakeholder meeting held on 30th May, 2013 in Nagar Nigam, Varanasi

राजीव आवास योजनान्तर्गत स्लम फ्री सिटी बनाये जाने के सम्बन्ध में दिनांक 30.05.2013 को नगर निगम कार्यकारिणी कक्ष में सूडा द्वारा आयोजित कार्यशाला में उपस्थित अधिकारीगण

क्रमांक	नाम	पदनाम	मो0नं0	ई–मेल आइ0डी0	हस्ताक्षर
1.	[illegible]	सहायक	9415204864		
2.	आर॰पी॰ सिंह	नगर आयुक्त	7800000900	Singhrpvns@gmail.com	
3.	[illegible]	अपर नगर आयुक्त	8601872600	nagarnigamvns@gmail.com	
4.	कंचन सिंह परिहार	परियोजना अधिकारी जेएनएनयूआरएम	9415892990	Kanchan Singh Parihar@gmail.com	
5.	सुनील कुमार सिंह	सहायक अभियन्ता	9415212419	sunil.singhvns@gmail.com	
6.	अतुल कुमार श्रीवास्तव	[illegible]	9450433904		
7.	कमलेन्द्र नाथ दुबे	सह॰ परियोजना अधि॰ सूडा	8765870466		
8.	ज0 कमल कुमार सिंह	पराभर्शी	9336044484	Ksingh29@rediffmail.com	
9.	M. Rama Rao.	Project Head, FWEI, Hyderabad.	9885833393	rammadwri@gmail.com	
10.	Abhay Kumar	J.E. Nagar Nigam	9415373679	Abhay [illegible]	
11.	[illegible]	[illegible]	8601872637	.	
12.	Priyanka Maurya	Parshad	9305339184	30/05/2013	
13.	[illegible]	[illegible] VMC	8601872605		

राजीव आवास योजनान्तर्गत स्लम फ्री सिटी बनाये जाने के सम्बन्ध में दिनांक 30.05.2013 को नगर निगम कार्यकारिणी कक्ष में सुडा द्वारा आयोजित कार्यशाला में उपस्थित अधिकारीगण

कमांक	नाम	पदनाम	मो0नं0	ई–मेल आइ0डी0	हस्ताक्षर
14	Shweta Singh	HRD, PIU, JNNURM	9455330019		Sdingh
15.	S.K. Tripathi	E.O. PIU, JNNURM	9450785493		
16.	AJAY KUMAR	URBAN PLANNER	9451313984		
17.	Anoop Kr. Verma	Computer Operator	9415223058		
18.	Harishchandra	Amin	7607172267		
19.	रामवती देवी	पार्षद प्रतिनिधि	9450531924		रामवती
20.	Jamal Ahmad	वार्ड 25 पार्षद प्रतिनिधि	8799095743		Jamal Ahmad
21.	अरविन्द कुमार	वार्ड 25 शैलजा खाद्धा	7505659578		
22.					
23.					
24.					
25.					30/05/2013
26.					

LIST OF ANNEXURES 1 & 2

SLUM PROFILE

(DATA ANALYSIS AND PROPOSALS)

Annexure 1A
Annexure 1B
Annexure 1C
Annexure 1D
Annexure 1E
Annexure 1F
Annexure 2A
Annexure 2B
Annexure 2C
Annexure 2D
Annexure 2E