Slum Free City Planning: Meerut city

Regional Centre for Urban and Environmental Studies
(Sponsored by Ministry of Urban Development, Govt.of India)
Osmania University, Hyderabad – 500 007

CONTENTS

LIST OF TABLES

LIST OF CHARTS

LIST OF FIGURES

LIST OF PICTURES

LIST OF MAPS

ACRONYMS

BPL - Below Poverty Line

BSUP – Basic Services to Urban Poor

CBD – Central business district

CBO – Community Based Organization

CCA – Compensatory City Allowance

CDP – City Development Plan

CDS – Community Development Societies

CGG – Center for Good Governance

CO – Community Officer

DPR – Detail Project Report

DU – Dwelling Unit

DUDA – District Urban Development Authority

EWS – Economically Weaker Section

FAR- Floor Area Ratio

FSI – Floor Space Index

GIS – Geographic Information System

GoI- Government of India

HH's - Households

HRA – House Rent Allowance

HUDCO – Housing & Urban Development Corporation Ltd.

IHSDP – Integrated Housing and Slum Development Programme

JnNURM – Jawaharlal Nehru National Urban Renewal Mission

LDPE – Low Density Polyethylene

LIG – Low Income Group

LPCD- Litre 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

MNN - Meerut Nagar Nigam

MDA – Meerut Development Authority

NCR – National Capital Region

NGO's – Non Governmental Organizations

NHC – Neighborhood Communities

NHG – Neighborhood Group

NNRC – National Network Resource Center

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 & Environmental Studies

RCV – Resident Community Volunteers

SFPoA – Slum Free Plan of Action

SHG- Self Help Group

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 Authority

TDR – Transferable Development Right

TPIMA – Third Party Inspection & Monitoring Agency

UCDN – Urban Community Development Network

UDPFI – Urban Development Plan Formulation & Implementation

ULB – Urban Local Body

UPHDB – The Uttar Pradesh Housing and Development Board

UPJN – Uttar Pradesh Jal Nigam

UPRSAC- Utter Pradesh Remote Sensing Application Center

USHA – Urban Statistics for Human Resource & Assessment

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, benefiting 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, MoHUPA 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 aspect 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 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 Plan of Action (SFCPoA), Community Mobilization, MIS and GIS. The states have to pass legislation for the assignment of property rights to the slum dwellers, and take steps to prevent new slums.

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 Meerut is selected as one of the Pilot Cities for the development of 185 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 Meerut** as a preventive measure. The report contains 7 chapters namely, ***SFCPoA Initial Framework, City Profile & Institutional 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 Meerut.

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 Meerut

Meerut being a major industrial and one of the fastest growing cities in the state of Uttar Pradesh as well as in India has 185 slums housing about 722281 people. The entire slum population is residing in 130549 households, of which 33 % of the dwelling units are semi-pucca and 19% with katcha housing. On the demographic front, BPL population forms 45% of the total slum population where 81% belongs to SC and other back ward sections of social classification.From amenities view, 64% of slums do not have access drinking water sources and 72% slums lack connectivity to storm water drainage system. The plan of action provides the Line estimates for housing and infrastructure gaps and proposes all civic amenities as per RAY guidelines and the report calls for an immediate 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 Puducherry 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 Meerut 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, which constitute more than 44 million. 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 MEERUT

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

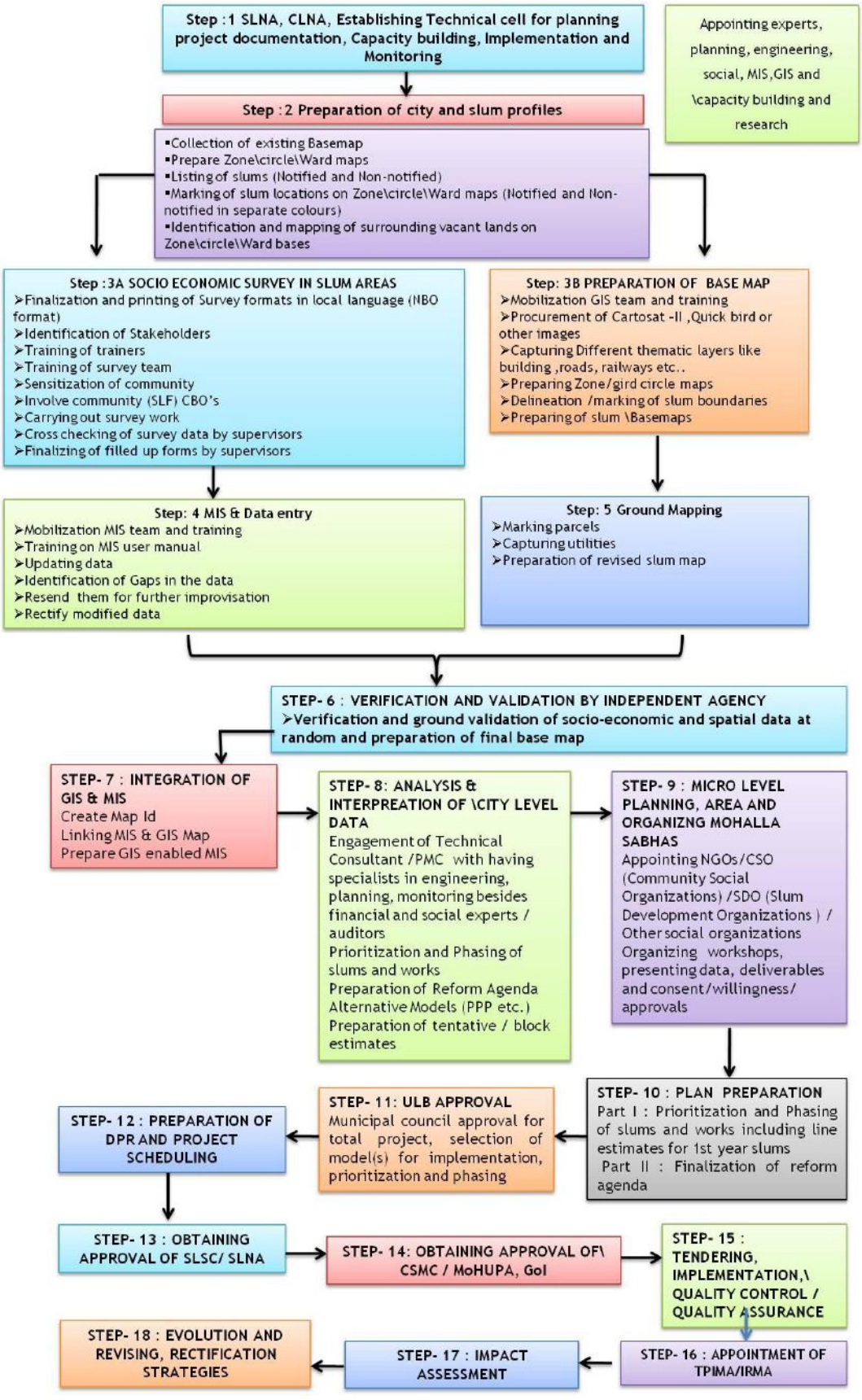


Chart 1- 1 : SFCPoA Methodology for Meerut

1.5 SURVEYS, INVESTIGATIONS & CONSULTATIONS

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.

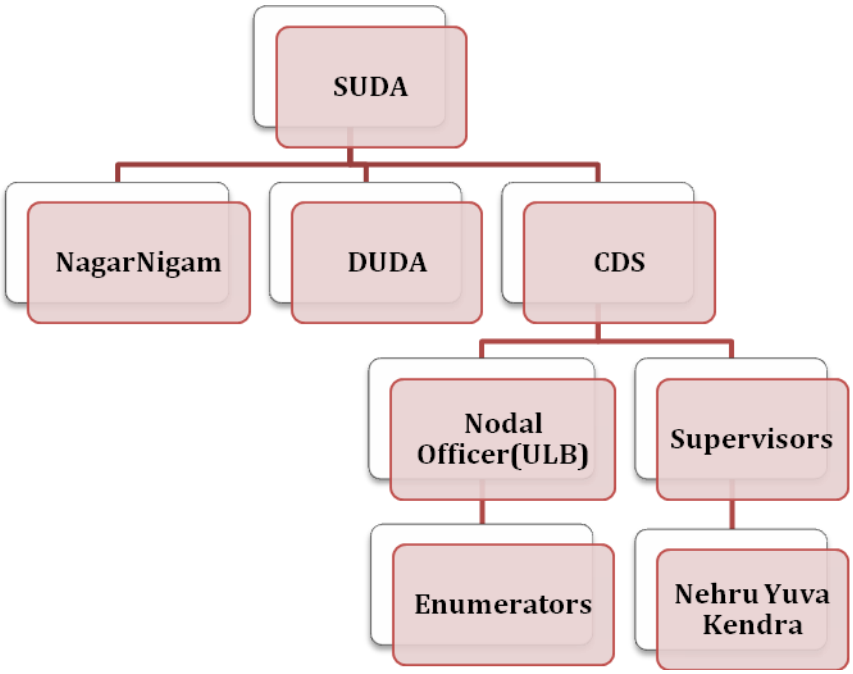


Chart 1- 2 : Agencies & Stakeholders involved

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.

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 Meerut 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 other 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 Palika/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 considered for preparation of Slum Free City Plan of Action is confirmed with the DUDA, Nagar Nigam, ward corporations, NGOs at the time of carrying out primary surveys and later during consultative stakeholder workshop.

1.6 STAKEHOLDERS CONSULTATIVE WORKSHOP/MEETING

As part of preparation of Slum Free City Plan of Action (SFCPoA), a consultative stakeholder meeting/workshop in Meerut city is held on 24th May 2013 at Town hall in Meerut from 11 AM. The objective of the meeting was to discuss about the draft Plan of Action, review upon the gap assessment analysis for the city, receiving suggestions from stakeholders.

The meeting was chaired by Shri Harikant Ahluwalia, Mayor of Meerut city along with Shri Abdul Samad, Municipal Commissioner, Meerut Nagar Nigam, Shri Navdeep Reenawa, DM, Meerut Nagar Nigam, Shri SK Dubey, Vashney Kil Bhusan, Chief Engineer, Meerut Nagar Nigam. Shri Kamal Kumar Singh,Consultant, SUDA, Lucknow, Smt.Saraswati Singh, Project Coordinator, DUDA, 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 Meerut Nagar Nigam, District Development Authority, water supply board, ward corporators, local NGOs, various other public representatives, slum dwellers, few residents from the city, print and electronic media representatives.

The meeting started at 11am in the Town hall at Meerut 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.

Shri.M.Rama Rao, RCUES, Hyderabad detailed the step by step methodology followed for preparation of Slum Free City Plan of Action. 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 Meerut city to make it slum free.

The ward wise details of the each and every slum with respect to physical characteristics, demography, housing, existing status and findings in key infrastructure like water supply, sanitation, solid waste, roads, street lighting, education, health and community welfare facilities were shown to the stakeholders.

1.6.1 Suggestions from People attended the Meeting

1. Sabasat Khan, resident of ward No.72 suggested that slum data has to be published separately for each ward and has to be circulated to ward corporations, so that the data can be checked and rectification can be done in case of any mistakes.
2. Ravinder Tiwatiya said the there should be efficient co-ordination between different agencies involved in the project.
3. Anil, resident of ward No.68, said that the water supply and drainage has to be addressed prior as these two are the major problems facing by majority of the slum dwellers as well as the residents of Meerut.
4. Vijayanand, resident of ward No.51 suggested that while planning for slum re-development, 2-3 nearby slums settlements can be accommodated in same area so that the use of resources can be minimized.
5. Smt.Rekha walia, representative of Rinki Memorial Sewa Samsthan, ward No.24 said that the slums in the city don't have any play grounds for the children. She suggested that the playgrounds has to be planned while designing for slum layouts
6. Wasim Gaji, Ward Corporator, ward No.24 suggested that the slums located in the core city has to dealt first as they are in bad condition compared to slums located in fringe areas.
7. Jahid Ansari said that the local residents have to be involved while carrying out slum surveys and the data has to be certified by the ward corporator.

The meeting ended with the vote of thanks proposed by Smt.Saraswati Singh, 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. The aspect of water supply and drainage would be dealt as priority areas \
3. The suggestion for upgrading the slums situated in core city in the initial phases is considered.
4. The consultation with ward level committees would be done, once the ward level committees are created by DUDA and Nagar Nigam.

Please refer the Annexure for the list of participants attended for the Stakeholder meeting / workshop

CHAPTER 2 – CITY PROILE

2.1 INTRODUCTION

Meerut city is the administrative head quarters of Meerut district of Uttar Pradesh state. It is an ancient city with settlements dating back to the Indus Valley civilization having been found in and around the area. The city has the one of the largest army cantonment in the country. The city is one of the largest producers of sports goods, and the largest producer of musical instruments in India. It is also the largest producers of bicycle rickshaw in world. The city is also an education hub in western Uttar Pradesh. The city is the second largest city under National Capital Region (NCR).

2.2 PHYSICAL CHARACTERISTICS OF THE CITY

2.2.1 Location

Meerut district is the part of upper Gagna-Yamuna doaba, which lies between 28° 47' and 29° 18' north latitudes and between 77° 7' and 78° 7' east longitudes. The city is situated at a distance of only 70 Kms from the National Capital of India, New Delhi.

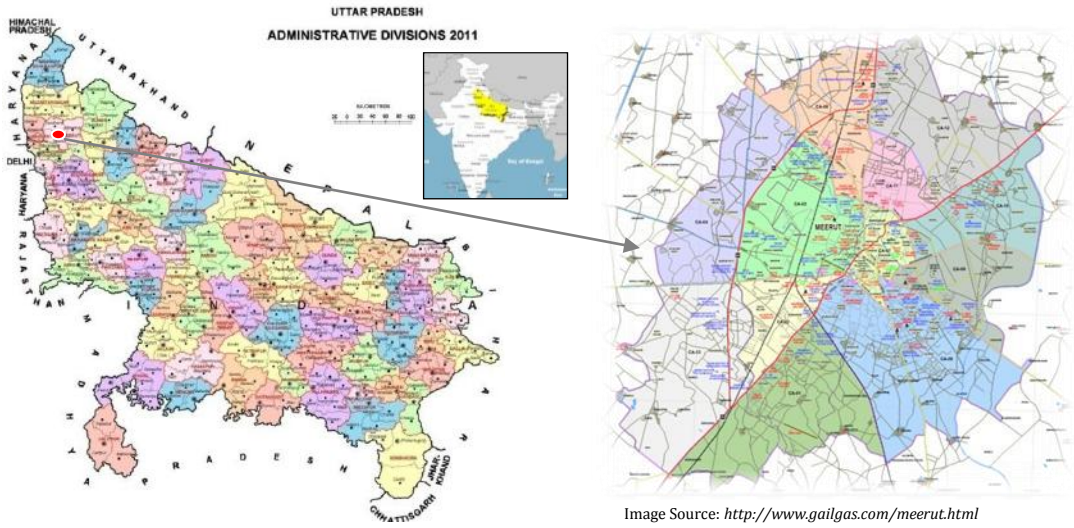


Image Source: *http://www.gailgas.com/meerut.html*

Picture 2- 1 : Location of Meerut city in Uttar Pradesh state

2.2.2 Geography

The city lies between the plains of Ganga and Yamuna. The ground is not rocky and there are no mountains. The soil is composed of Pleistocene and sub-recent alluvial sediments transported and deposited by river action from the Himalayan region. These alluvial deposits are unconsolidated. Land is very fertile for growing crops, especially wheat, sugarcane and vegetables.

2.2.3 Climate and Rainfall

Meerut has a monsoon influenced humid subtropical climate characterized by very hot summers and cool winters. Summers last from early April to late June during and are

extremely hot, with temperatures reaching 43 °C. The monsoon arrives in late June and continues till the middle of September. Temperatures drop slightly, with plenty of cloud cover but with higher humidity.

Temperatures rise again in October and the city then has a mild, dry winter season from late October to the middle of March. Lowest temperature recorded is 0.5 °C. Rainfall is about 80 cm to 100 cm per annum, which is suitable for growing crops. Most of the rainfall is received during the monsoon. Humidity varies in a range from 30% to 100%.

2.2.4 Regional Setting and Connectivity

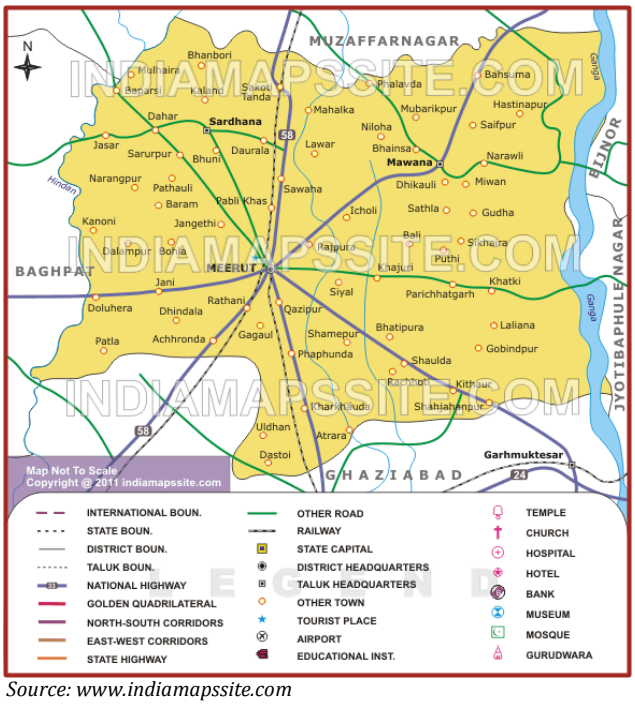
The Meerut district is bounded by Muzaffarnagar district; in the south by Bulandshahar district while Ghaziabad and Baghpat districts form the southern and western limits. Ganga River makes its boundary in the east direction a separates it from the districts of Moradabad and Bijnor. Hindon River makes its western Boundary in the west and separates it from the Baghpat district.

The city lies south of the cantonment, and owes its modern importance to its selection by the British government as the site of a great military station. The cantonment, established in 1806, was the headquarters of the 7th division of the northern army. The administration of the cantonment area and running of its urban and other functions is still outside the jurisdiction of Meerut Nagar Nigam.

Being part of Nation Capital Region Meerut plays a major role in contribution towards overall economic development of the region. By road, Meerut city is well-connected to major cities like Delhi, Noida, Faridabad, Ghaziabad, Haridwar, and other cities. A large number of people commute to Delhi, Noida, Greater Noida, Ghaziabad and Gurgaon every day for work. There are 3 national highways (NH 58, NH-119 & NH-235) that pass through Meerut.

Meerut has seven railway stations namely Meerut City, Meerut Cantonment, Partapur, Sakoti Tanda,Daurala,Mohiuddinnpur and Pabli Khas of which the City station is the busiest station all the time. Meerut Cantonment station was founded in 1865 and serves as a secondary railway station. Meerut lies on Delhi – Saharanpur railway line. The Indira Gandhi International Airport located at New Delhi is the nearest International Airport to the city.

NCR board is strengthening the financial aspect of the city with main emphasis on the proposal of Ghaziabad - Meerut Express way for improving the road connectivity of the city.



Source: www.indiamapssite.com

Picture 2- 2 : Regional Linkage of Meerut District

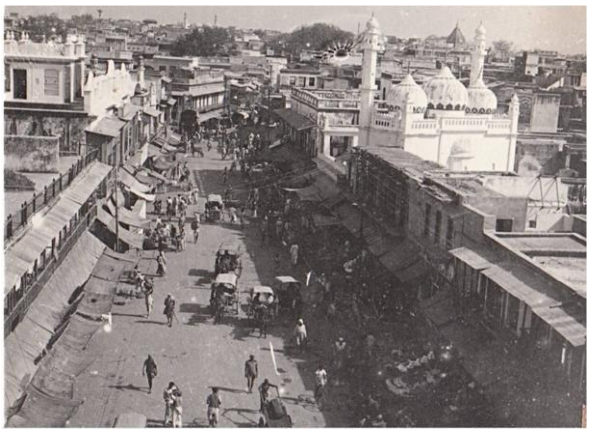
Consideration of proposing Integrated Rail-Bus Transit system and Rapid Rail Transit System for Meerut is under process for improving the connectivity and accessibility of Meerut city.

Picture 2- 3 : Ghanta Ghar, Meerut

Picture 2- 4 : St.John's Church, Meerut

2.2.5 History

Dating back to history, it is believed that Meerut may have derived its name from Maya Rashtra, the capital of the kingdom of Ravana's father-in-law, Mayasura and later the name mutated to Mairashtra, Mai-dant-ka-khera, Mairaath and then eventually Meerut. Another version says that Maya, a distinguished architect, got from king Yudhishther the land on which the city of Meerut now stands and he called this place Mairashtra, a name which in course of time became shortened to Meerut. After the archaeological excavations at 'Vidura-ka-tila', a collection of several mounds, in 1950–52, a site 37 km north-east of Meerut, it was concluded to be remains of the ancient city of Hastinapur, the capital of Kauravas and Pandavas of *Mahabharata*, which was washed away by Ganges floods.



Picture 2- 5 : View of Meerut City in 1943

Picture 2- 6 : Meerut Memorial of 1857

The city is the gateway to Hastinapur, one of the earliest Indian cities like Ayodhya, Kashi which was the capital of the Kauravas and Pandavas during Mahabharata times. Meerut is also believed to have been an important centre of Buddhism during the time of Ashoka. Meerut is famously associated with igniting the spark of first Freedom struggle in 1857 against East India Company, which transformed into a great revolution later. Meerut cantonment is the place where the movement started.

Presently, the city as such does not have any specific heritage site, However the entire region within 40 kms of radius from the city is dotted with places of religious, tourist and historical importance, Buddhist and Jain shrines, which can transform the area into a major tourist destination in the years to come if proper infrastructure is developed for this purpose coupled with sound upkeep of the sites and adequate marketing strategies.

2.3 SOCIAL AND DEMOGRAPHIC PROFILE

2.3.1 City Population

The population of Meerut city (Nagar Nigam) as per 2011 census is 12, 15,339. Considering the population statistics from the last century, the city faced highest decrease of population in the decade 1921-1931 and thereafter the decadal population increased successively. The decade 1981-1991 showed an increase in the decadal rate of 70.38 due to the reasons of expansion of city area limit. The decal population growth rate in 2001-11 is 13.71 percent recording lowest growth rate for the last 7 decades.

Table 2- 1 : Meerut City Population and Decadal growth trend

Census Year	Population	Decadal Population Increase (In No.)	Decadal Population growth rate (in Percentage)
1901	122981		
1911	121477	-1504	-1.22
1921	126996	5519	4.54
1931	97580	-29416	-23.16
1941	129309	31729	32.52
1951	167315	38006	29.39
1961	211326	44011	26.30
1971	286345	75019	35.50
1981	442405	156060	54.50
1991	753778	311373	70.38
2001	1068772	314994	41.79
2011	1215339	146567	13.71

Source: Census of India

2.3.2 Slum Population

The Meerut city is having a total of 185 slums in its municipal judistriction area. Out of which 114 are notified slums and 71 are non-notified slums.

The National Building Organization (NBO) Annexure primary survey is carried out in January, 2011 for all 185 slums in the city. The total slum population in the city is 722281 which constitute about 59% of city population. The total number of slum households in the city is 130549 which constitute about 63 % of total city households.

2.3.3 Population Density

The population density of the city was 31 persons per Hecate in 1981. In the year 1991 it was 53 and in 2001 it became 75 persons per hectare. As per the census 2011 the population density of Meerut Municipal Corporation is about 86 persons per hectare.

The ward wise population density pattern of the city as per census shows that, in old areas of the city, for examples in areas close to Garh road, Hapur road and Delhi road, the population density varies between 500 - 1000 per hectare or even more. In inner city areas, the average density is even more than 1,000 per hectare. The density of population is less in the outer areas of the city.

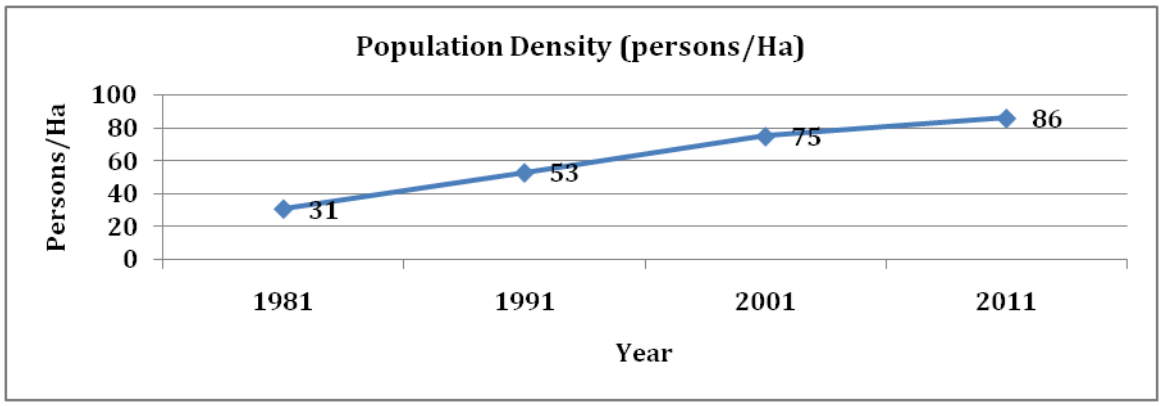


Figure 2- 1: Decadal Population Density

2.3.4 Sex Ratio & Literacy

As per census 2011 the sex ratio in Meerut stood at 898 female per every 1000 male. In the year 2001 and 1991 it was 881 and in 1981 it was 872. The average literacy rate of Meerut in 2011 is 77.70 % with male and female literacy rate being 83.18% and 71.64% respectively. In slums, the average literacy rate is 62%, as per Annexure 1 data, where as it is 39% in per census 2001. There is an increase in literacy rate among slum dwellers compared to last decade.

Table 2- 2 : Physical and Demographic profile of Meerut city

PARAMAETER	UNIT	
Area (Meerut Nagar Palika)	Ha.	14189
Municipal wards	No.	77
Population (2011 census)	No.	1215339
Households (2011)*	No.	206608
Average Household size*	No.	6
Literacy rate (2011 census)	No.	77.07
Sex Ratio (2011 census)	No.	898
Slum Settlements	No.	185
Slum area	Ha.	1325.26
Percentage of slum area to total area	%	9
Slum Population	No.	722281
Percentage of Slum Population to total population	%	59
Slum Households	No.	130549
Average Household size	No.	6

Source: Census of India, RAY Primary Survey 2011, * - Projected

2.3.5 Population Projection

The Meerut city is the administrative head quarters of the Meerut district. The city is one of the major educational, industrial and defense centre in North India. The situation of the city in National capital Region and its proximity to New Delhi attracted large investments in modern Infrastructure and development in the city. Having these characteristics, the city experienced an average decadal growth rate of 41.96 percent in the past three decades. In view of the population growth rate of last three decades, the population projections were drawn for the next 15 years using geometric mean method. It is projected that by the year 2016 the population of the city would be 13,69,497 by the year 2021 it would be 15,43,208 and 2026 the projected population of the city is 17,38,953.

Table 2- 3 : Population Projection of Meerut city for the next 15 years (2016-2026)

Year	2016	2021	2026
Population	1369497	1543208	1738953

2.4 ECONOMIC PROFILE

2.4.1 City Economic Profile

The economic status of any city depends on the capacity of production of various activities and the surrounding areas. Any change with respect to increase or decrease in the economic activities leads to the change in development of the city. Meerut being a second largest city in the National Capital Region (NCR) area derives its major economic base from manufacturing and trade. Manufacturing of sports goods, scissors, cotton cloth, musical instruments, textiles & garments, engineering equipments and machine tools, gold jewellery etc., are the major economic activities found in the city.

Details of workforce participation rate are presented in Table 2-4. As per census 1981, about 44.45 percent of the city population was working population. After 1981, the WPR has declined, which could be attributed to the out migration of workers population from Meerut and other pull factors in various upcoming opportunity/activity centers in the region. The work force participation rate (WPR) or the share of working population in the Meerut city as per census 1991 is 34.41 percent and in 2001 it was 34.02 percent as against district average of 26.54 percent and state average of 27.11 percent.

Table 2- 4 : Projection of Working Population, Meerut City

Year	Total Working population	Percentage inn city population
1981	238532	44.45
1991	291552	34.41
2001	395263	34.02
2011*	425368	35.00
2016*	486171	35.5
2021*	555554	36.00
2026*	643412	37.00

Source: Census of India, Meerut Master Plan, * - Projected year of working population

2.4. 2 Distribution of Working Population in different sectors of Economy

Business and commerce activities accounts for over 21.06% of the total employment in the city, while other services account for nearly 30% of the total workforce in the city. Of the total workforce employed in industries nearly 94% is employed in the small and cottage industry.

Table 2- 5 : Economic Base and Occupational Distribution

Occupation Category	1991		2001	
	Number of Workers (Lakh)	% of Total	Number of Workers (Lakh)	% of Total
Primary Sector	23912	10.4	26230	8
Household Industry	12178	5.3	17213	5.2
Manufacturing	51109	22.3	72133	22
Construction	8112	3.5	12295	3.7
Transport, Storage and Communication	15197	6.6	24591	7.5
Trade and Business	49174	21.4	68854	21
Other Services	69748	30.4	106559	32.5
Total	**229430**	**100**	**327875**	**100**

Source: City Development Plan, 2006

More than 65 percent of total work force in 1991 and 32.5 percent of work force in 2001 were depend upon other services, which includes the activities like banking, insurance, manufacturing, communication and other services coming under territory sector. About 10.4 percent of the work force in 1991 and 8 percent in 2001 are depended on primary sector. The Sector wise distribution of work force in Meerut city is presented in Table

Table 2- 6: Division of Economic categories in Meerut city

Occupational Sector	1981		1991		2001	
	Total Labour	Percentage	Total Labour	Percentage	Total Labour	Percentage
Primary Sector	4797	4.56	23912	10.25	26230	8.0
Secondary Sector	28026	26.65	71399	30.61	101641	31.0
Territory Sector	72324	68.78	134119	57.50	200004	61.0
Marginal Category	--	--	3810	1.64	--	--
Total Labour	105147	100	233240	100	327875	100

Source: City Development Plan, 2006

2.4.3 Industries

Meerut is one of the important industrial towns of western Uttar Pradesh. It is famous for handloom works and scissors industry from olden age. Meerut was one of the first cities in northern India where publishing was set up during the 19th century. It was a major center of commercial publishing during 1860s and 1870s.

Meerut is a rich agricultural area with such pockets of land that do not fit in for crop purpose. Being in the proximity of Delhi, it is ideal for industry. It is home to 520 micro, small and medium scale industries. As of August 2006, Meerut has about 23,471 industrial units, including 15,510 small-scale units and 7,922 cottage industries.

The city is home to some prominent regional pharmaceuticals companies like Perk Pharmaceuticals Limited, Mankind Pharma & Bestochem.Meerut is one of the major manufacturing regions for sports goods in India. The city is especially famous for the manufacture of cricket goods with SG being the largest Indian cricket goods manufacturer and exporter operating in Meerut. Meerut is also a hub of gold design in India. Meerut is also the largest manufacturer of musical instruments in India. Meerut is also home to a battle gear and armoury industry which produces gear for use in Hollywood films and television series.

The study of labors employed in various economical activities in the different decades shows that the percentage of labor in the industrial activities in the period of 1961-1991 has increased from 26.24% to 30.61%. This share has shown a decline in the primary activities and other activities. The employment in the industrial activities in the period of 1961-1991 has increased from 15,098 to 71,339. Along with the industrial activities, the workforce has

also increased considerably in the business, commerce, transportation and related sectors and services. This is a good indicator of growing contribution of tertiary sector in the economy.

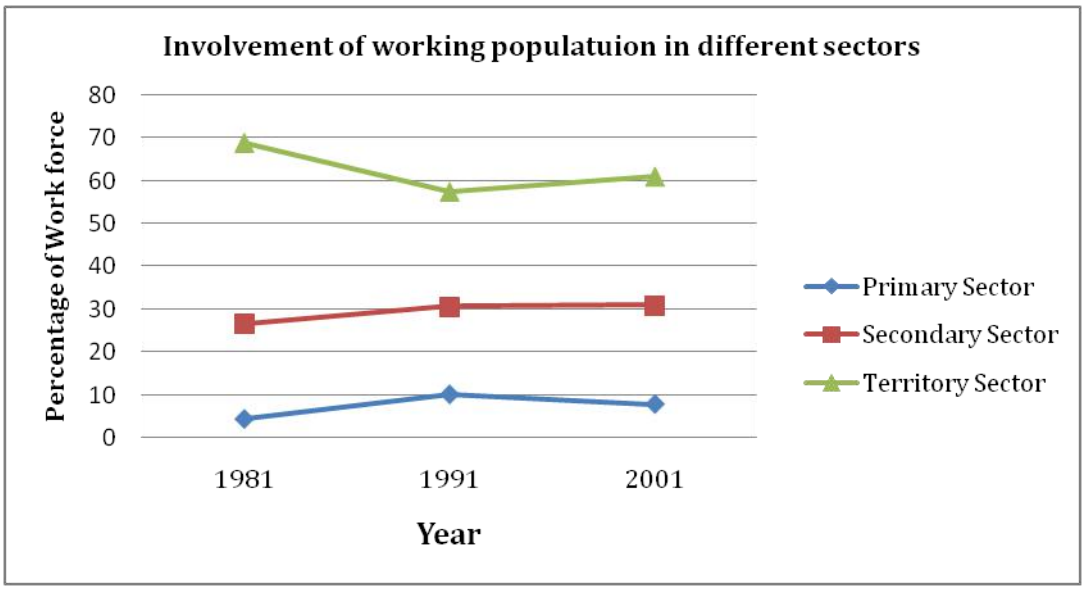


Figure 2- 2: Division of worker force in various sectors of Economy

The manufacturing sector has shown a sharp growth during the period of 1971-1991 as a result of which the number of labors has gone up from 28,026 to 71,399 registering an increase of 154.76%. The number of labors in tertiary sector has registered a growth of 85.44% during the same period which clearly states that the industrial activities are increasing at a rapid pace and have more potential for employment generation. Based on the 2001 census, the study of workforce in various sectors indicates that Meerut is an industrial and a commercial centre.

2.5 HOUSING PROFILE

2.5.1 Housing Stock

As on year 2011, the city is having a total of 2.06 lakh households. In the year 1981, 1991 and 2001 the total number of households in the city is 101222, 122957 and 174595 respectively. The household density is higher in the core area of the city, where mixed type of land use can be found where in majority of cases ground floor is kept under commercial use and upper floors under residential use. The average household size of the city as per 2011 is 6.5. In 2001, with 174595 households, the average household size is 6.1 persons.

2.5.2 Housing Projection & Shortage

At an average household size of 6 persons and assuming 2 % as dilapidation rate per decade, the projected housing requirement for Meerut city for the year 2016 would be 230532 in 2021 it would be 259773 and 292724 in the year 2026.

The housing shortage for the city is calculated based on census data, estimations and assumptions pertaining to existing housing stock in the city, dilapidated housing structures, vacant houses, slum households. The housing shortage for the city is estimated for the next

15 years under two circumstances a) taking into account the existing slum household stock and assuming they will remain same in future b) assuming that all the existing slum households are developed into a decent affordable housing under RAY and other slum development programmes. The Housing requirement and shortage projections for the city is shown in Table *2-7.*

Table 2- 7 : Housing Projection & Housing Shortage

Year	2016*	2021*	2026*
No. of Households	230532	259773	292724
Housing Shortage*	160787	190028	222979
Housing Shortage**	30238	59479	92430

Note: * - Estimated housing shortage of the city if existing slums in the city are not improved in the city, ** - Estimated housing shortage, considering that all the slums in the city are improved under slum developed programmes like RAY

2.5.3 EWS/LIG Housing

Working towards slum free Meerut 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. Census of India provides estimates of number of poor in each city and they also project future population growth for cities using an urban growth rate. City Master Plans etc. make estimates on housing demand on the basis of Census information. Considering the past census data and development plans of the city it is assumed that 40% of the Meerut households belongs to either EWS or LIG population.

In Meerut city Slums, 50% of the slum households are living under below poverty line (BPL), which accounts 32% of the total city households. Assuming the other 8% of the households live in other parts of the city, the EWS/LIG housing projections are calculated for the next 15 – 20 years.

Table 2- 8: Future Housing projection pertaining to EWS/LIG

Year	2016*	2021*	2026*
EWS/LIG Housing	64315	76011	89192

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 LAND USE

Land is the major resource available for accommodating current and new land use changes due to increasing population and economic growth. The measurement and monitoring of these land use changes are therefore crucial to understand land use cover dynamics over different spatial and temporal time scales for effective land management. Today, with rapid urbanization and industrialization, there is increasing pressure on land, water and environment.

Unplanned development of the cities marked with falling behind the norms in terms of service levels in delivering basic services whether good roads or clean environment. Municipalities/ULBs vested with authority to plan and implement infrastructure schemes also lack in co-ordination among them. These factors are resulting in the shortfall of service delivery.

Table 2- 9 : Land Use Distribution of Meerut, 2001

Land Use Category	% Area (2001)
Residential	47.68
Commercial	2.59
Industrial	9.09
Public Semi-Public	14.39
Recreational (Park & Open Area)	16.58
Transportation	9.67
Total Area	**100**

Source: Meerut Master Plan, CDP, 2006

The total developed area for Meerut city as per NCR master plan is 5,712 hectares in 2001 and 8,511.4 ha for undeveloped portion of the land use. Nearly 50% area is under residential use while 12 % is under industrial and commercial use. About 14.39 % of the developed land is under public and semi –public land use. Nearly 6800 ha of land in the city is under housing and 1375 ha is under roads and Streets.

In the Master Plan of National Capital Region 2001, it has been predicted that Meerut would be developed as a regional centre where many administrative offices and economic activities of Delhi would be shifted, thus encouraging the development of the city. In this context, the development authorities established many infrastructure facilities due to which a large increase in the population was seen. The failure to shift either the administrative

offices or the economic activities resulted in the disproportionate increase in population growth and urban sprawl.

2.7 INFRASTRUCTURE

2.7.1 Water Supply

The main source of water supply for Meerut city is Ground Water. The Ganga canal situated a few kilometers far away from the city is other source of water supply, which supplies about 2.5 MLD of water approximately. The authorities responsible for water supply in Meerut are UP Jal Nigam, Meerut Nagar Nigam (MNN) and Meerut Development Authority (MDA). Jal Nigam is responsible for transmission of water from the source till the corporation's jurisdiction and also for operation and maintenance of drinking water supply in rural areas within MDA limits. The MNN is thereafter responsible for supplying of water within its jurisdiction and also for maintaining the system. About 70 percent of the city area and more than 80 percent of the city population is covered with existing water supply system.

In the city, the pipe water supply was first introduced in year 1895. As mentioned in the City Development Plan of Meerut, there are 68 tube wells, 20 overhead tanks, and 3 underground water tanks in Meerut city. Capacity of 20 overhead tanks is 20,500 KL and capacity of 3 underground water tanks is 16000 KL. In several areas people have their own private hand pumps, jet pumps and other equipment for water supply. Municipal Corporation of Meerut supplies about 160 MLD of which only 4.8 MLD is supplied through canal.

2.7.2 Sewerage System

Sewerage system in Meerut was established in 1975. The city generates 112 MLD of sewage while the disposal capacity is just 45 MLD. The major quanitity is directly discharged in to the 3 nalas going through the city which further joins Kali River, finally meeting Ganga River.

As on year 2006, the total length of the sewer line in the city is about 132 km, out of which 23 km is trunk line. There are 7 sewerage pumping stations. The intermediate pumping stations pump the sewerage to main pumping station and from there it is pumped to sludge farm at Hapur road. Other stations pump sewerage to nalas finally meeting Kali River. Only about 30 percent of the city population is covered with existing sewerage system, which highlights the urgent need for the improvement of sewerage system in the city.

2.7.3 Solid Waste Management

Solid waste management is probably the most critical area in Meerut. The city generates about 600 Metic Tons of waste daily with an average percapita generation of 500 grams. The Meerut Nagar Palika is responsible for collection, transportation and disposal of all solid waste generated in the city. Hardly 78 per cent of the area under Municipal Corporation is covered under daily collection and the rest under biweekly or fortnightly collection system. The garbage collection from the bins is extremely irregular. Other aspects of a normal solid waste management process namely waste storage and segregation, primary and secondary

collection, waste processing and disposal, and reuse & recycling, are by and large missing in Meerut, with rampant complaints from different stake holders about plastic and bio medical waste management.

Apart from the household wastes, the wastes generated by hospitals, Nursing Homes, health centers, laboratories, animal houses, veterinary institutions constitute a major component of waste generation. The lack of proper waste management system in the city is creating a serious health, environmental and aesthetic problems in the city.

2.7.4 Storm Water Drainage

In Meerut there are 5 main trunk drains by which the rainwater flows into the river. These Nalas cris cross the whole length and breadth of the city and build a poor image of the city besides creating severely unhealthy and unhygienic conditions. Various low lying areas in Meerut suffer from acute crises of water logging during the rainy season and makes life miserable for residents of Meerut especially in rainy season.

At many low lying parts of the City, the water from these nalas spill during rainy season and cause severe problem of water logging in the city leading to unhygienic and filthy living conditions. The uncollected solid waste on the roads mixed in nalas causing severe problem of water logging in many areas of the city.

2.7.5 Traffic and Transportation

In the city of Meerut, roads and highways account for 7.76% of the total city area. The city has a per capita road length of 1.08 m, while the road density is 7.01 km/sq.km. By road Meerut is well-connected to major cities like Delhi, Noida, Faridabad, Ghaziabad, Haridwar, etc. A large number of people commute to Delhi, Noida, Greater Noida, Ghaziabad and Gurgaon every day for work. Three national highways (NH-58, NH-119 & NH-235) pass through Meerut. Upper Ganga Canal Expressway which passes through outskirts of the city is under development. There are 2 main bus terminals, namely Bhainsali bus terminal and Sohrab Gate bus terminal from where Uttar Pradesh State Road Transport Corporation (UPSRTC) buses ply to cities all over the state and all nearby cities.

Almost all the major roads in Meerut Corporation jurisdiction are constructed and maintained by the Meerut Nagar Nigam, except for the roads belonging to the Public Works Department (highways and other district-level roads). The internal road constructed in the colonies is the responsibility of the MDA and respective private developers. The Municipal Corporation checks the adequacy of these roads at the time of according sanction to the schemes.

Meerut lies on the Delhi–Saharanpur railway line. The electrification of the line from Meerut to Ghaziabad has been done in 2012. As the city is located close to Delhi, about 20,000 passengers travel daily to Delhi and back on train. Around 27 pairs of trains run between Meerut and Delhi daily.

Picture 2- 7: Meerut City Railway station

Picture 2- 8: Begum Bridge road, Meerut

2.7.6 Education & Health

Meerut is an important educational centre in western Uttar Pradesh. The city has four universities, more than 50 Engineering and management colleges. The city has about seven pharmacy colleges, four colleges offering hotel management, one college offering fashion design, over 150 academic colleges and over 50 schools. The city is home to Chaudhary Charan Singh University (formerly Meerut University), Sardar Vallabhbhai Patel University of Agriculture and Technology, Swami Vivekanand Subharti University and Shobhit University. The city has two medical colleges: Subharti Medical College and Lala Lajpat Rai Memorial Medical College. The Indian Film and Television Institute is located at the western bypass of the city.

The health and hospital services in the city include there are 1 medical college, 2 state hospitals, 8 health care centers, more than 100 nursing homes and private clinics. Besides these, there are hospitals for each armed force in the cantonment area, for police personnel in police lines and for railway staff in railway lines. There are adequate number of modern health centers and hospitals available in Meerut city imparting quality medical facilities that make Meerut an important centre for health and medical care in northern India. Majority of these services are provided by private establishments.

2.8 INSTITUTIONAL SET UP

Meerut city, with in a judistriction of 14189 Ha (141.89 sq.km) of area, housing a population of 1215339 (as per 2011 census) is a Municipal Corporation administered by Meerut Nagar Nigam (MNN). The Meerut Nagar Nigam was formed following the enactment of the UP Municipal Corporation Act. Meerut Nagar Nigam carries out a wide range of functions related to provision and maintenance of core civic services and ensures a planned and orderly development of the city. The administration is headed by an Executive officer as Commissioner of Municipal administration. The Municipal comissioner is most often an IAS officer. The Governing body or elected wing of Meerut Nagar Nigam consists of a Mayor and 77 ward corporators. The present Mayor of Meerut Nagar Nigam is Shri. Harikant Ahluwalia.

MDA (MDA) was formed under the vide notification dated 3 November, 1976 published under vide G.O. 6218/37-2-4 D. A/72 and is governed under the Uttar Pradesh Urban Planning & Development Act, 1973. The primary objective of MDA is preparation and implementation of development plan for the development area, which includes the jurisdiction of the Meerut Municipal Corporation and surrounding villages. The MDA also execute projects of regional significance such as connecting road, wholesale markets, new townships, etc. To execute these projects, the Act empowers MDA to levy development charges and allows them to raise resources through borrowings from banks and other financial institutions. The total area of the MDA area is 10,783.4 hectares.

The Uttar Pradesh Jal Nigam is responsible for planning, design and construction of water supply, sewerage networks, drainage, storm water drainage in the city where as its operation and maintenance rests with Meerut Nagar Nigam. The Power supply to the city is done by the Uttar Pradesh Power Corporation Limited (UPPCL). The state Public Works Department is responsible for construction and maintenance of roads and other public infrastructure in the city. The UP State Transport Corporation provides inter city and intra city bus services in the city.

The District Urban Development Agency (DUDA) headed by District Magistrate as Chairman, Additional District Magistrate as Project Director looks after the aspects related to urban poverty in the district. The DUDA has a structured network of Resident Community Volunteers (RCVs) Neighborhood Groups (NHGs), Neighborhood Committees (NHCs) and Community Development Societies (CDS) in the urban slum areas of Meerut. The Project Officer as an Officer In charge looks after the DUDA. The functionaries of DUDA work in close association with public and private medical practitioners. Their activity-mix includes family planning services, enrolment of pregnant women for ANC and children for immunization, counseling, distributing contraceptives, etc. They also organize health camps in close association with public and private medical practitioners.

Meerut is the head quarter of NCR Zone and UP west zone A of Police. An Additional Directorate General and a secretary level IAS officer cover west UP zone. Both the officers look after the legal and developmental condition and system of Western Uttar Pradesh from Meerut for 6 Division of western Uttar Pradesh, namely Meerut, Agra, Bareily Moradabad, Saharanpur and Aligarh under West Zone, and Meerut Division with Saharanpur is in NCR Zone. A Deputy Inspector General looks after Meerut for legal condition and law, Commissioner also looks for 6 district of Meerut Division.

2.9 MUNICIPAL FINANCE STATUS OF MEERUT NAGAR NIGAM

Municipal finance hold the key for overall status and progress of service delivery in the city. Effective financial management can help municipalities to transform their local areas into a better place to live and work. The revenue for Meerut Nagar Nigam generates through taxes, non-taxes, assigned revenues, plan and non-plan grant receipts from central and state governments. The average annual income of Meerut Nagar Nigam for the financial years (2001-02 to 2004-05) is ₹4831.23 lakhs. Out of which, income incurred through plan, non - grants and general tax constitute majority of the total revenue. The assigned revenue and

taxes are the other major contributors of revenue generation. In the year 2001-02 the total revenue of city is ₹4510.07 lakhs and it increased to ₹5114.00 lakhs in financial year 2004-05, with an average annual growth rate of 4 percent.

The expenditure pattern of Meerut Nagar Nigam is categorized under the heads of establishment, operation & maintenance, capital expenditure and others. On an average for the following financial years major portion of expenditure is made on establishment head which mainly include salaries for the municipal staff and other administrative costs. The average yearly expenditure of the city in the four financial years is ₹4763.06 lakhs with an average yearly growth rate of 5 percent. In the four financial years Meerut Nagar Nigam never experienced deficit in total budget. The following table 2-10 presents a comparison of the receipts and expenditure incurred by Meerut Nagar Nigam for the financial years (2001-02 to 2004-05).

Table 2- 10: Municipal Finance details of Meerut Nagar Nigam for the financial years (2001-02 to 2004-05)

(₹ in Lakhs)

	2001-02	2002-03	2003-04	2004-05
Revenue Income				
Tax	730.02	686.61	998.99	693.02
Non Tax	510.97	496.69	446.78	644.75
Transfers including Grants	3269.08	3594.61	3477.16	3776.23
Total Income	**4510.07**	**4777.91**	**4922.93**	**5114**
Expenditure				
Establishment	2514.17	2593.99	2706.39	2508.55
Operation and Maintenance	1700.17	2335.89	2506.74	2186.33
Others	-	-	-	-
Total Expenditure	**4214.34**	**4929.88**	**5213.13**	**4694.88**
Deficit/Surplus	**(+)295.73**	**(-)151.97**	**(-)290.2**	**(+)419.12**

Source: City Development Plan

2.10 SCHEMES/PROGRAMMES FOR SLUM IMPROVEMENT (HOUSING TREND SUPPLY FOR URBAN POOR)

Meerut, with its proximity to Delhi and due to its industrial and economic status attracts large number of migrants, faces the major problem of the increase of urban poverty. More than 35 percent of the city population is urban poor. The complexity of problems facing by the urban poor relates to social, economical, physical environmental and other related factors. In order to mitigate the problems of urban poor, achieving objectives of inclusiveness and overall sustainability, several programmes were designed at National and state level typically targeting infrastructure Improvement of poor settlements, provision of housing, improvement in primary health and welfare services, employment generation for the poor etc. The details of few major existing urban poverty schemes implementing in Meerut are given below.

a. Implementation status of BSUP

The Basic Services for Urban Poor (BSUP) aimed at improving the housing stock and basic infrastructure for urban poor in the JnNURM mission cities is implementing in Meerut from the year 2006. The State Urban Development Agency (SUDA) is the nodal agency at the state level and the Meerut District Urban Development Agency (DUDA) is the implementing agency. As on year 2013, construction of 10613 Dwelling units is in process under 13 different phases in the city. Apart from construction of dwelling units the work carrying out under BSUP includes provision, up gradation of infrastructure facilities in the slums such as construction of roads, drainage, sewer lines, provision of community facilities etc. The Indian Institute of Technology, Roorkee is the implementing agency for BSUP in the city.

b. RAY Pilot project - preparation of DPR

A pilot DPR proposal FOR Meerut under Rajiv Awas Yojana scheme was submitted to Ministry of Housing and Urban Poverty Alleviation (MoHUPA), GoI. A total of 3715.53 lakhs is estimated for construction of 1017 dwelling units with an estimated cost of 3.65 lakhs per individual unit. A part from construction of dwelling units 2000.29 lakhs is estimated for construction of roads, construction of sewerage lines, drainage, solid waste management, provision of electricity, community hall, park, rain water harvesting etc.

CHAPTER 3 - ASSESSMENT OF EXISTING STATUS OF SLUMS

3.1 DIAGNOSTIC ASSESSMENT OF SLUMS

The living conditions in slums represent the pathetic conditions of urban poor. Individuals and communities living in slums face serious challenges in their efforts to survive. Severe inadequacies in access to water, sanitation, shelter, health and education has deprived slum dwellers of some of the most basic amenities. 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. Slums are predominantly scattered and found mostly on private lands with major concentrations/ clusters found near Brahmapuri and Tarapuri areas and near areas of employment.

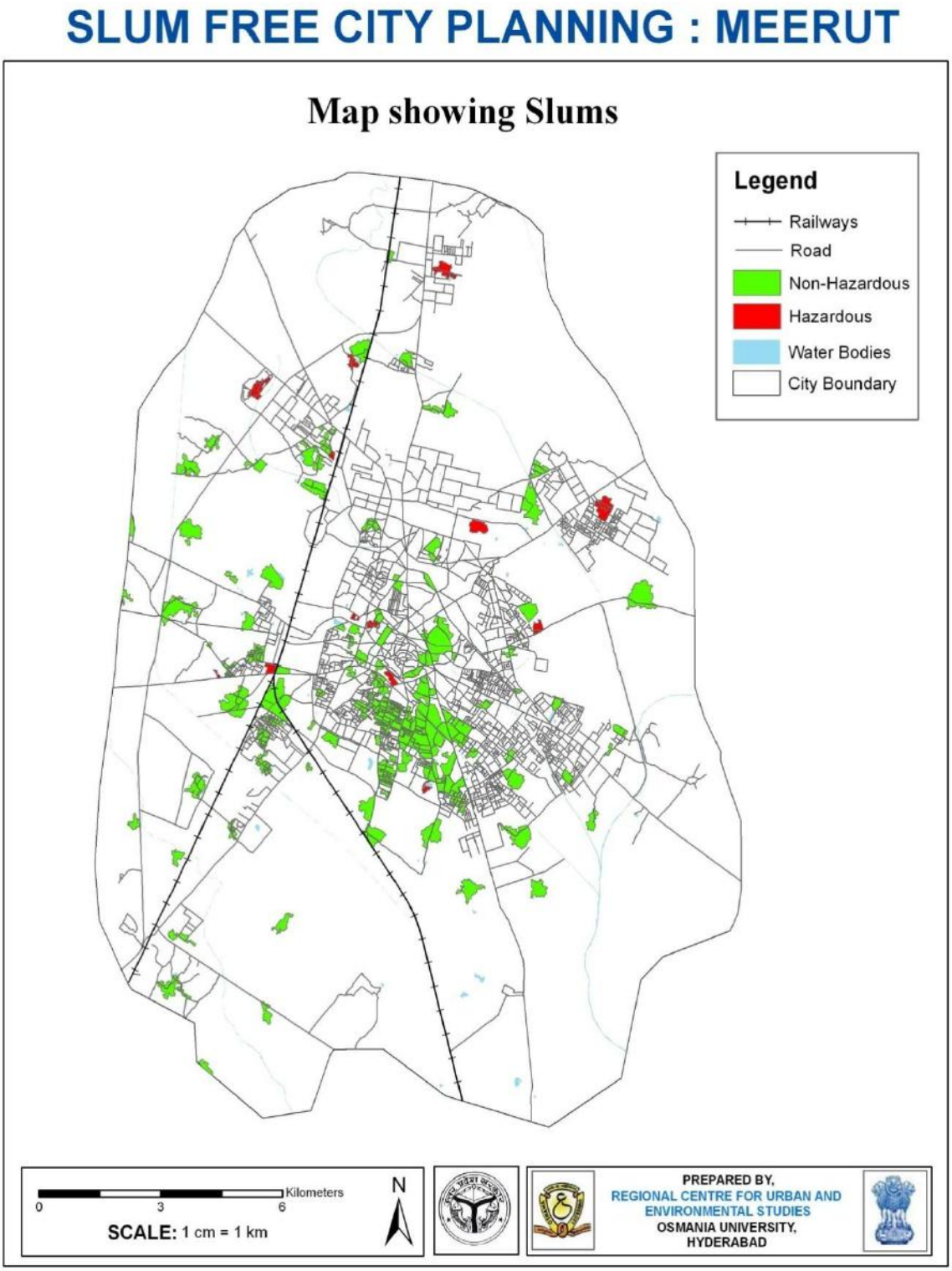
The existing scenario in Meerut has got two distinct dimensions- housing and infrastructure. Such a high residential density coupled with acute shortage and dilapidation of housing stock marred with extremely poor infrastructural conditions necessitates redevelopment and renewal works so as to improve the habitability of these areas for the urban poor.

Meerut City has a total of 185 slums, where about 127 slums are built on lands under private ownership. Over 81% of slums have existed more than 20 years in the city due to the fact that Meerut has been one of the continuously inhabited cities in India. The total population of the slums is 722281 which is about 59% of the total city population. With respect to physical location 8% of the slums are situated in the hazardous[1] sites. Likewise, 39 % of the slums are found to be located along the major nallah and open drains. About 15% of the slums are located along railway line and major transport alignment. Most of the slum settlements in the city are concentrated in the city core and in the residential areas of the city forming large clusters (*as seen in map-1-1*).

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.
1215339	722281	59%	14189	1325	9%

[1] Hazardous/objectionable sites are defined as those slums that are located on or along *tank beds, burial grounds, and solid waste land fill cities etc., central government, defense, industrial units, disputed lands, protected monuments, public sector lands and other lands*- RAY Guidelines



Map 3 - 1 : Location of slums in Meerut city

As evident in the Map 3-1, 85% of the slums are located in core area of the city with remaining 15% in fringe area. The abutting land use surrounding the slums is found to be predominantly residential in nature, followed by commercial use.

The ward wise slum descriptive details are provided in Annexure -1A

3.2 LISTING OF SLUMS – NUMBER, STATUS, TENABILIT & 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 Meerut slums.

Out of 185 slums, 127 slums are on private lands and 52 slums were situated on land belongs to urban local Body. 2 slums are located on land belongs to defense and 4 slums on land under 'other' ownership. As seen below in the *Table 3-2*, nearly 86% of the slums do possess a secured tenure status and an enabled pleasant living condition while 14% of the slums do not have a secured status without any access to basic amenities.

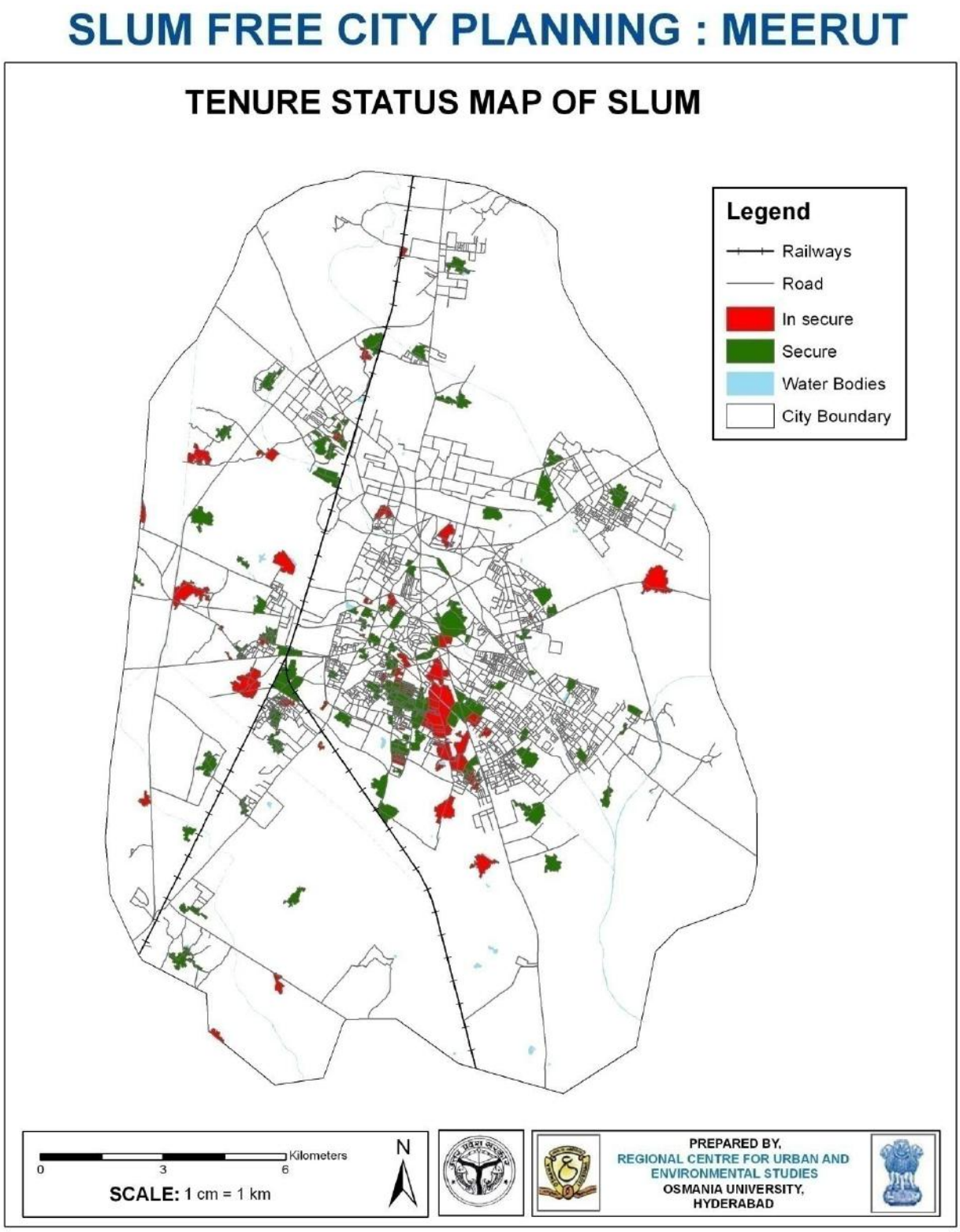
Table 3 - 2: Distribution of slums according to number, status, tenability, tenure

	TENURE		LAND tenability		
Status	**Secure**	**In-Secure**	**Tenable**	**Semi-Tenable**	**Un-Tenable**
No. of Slums	160	25	165	6	14
AGE OF THE SLUM					
Status	**0-10 years**	**11- 20 years**	**21-30 years**	**31- 40 years**	**Above 40 years**
No. of Slums	15	20	113	8	29
OWNERSHIP OF LAND					
Status	**Local Body**	**Defense**	**Private**	**Others**	
No. of Slums	52	2	127	4	

Source: RAY Primary survey, 2011

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*, 86% of the slum lands are secured and have access to basic amenities and in possession of certificates while 14% of the slums are In-secured, 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 are classified by the ULB as tenable[2] or untenable in order to determine whether the land is fit for human habitation and void of health hazards. (RAY Guidelines).

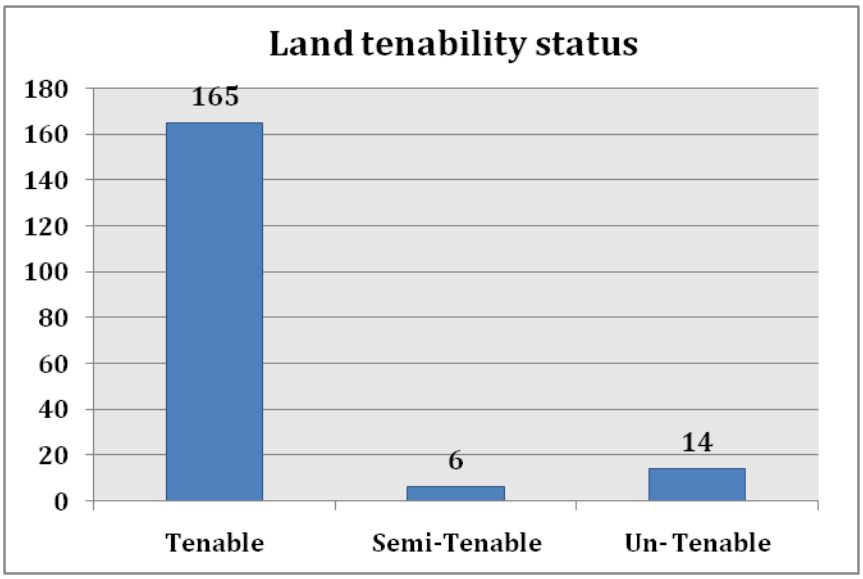


Figure 3 - 1: Distribution of slums in the city w.r.to land tenability status

As shown in *Figure 3-1*, the current land tenability status for the **185** slums as identified has been presented where **89**% (**165** slums) of the slums are found to be tenable and **3%** (**6** slums) slums are semi-tenable and the remaining **8% (14** slums**)** slums are Un-tenable, thus proving to be unsafe due to reason that the slum lands are either earmarked for any major public facilities or located on hazardous sites. This is very small in number hence viable solution can be arrived in consultation with ULB.

3.2.3 Distribution of slums by land Ownership

As shown in *Figure 3-2*, it is observed that that 69% of the slums are situated on land belongs to private ownership.on other side, 28% are located on land belongs to Urban local body ownership and 1% under Defense. The remaining 2 % of the slums re situated under the Category of others i.e. data not available. In 69% of the slums situated on private land, 90% of the households hold pattas, possession certificates and are still eligible for slum redevelopment programmes considering the varying economic status of those dwellers.

The following *Map 3-3* shows Ownership of slum lands.

[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.

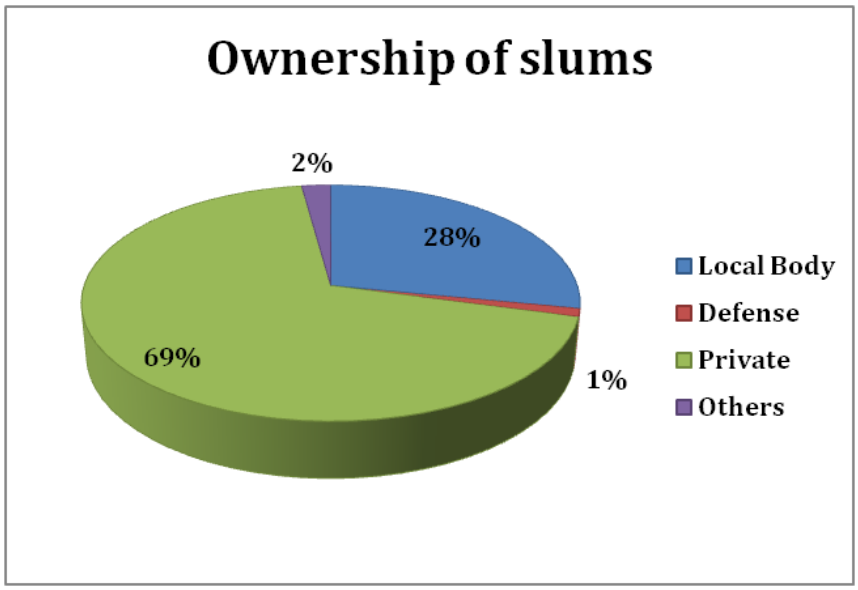


Figure 3 - 2: Distribution of slums in the city w.r.to land ownership of slums

3.2.4 Distribution of Slums by Age

Age of the slum is one of the important criteria to assess the condition of a slum. Considering the fact that Meerut is one of the oldest settlement and fast growing cities in the country, it has slums into existence from decades. It is noted that 16% of the slums in the city have been into existance for more than 40 years.The distribution of slums in the city with repect to age is *shown in Figure 3-3*.

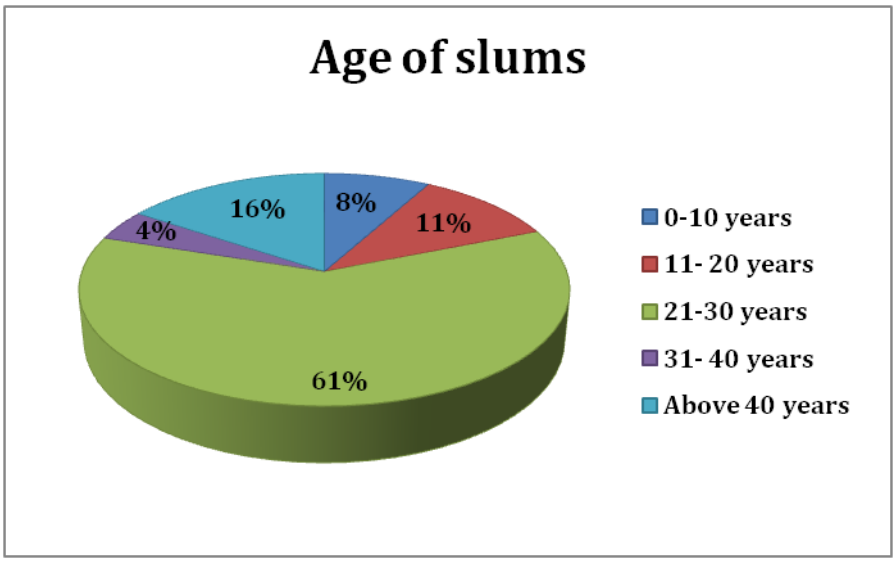
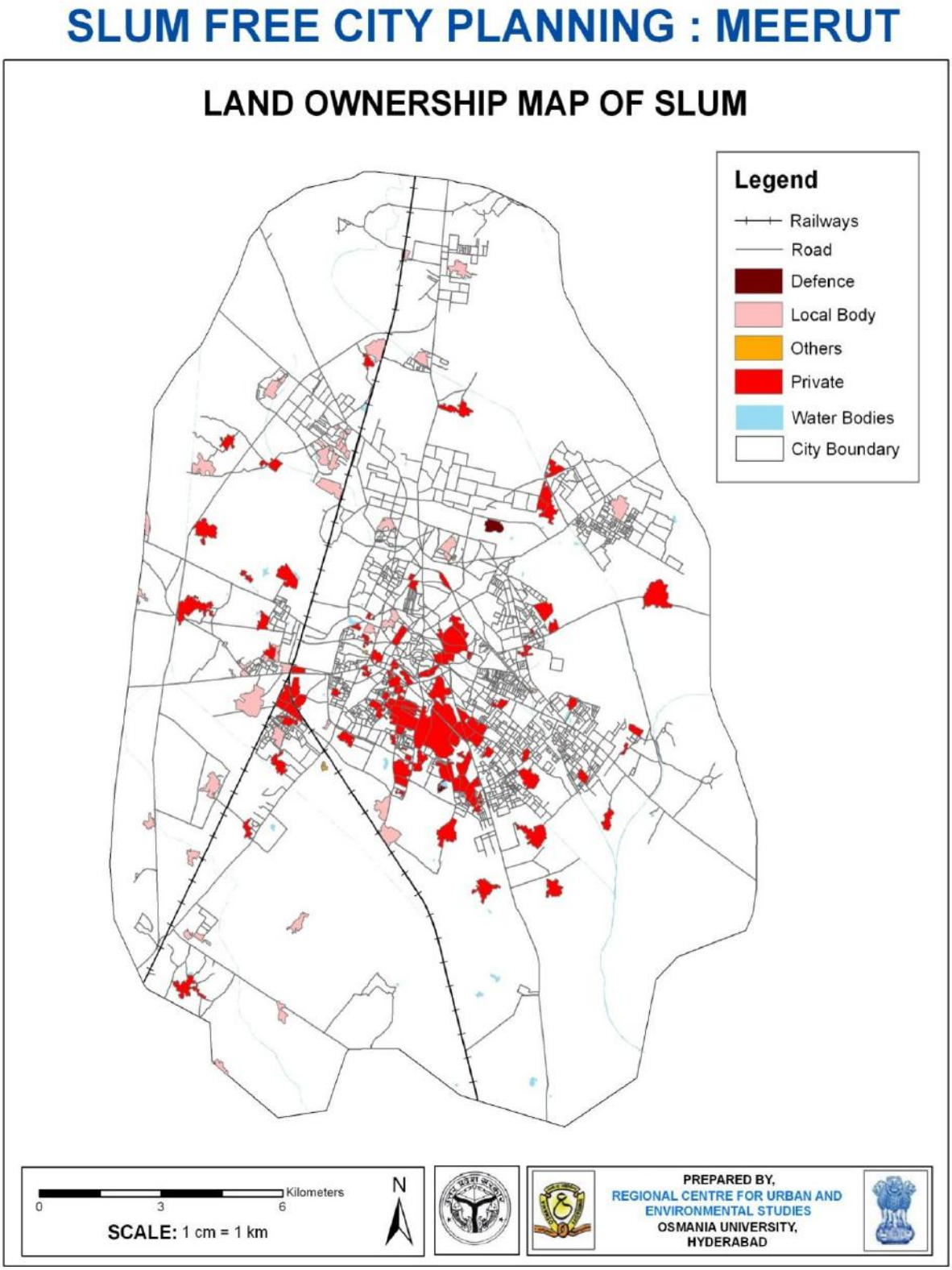


Figure 3 - 3: Percentage distribution of slums in the city w.r.to age



Map 3 - 3 : Land ownership of slums

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", tends to receive higher level of services and those unrecognized by the local bodies were considered as "non-notified slums". As per the Annexure –I survey, currently 114 slums are notified by ULB to avail higher level of basic services. As seen in *map 3-4,* 71 slums marked in red color indicates that these are not yet notified, which requires the concerned authority to ascertain that these slums are to be provided with basic amenities.

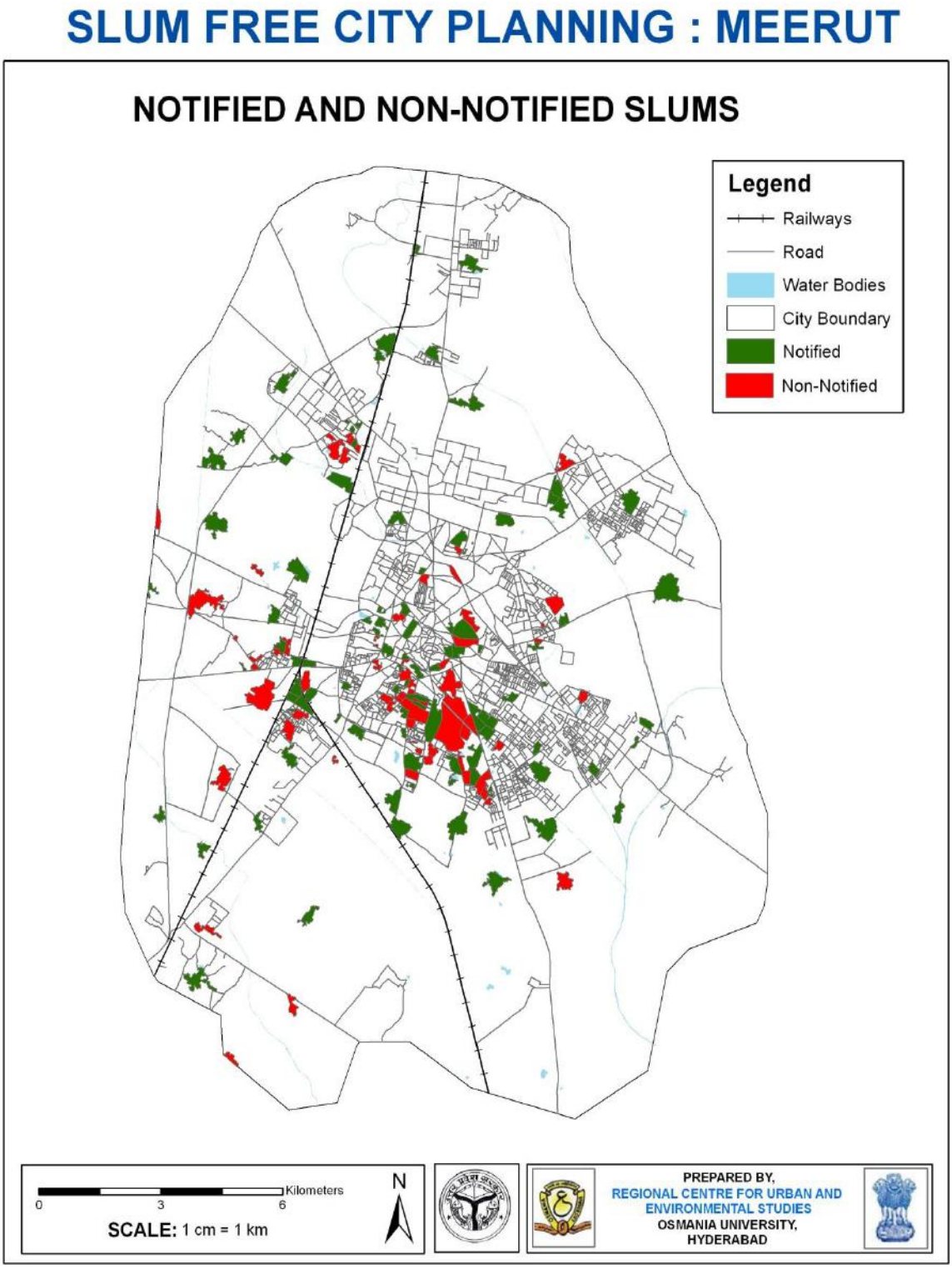
As mentioned in City Development Plan, the notification of slums by ULB in Meerut have grown every year with 10 Slum pockets in 1950 to 108 Slum pockets in 2003.

Table 3 - 3: Notification status of Slums

	NOTIFICATION STATUS			% PROPORTION OF SLUMS	
Status	**Notified**	**Non-Notified**	**Total**	**Notified**	**Non-Notified**
No. of slums	114	71	185	62%	38%

Source: DUDA, Meerut

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



Map 3 - 4: Notified and Non – notified slums

3.3 PHYSICAL PROFILE

Slum and squatter settlements in Meerut are found all over the city however established mostly near places of employment such as large scale industries and major agriculture distribution center. The general composition of majority of slums comprises of scheduled caste, and other backward classes, thus forming the weaker section of the society. From habitation point of view, 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 were measured 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 areas
- Flood prone slums
- Physical Location of slums
- Abutting land use
- Housing type

Table 3 - 4: Summary of slum –Area, Location, Abutting land use & Flood vulnerability

AREA OF SLUM					
Area (Ha)	**0-1 Ha**	**1-2 Ha**	**2-3 Ha**	**3-4 Ha**	**More than 4 Ha**
No. of Slums	20	29	19	16	101

WHETHER SLUM IS LOCATED		
Location	**Core**	**Fringe**
No. of Slums	157	28

PHYSICAL LOCATION OF SLUM							
Location	**Along Nallah (Major Storm water Drain)**	**Along Other Drains**	**Along Railway Line**	**Along Major Transport Alignment**	**Along River / Water Body Bank**	**Others (Hazardous or Objectionable)**	**Others (Non-Hazardous/Non-objectionable)**
No. of Slums	28	44	18	10	4	14	67

SLUMS PRONE TO FLOODING DUE TO RAINS				
Condition	**Not prone**	**Up to 15 days**	**15-30 Days**	**More than a Month**
No. of Slums	76	92	6	11

TYPE OF AREA SURROUNDING SLUM				
Type of Use	**Residential**	**Industrial**	**Commercial**	**Other**
No. of Slums	178	1	3	3

Source: RAY Primary Survey, 2011

3.3.1 Distribution by Slum Area

According to the primary survey, slum population constitutes 59% of the total City population where as the total slum area is (1325 Ha) 9% of the total city area. Nearly 46% of slums are found to be situated in area less than 4 Ha and 54% of slums are situated in area more than 4 Ha. The total slum area under the ownership of urban local body is 375.8 Ha, and the Private ownership is 925.9 Ha.

3.3.2 Flood Prone Slums

As indicated in the *Table 3-4*, 76 slums in the city are found not prone to floods and in 92 slums the rain water is stagnant up to 15 days. In the remaining 17 slums it was found that the rain water will remain for 15 – 30 days in 6 slums and more than 30days in 11 slums.

3.3.3 Distribution of Slums by Physical location

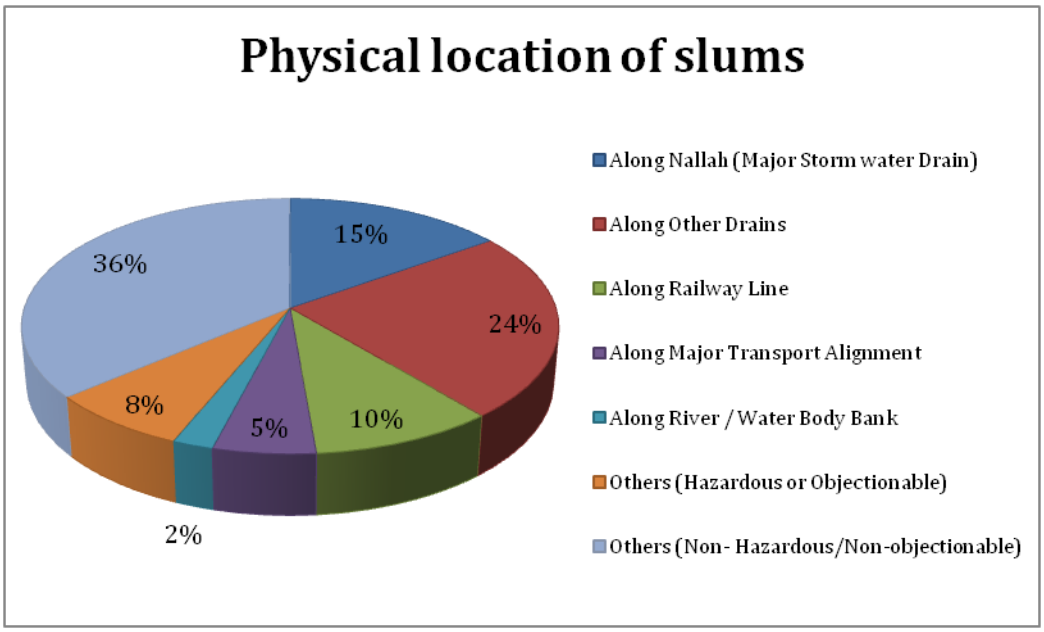
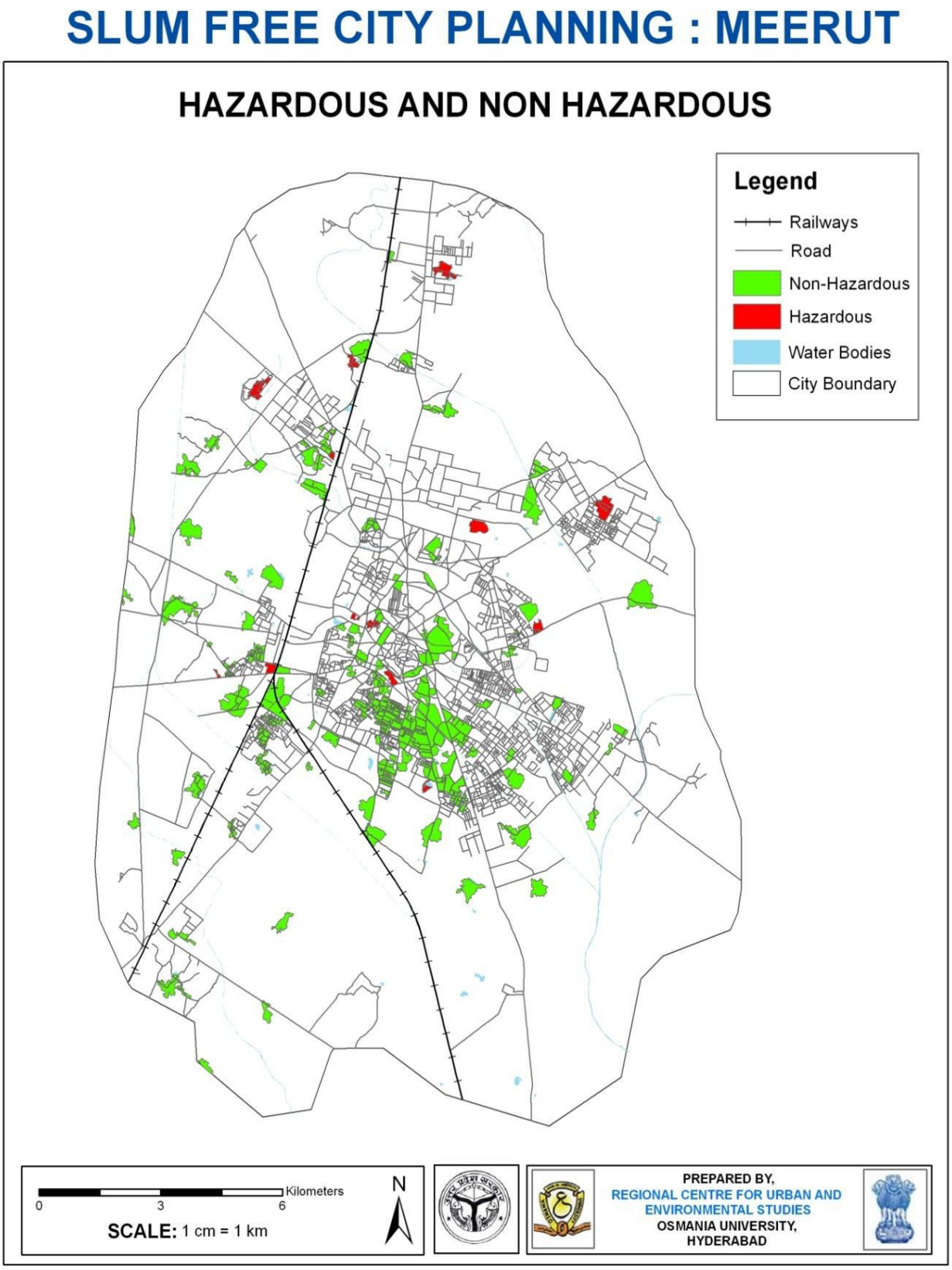


Figure 3 - 4: Percentage distribution of slums w.r.to Physical location

Out of 185 slums, 157 slums are situated in core city and remaining 28 are in urban fringe areas. With respect to the physical location, around 39% are located along the open and storm water drains, 10% along the railway lines; 5% along Major transport alignment. On other side, 2% slums are found to be located along the river/water body bank. In addition, 36% of the slums are located on the sites of non hazardous / non objectionable areas and the remaining 8% (14 slums) are observed to be situated along the hazardous sites. These 14 hazardous slums and 4 slums along open drains are found to be more vulnerable to any kind of manmade or natural disaster (seen in *Figure 3-4*). These slums require special attention before undertaking any development, the beneficiaries cooperation and their livelihoods are of paramount importance. The location of slums with respect to various physical settings is shown in the *Map 3-5*.



Map 3 - 5 : Hazardous and Non – hazardous slums

Picture 3 - 2: Slums located along major transport alignment

Picture 3 - 1: Slum located along a major drain

3.3.4 Distribution of Slums by Abutting Land use

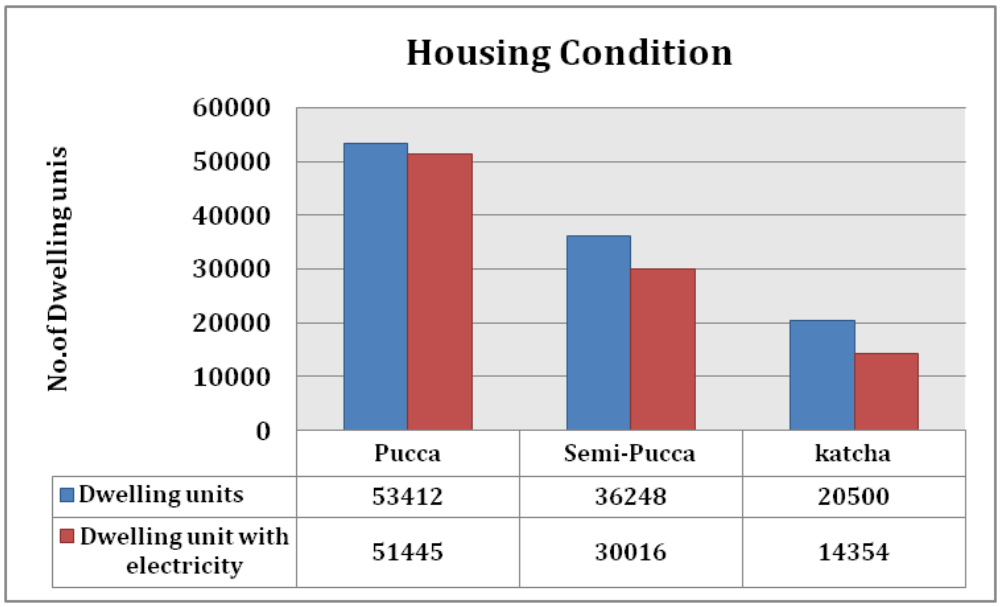
In respect to the abutting land use of the slums, as shown in the *Table 3-4*, 96% of the slums are surrounded by residential land use followed by commercial 2% and the remaining 2% slums are in others category. Of the 28 slums located in the fringe areas, 89% of the slums are bounded by residential, 11% is surrounded by other land use.

3.3.5 Distribution of Slums by Housing Type

Housing is one of the prime indicators to assess the existing condition of a slum. 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 Meerut the total number of dwelling units in the slums is 110160. Out of these, 48% of dwelling units are Pucca constructions, 33% units are Semi-Pucca and the remaining 19% are katcha in nature. With respect to electricity connection, about 87% of the dwelling units have access to electricity where 96% of pucca dwelling units, 83% of semi pucca and 70% of katcha dwelling units have access to the same. Hence there is a dire need to cover 13% of total houses with electricity, indicating the pathetic status of the slum dwellers.

The *Map 3-6,* depicts the current housing structure condition in the slums of Meerut. 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 50 slums have semi Pucca + katcha houses more than 75% while 135 slums in the latter category.



	Pucca	Semi-Pucca	katcha
Dwelling units	53412	36248	20500
Dwelling unit with electricity	51445	30016	14354

Source: RAY Primary survey, 2011

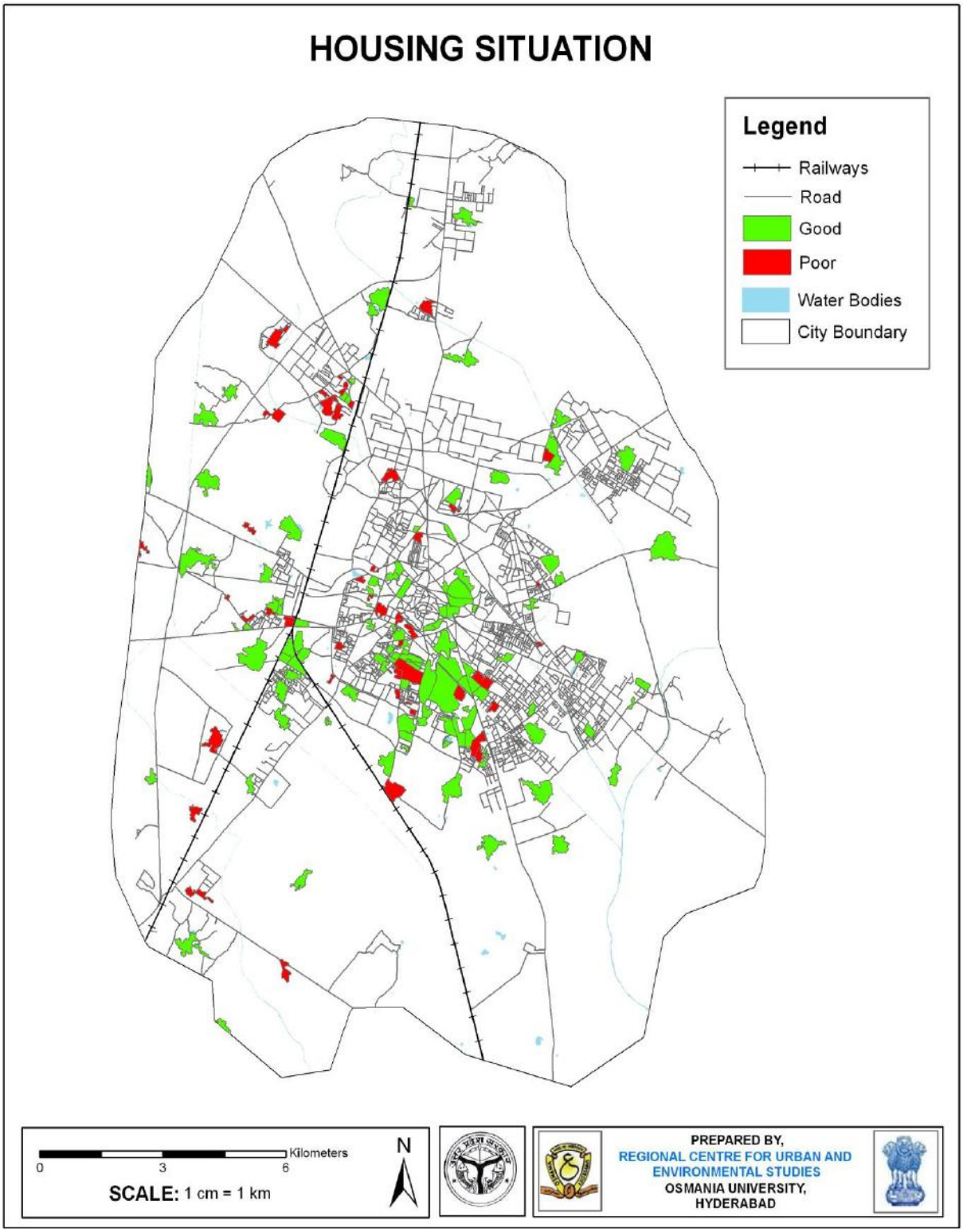
Figure 3 - 5: Housing condition of dwelling units in the slums w.r.to structure type and electricity

Picture 3 - 3: Katcha dwelling units in a slum, Meerut

Based on the income levels and the affordability levels of the households, the kind of housing is determined and varies accordingly. Similarly in Meerut, 48% 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 95% of the houses are self-occupied and 5% 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 Housing details, please refer Annexure-1B.

SLUM FREE CITY PLANNING : MEERUT



Map 3 - 6 : Housing condition in slums

3.4 DEMOGRAPHY & SOCIAL PROFILE

3.4.1 Population

According to Annexure 1 primary survey, the total population in **185** slums is **722281** residing in **130549** households, with an average household size of 5.8. The average population density of slum area in the city is 545 persons per Hectare. The Govindh Puri slum is having the highest population (19087) and Ansaar Pura slum is having the lowest (138).

3.4.2 BPL Population & Households

The Below Poverty Line (BPL) population constitutes about 45% of the slum population. In Purwa Llahi Bakhs slum the entire population is under BPL. Saraylal Dass is the slum with lowest percentage (5%) of BPL population. Of the total slum households in the city, 50% are BPL households i.e., 65685 households.

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

Indicators	SC s	STs	OBCs	Others	Total	Minorities
Total Population in Slum	291163	330	291835	138953	722281	634386
BPL Population in Slum	150757	330	121051	49978	322116	308956
No. of Households in Slum	49393	163	53592	27401	130549	106408
No. of BPL Households	27669	140	26403	11473	65685	49859
No. of Women-headed Households	3439	6	2314	1193	6952	7685
No of Persons older than 65 Years	19377	153	16643	6471	42644	14159
No of Child Laborers	4234	12	2859	1784	8889	31963
No. of Physically Challenged Persons	955	7	854	277	2093	3676
No. of Mentally Challenged Persons	192	8	208	63	471	335
No. of Persons with HIV-AIDs	0	0	0	0	0	0
No. of Persons with Tuberculosis	3408	10	1648	1017	6083	6468
No. of Persons with Respiratory Diseases including Asthma	3882	5	2778	1261	7926	6958
No. of Persons with Other Chronic Diseases	606	15	1358	264	2243	1388

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 Meerut, SCs and OBCs constitute the major proportion. About 81% of the population living in slums belongs to OBC & SC division of social groups. About 84% of OBC & SC population in slums is under BPL.

In consideration with households, about 79% of the households in the slums belong to OBC and SC division of social groups. Of total slum households, the majority i.e., about 41% belong to OBC group of social division. It is further observed that 49% of OBC and 56% of SC households are living below poverty line (BPL).

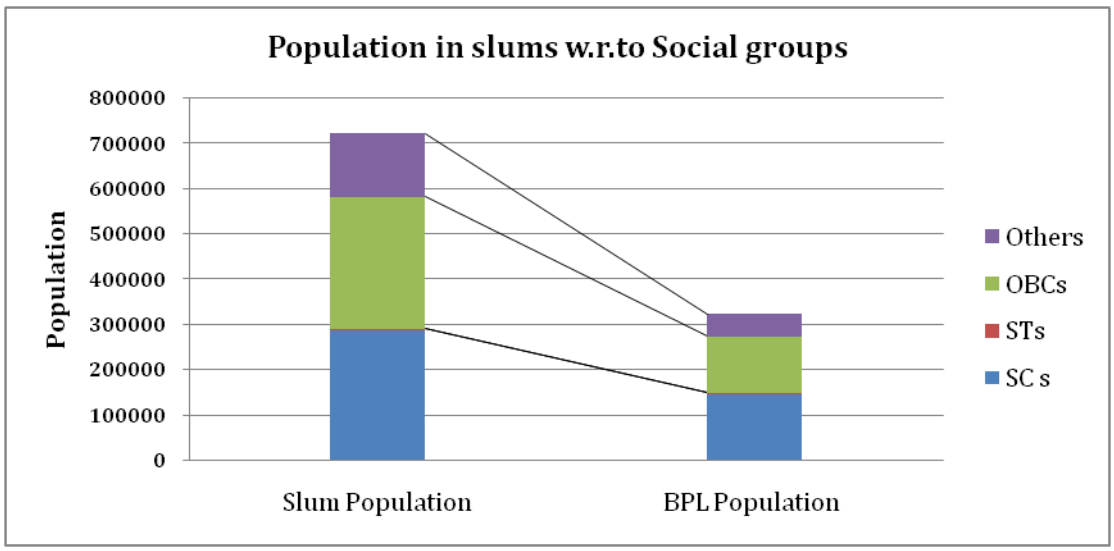


Figure 3 - 6: Distribution of Population in slums w.r.to different social groups

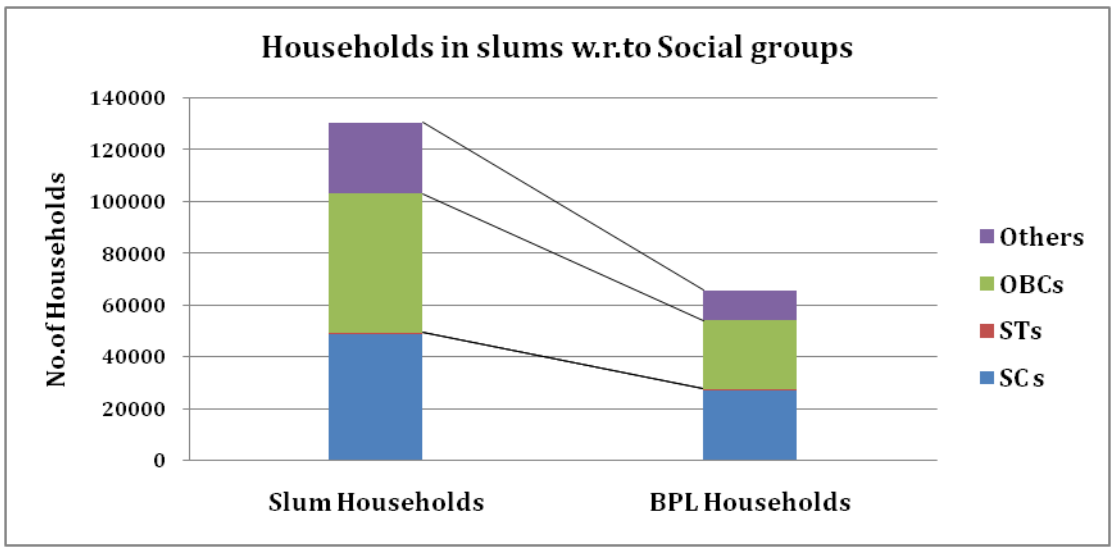


Figure 3 - 7: Distribution of Households in slum w.r.to different social groups

3.4.4 Distribution of slum households by Minority Communities

In Meerut a significant proportion of minority[3] communities are living in slums. About 47% of the slum population belongs to minority communities and constitute about 45% of the total slum households.

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

3.4.5 Literacy rate by gender

The literacy rate of slums in Meerut is 62%, 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 39% among OBC, 20% among SC and 6 % in others. The literacy rate is 27% among minority groups.

3.4.6 School Dropouts

According to Planning Commission, though most States of India 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 EWS. 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 a considerable number (35700 children approx) of the children living 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 0.4 % 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

[3] 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.

water and outlet of effluents into the river/ water bodies making the households exposed to respiratory problems, chronic and other diseases. In slums of Meerut, it is found that about 1% of the slum population is suffering with Tuberculosis while 1% of the population is found to be having respiratory diseases and 0.3% with other chronic problems.

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

3.5 ECONOMIC PROFILE

The significant sectoral composition of economic base & structural change take place within different periods influencing the city growth which cannot be denied. Due to its advantageous geographical location and presence of stronger territory sector economic base, Meerut has become the basis for a strong economical growth. The core economic activities in Meerut are trade and commerce, manufacturing, printing, textiles & garments, engineering equipments and machine tools etc.

The business and commerce activities being the primary employment generators in Meerut, it accounts for over 21.06% of the total employment in the city, while other services account for nearly 30% of the total workforce in the city. Of the total workforce employed in industries nearly 94% is employed in the small and cottage industry. The overall contribution by different industries operating in the city is estimated to be around 250 crores annually which also earn a foreign exchange worth Rs 80 crores for year 2006.On business front, Meerut is an important commercial centre for the western part of Uttar Pradesh, which meets the needs of not only of its own population but also the neighboring cities. Many business centre and market centers for food grains, textile and garment, fruits and vegetables are thriving in Meerut.

The slum –wise Occupational status and average Monthly income of slum households is shown in Annexure -1D

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.

As indicated in Annexure –I survey, 38% of the slum population are illiterates, lack in skill and professional training, making it difficult for them to obtain skilled employment opportunities in Meerut, hence end up doing low or moderately paid jobs on a daily basis.

Majority of the working population in the slums is engaged in small scale and cottage industries , construction, making of betel leaves, 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 domestic help and small scale industries. 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 slum households by Occupation Status

As per Annexure –I survey, it is inferred that 42% of the households are found to be working as casual laborers and 23% on regular wage basis as they are unskilled, includes domestic help, rag pickers, and vegetable vendors. Only 7% is actually working on a monthly salary, indicating a secured position and skilled employment. Therefore, nearly 55% of the poor households do not have access to a dependable occupation and secure incomes.

As per the recent Annexure –I survey, 55% of the slum households do not have opportunities towards sustainable occupation and secure incomes. 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.

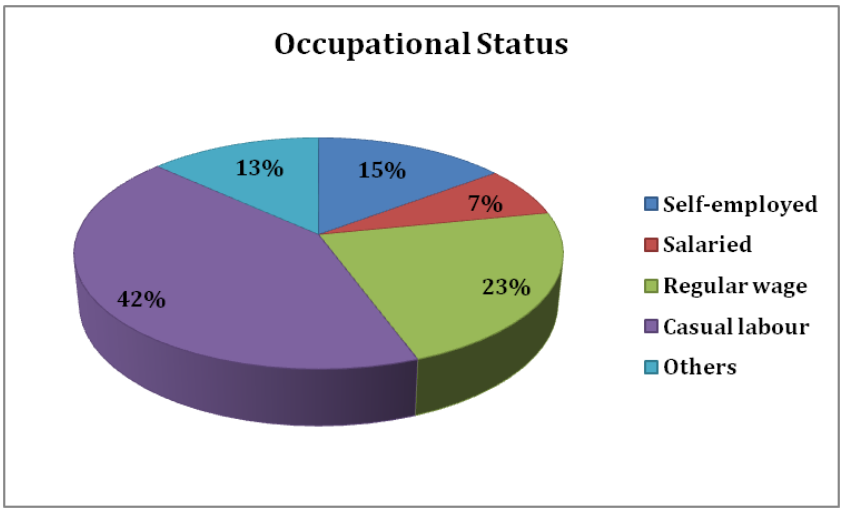


Figure 3 - 8: Distribution of slum household's w.r.to occupational status

3.5.3 Monthly Income by Households

In respect to monthly income of households, it is found that, about 30% of the households income ranges between ₹2000 - ₹3000. 27% of the households earn in the range of ₹1500 - ₹2000. The households earning less than ₹1500 per month constitute about 15%.

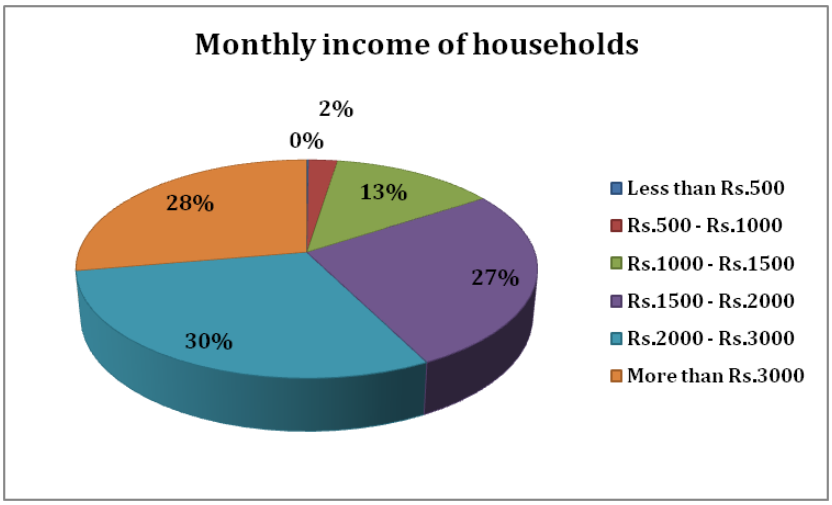


Figure 3 - 9: Distribution of household's w.r.to monthly income

Further, the livelihood pattern has been become indefinite and irregular for the households, where only 28% 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 is now deemed 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 Meerut city has been collected and a brief analysis on the current status of Water Supply, sewerage, Storm Water drainage and Solid Waste Management. The numbers are indicated in the following *Table 3-6* based on a survey of 185 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	101		42			42		
SOURCE OF WATER SUPPLY FOR HOUSEHOLDS								
Source	Individual tap	Public tap	Tube well/ Bore well/ Hand pump	Open well	Tank/ Pond	River /Canal/ Lake	Water tanker	Others
No. of Households	47353	29283	22620	0	5	0	1583	29705
WATER SUPPLY SOURCE								
Source	No. of individual taps		No. of public taps			No. of tube wells / bore wells/ hand pumps		
No. of Connections	47353		1202			388		
DURATION OF PIPED WATER SUPPLY TO SLUMS								
Duration	less than 1 hour daily		1-2 hrs daily	more than 2 hrs daily		Once a week	Twice a week	No supply
No. of Slums	0		29	104		0	1	51

Source: RAY Primary survey, 2011

a. Connectivity to City Wide Water Supply System

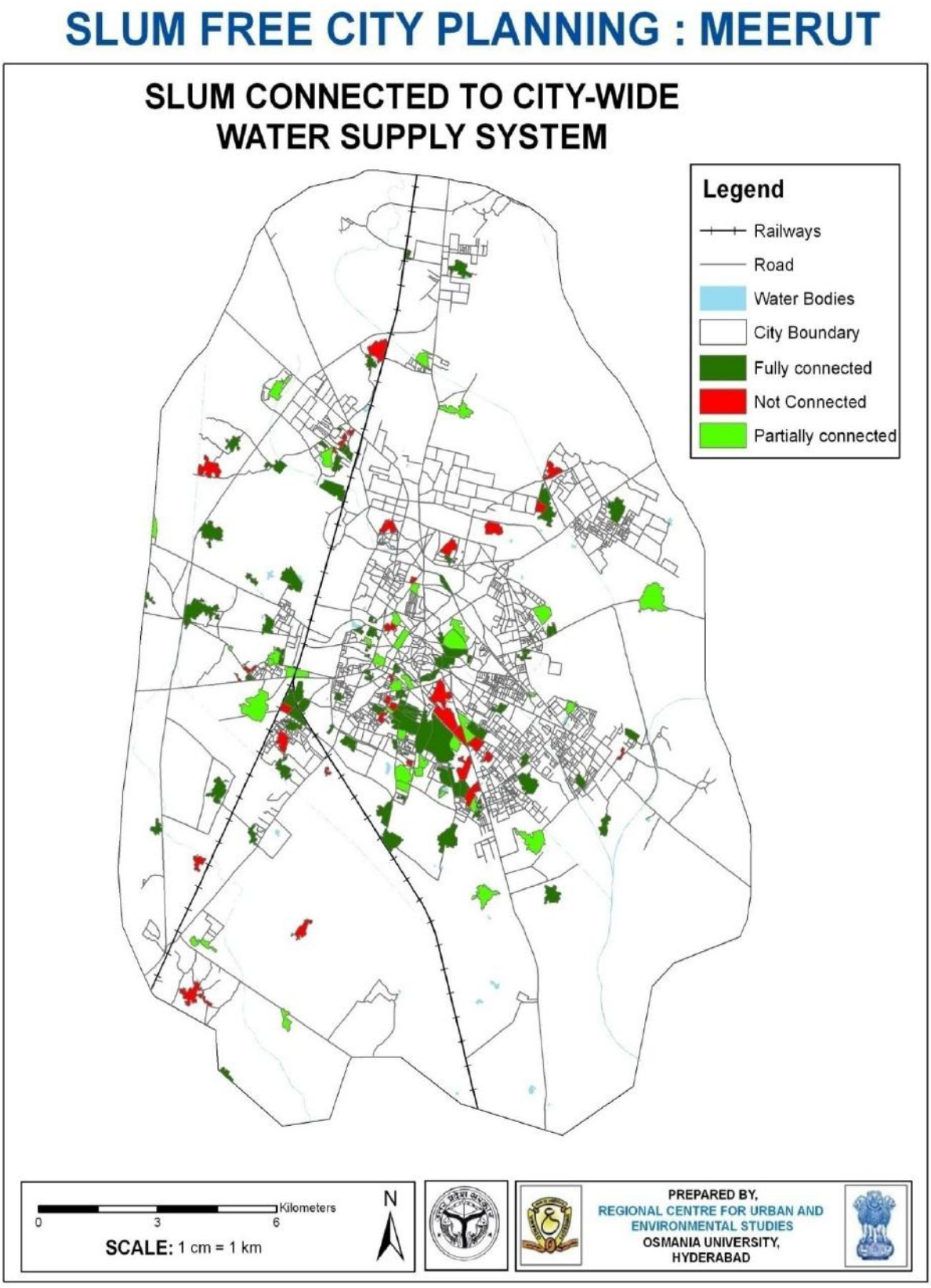
In regard with connectivity of slums with city wide Water Supply system, about 54% of the slums are fully connected and 23% of slums are partially linked to the system. The rest 23% of the slums does not have connectivity to the city wide system.

b. Existing Sources of Drinking Water

In regard with source of drinking water, over 36% of the slum households i.e., 47353 households out of 130549 households have their own individual water supply connections, where potable drinking water being supplied by the ULB. A significant portion of 64% 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 Meerut, for about 56% of the slums (104 slums) the piped water is supplied for more than 2 hours daily. In 51 slums, the piped water supply is totally absent and don't have regular piper water supply and the people majorly depend on hand pumps, wells, tube wells for drinking water. In 29 slums are found that the drinking water is supplied for duration of 1 to 2 hrs daily and in only one slum the duration is Twice a week.



Map 3 - 7 : Slums connected to City wide water supply system

3.6.2 Sanitation

Sanitation and sewerage systems 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 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*:

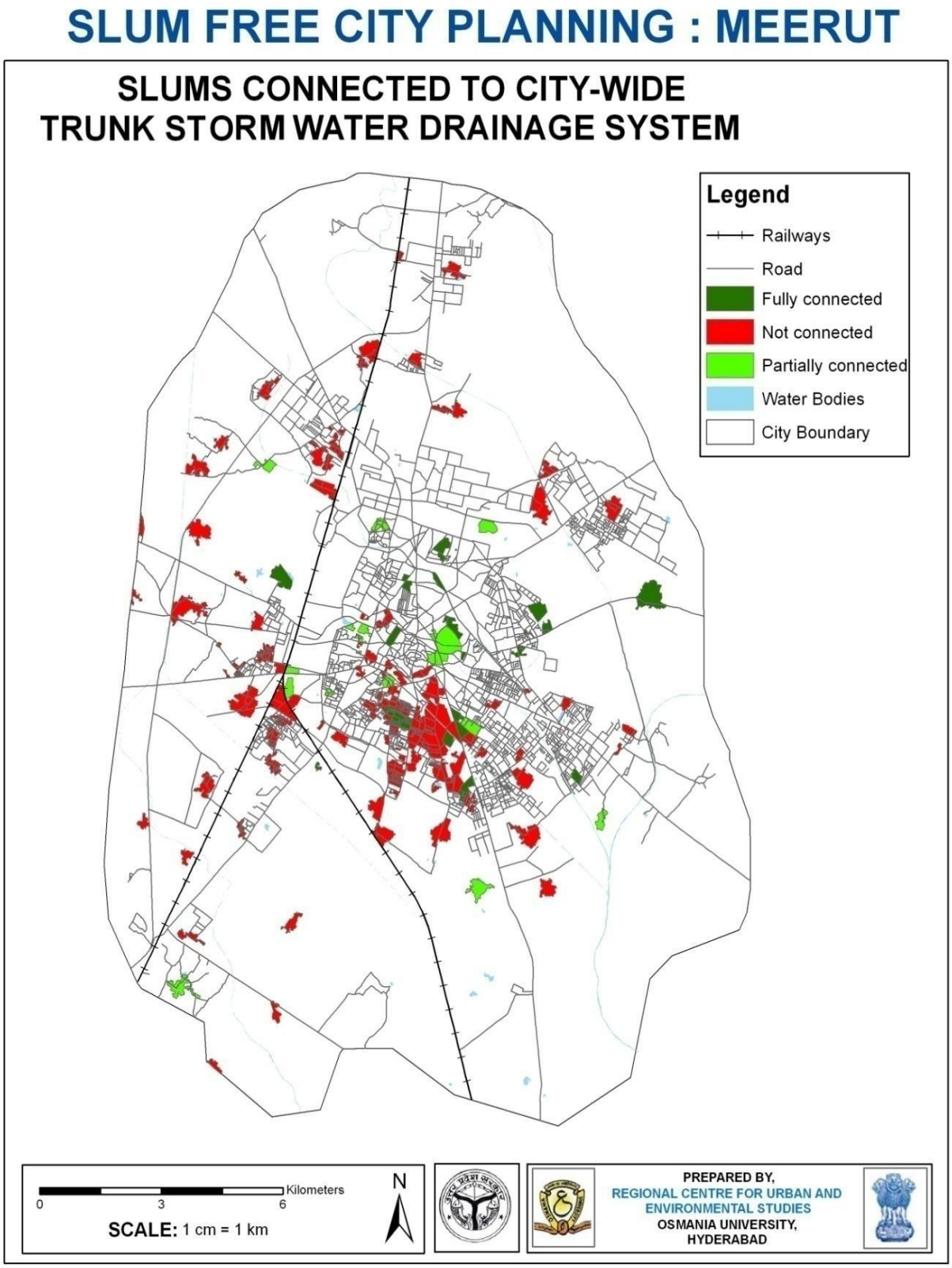
Table 3 - 7 : Status of Sanitation in slums

Connectivity to City-wide Storm-water Drainage System										
Status	Fully connected			Partially connected			Not connected			
No. of HH's	28			24			133			
Connectivity to City-wide Sewerage System										
Status	Fully connected			Partially connected			Not connected			
No. of Slums	9			18			158			
Latrine Facility used by the households										
Type of Latrine	Public/Community			Shared Latrine			Own Latrine			Open Defication
	Septic tank/ flush	Service latrine	Pit	Septic tank/ flush	Service latrine	Pit	Septic tank/ flush	Service latrine	Pit	
No. of HH's	3069	140	0	3689	717	658	57298	10145	21563	33270

Source: RAY Primary Survey, 2011

a. Connectivity to City wide Storm-Water Drainage System

Similarly 13% of the slums are partially connected to the storm water drainage, 15% is fully linked to the system but 72% of the slums are not covered by 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.



Map 3 - 8 : Connectivity of slums with city wide Storm Water Drainage system

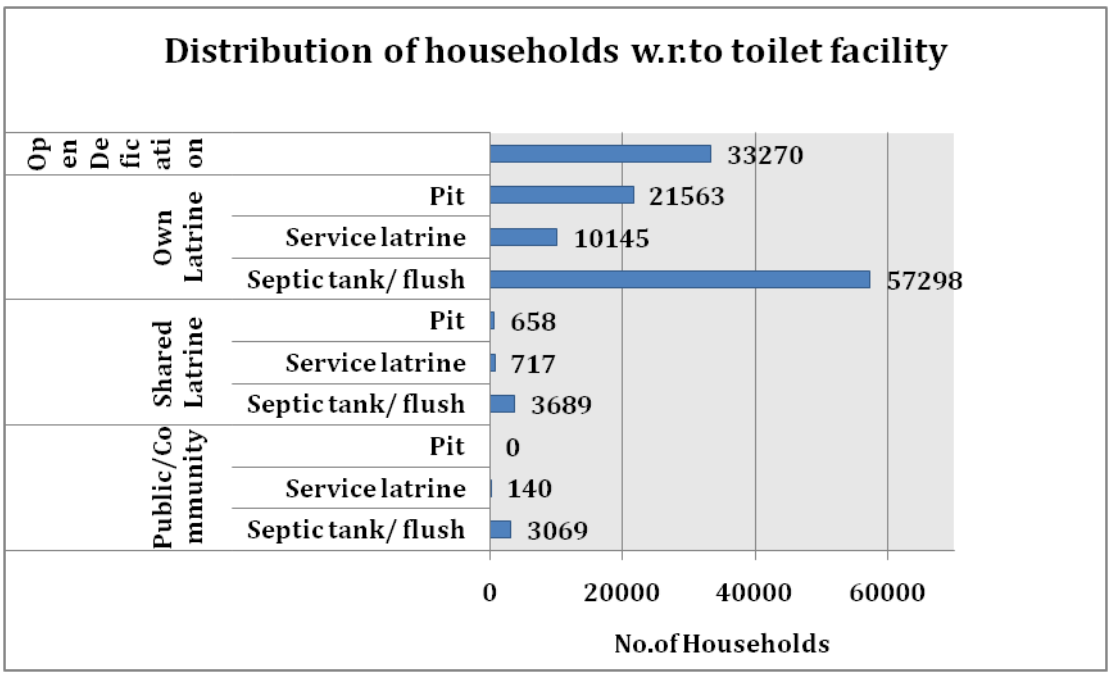
b. Connectivity to City wide Trunk Sewerage System

In respect to connectivity of slum with the city wide sewerage system, only 5 % of the slums are fully connected to city wide sewerage system while 10% slums are partially connected. There is shortage of the system where 85% slums are not connected.

The following *Map 3-9* presents the status of the slums that connected to city wide sewerage system.

c. 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.

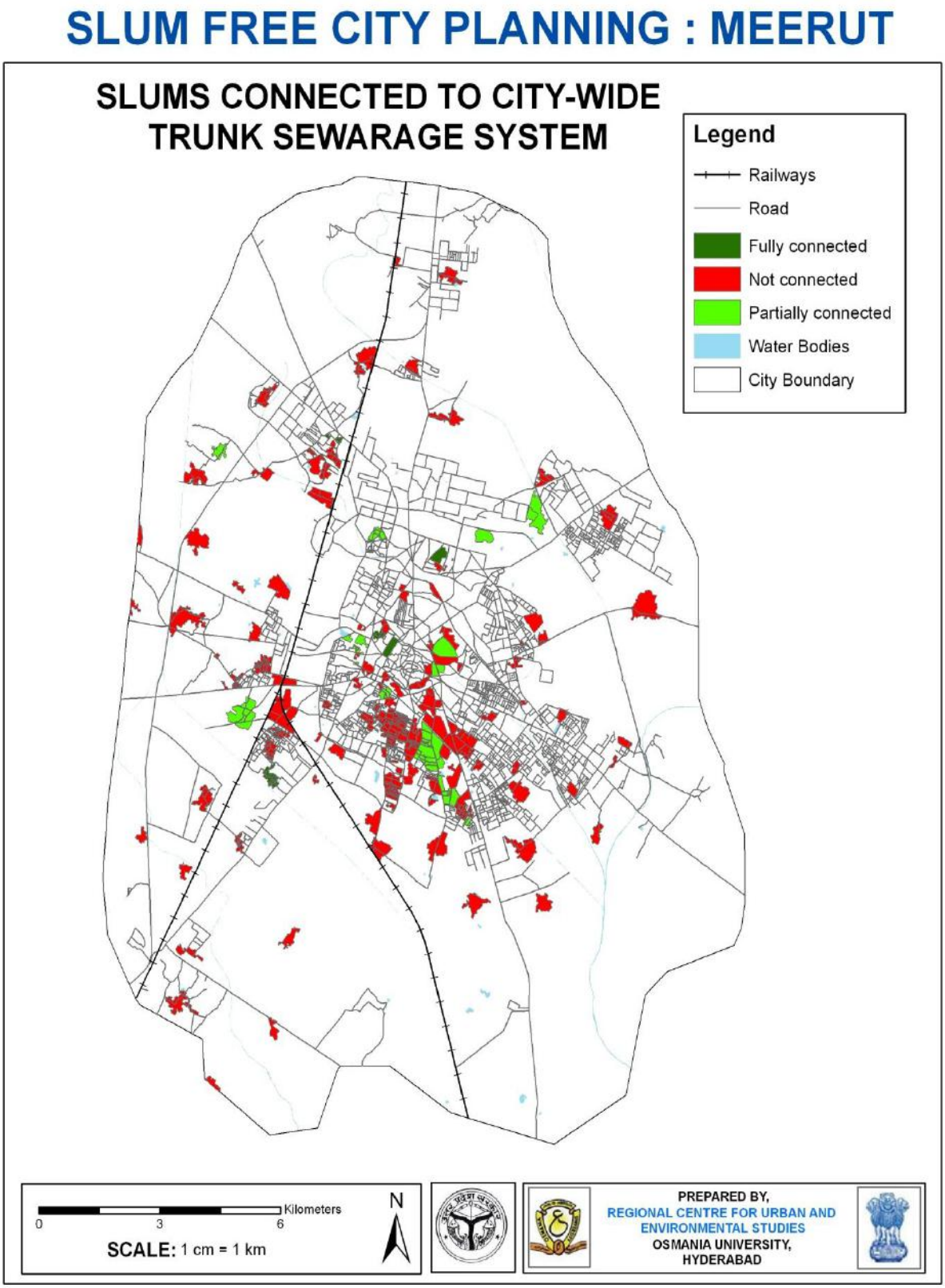


Source: RAY primary survey, 2011

Figure 3 - 10: Distribution of Households w.r.to type of toilet use

As evident in *Figure 3-10,* about 69% of the slum households have access to own latrine with septic tank/flush/Service/pit type of latrine. A low proportion of 4% households use shared latrines and 2% households use public use. An alarming share of about 25% slum house holds practice defication which leads to unhygenic environment and health related problems.

Even though 75% 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.



Map 3 - 9 : Connectivity of slums with city wide sewerage system

3.6.3 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.

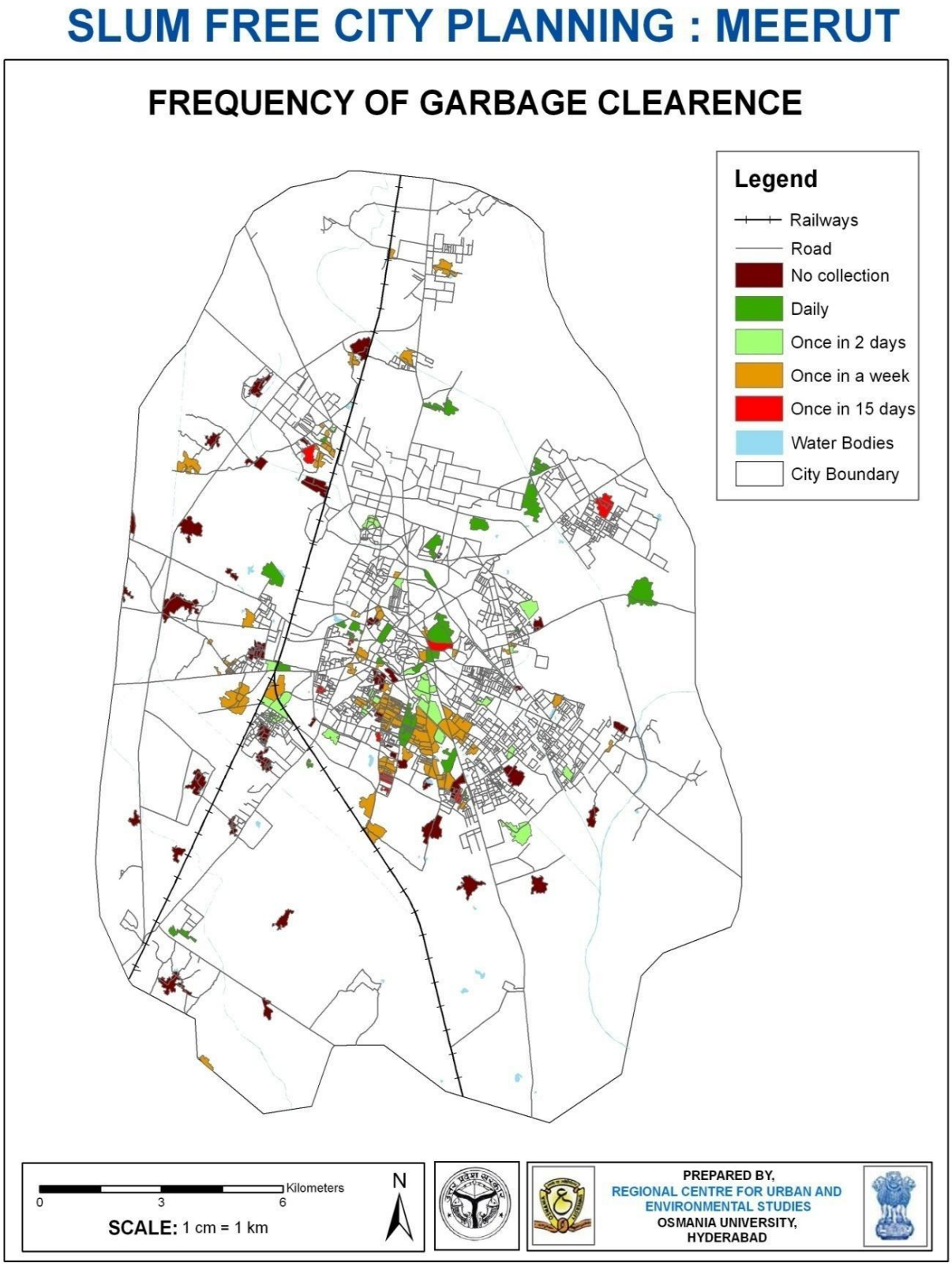
Table 3 - 8 : Status of Municipal Solid waste management in slums

ACTIVITY	NO. OF SLUMS
Frequency of garbage disposal	
Daily	32
Once in 2 days	26
Once in a week	59
Once in 15 days	12
No collection	56
Arrangement for Garbage Disposal	
Municipal staff	90
Municipal Contractor	44
Residents themselves	4
Others	1
No arrangement	46
Frequency of Clearance of Open Drains	
Daily	27
Once in 2 days	33
Once in a week	65
Once in 15 days	12
No clearance	48

Source: RAY primary survey, 2011

a. Frequency of Solid waste disposal

The Table 3-8, gives an overall picture of the solid waste management in slums, about 17% of slums have daily clearance of garbage,14% of slums have once in a 2 days and in 38% of slums the waste is collected once in a week or even more. In about 30% 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.



Map 3 - 10 : Frequency of Garbage collection in Slums

b. Arrangement of Garbage Disposal

As shown in the *Table 3-8*, in 49% of the slums, the solid waste disposal activity is handled by the municipal staff and 24% of the disposal arrangement is through respective municipal contractors. In areas where there is lack of solid waste disposal or collection, the disposal activity is taken by the residents themselves, constituting 2%. Around 25% of slums of slums have inadequate and untimely collection of solid waste, which reflects the necessity for increased staff and regular clearance to avoid the unsanitary conditions.

c. Frequency of Clearance of Open drains

In respect with the clearance of open drains, 15% of the slums have daily clearance of open drain; in 18% of slums the clearance takes place once in 2 days. In about 41% of the slums the clearance takes place either once is a week or every 15 days. In about 26% of the slums the collection of waste is totally absent, further deteriorating environmental conditions and contaminating the ground water.

Picture 3 - 4: Condition of open drains in slums

Picture 3 - 5: Open dumping of Garbage in slum

For slum wise Physical Infrastructure details refer Annexure-1E

3.6.4 Roads – Condition & Connectivity

It IS observed that majority of road corridors in the city of Meerut suffer from inadequacies in the transportation system, such as capacity constraints in the road network, poor definition of road hierarchy, encroachments, on street parking, mixed traffic, lack of pedestrian facilities and other street furniture.

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. The *table 3-9* shows the existing statistics of road network in slums.

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

	No. of Slums
Approach Road/Lane/Constructed Path to the Slum	
Motorable pucca	143
Motorable katcha	15
Non-motorable pucca	7
Non-motorable katcha	20
Distance from the nearest Motorable Road	
Less than 0.5 kms	128
0.5 to 1.0 km	37
1.0 km to 2.0 km	14
2.0 km to 5.0 km	6
Internal Road	
Motorable pucca	83
Motorable katcha	23
Non-motorable pucca	47
Non-motorable katcha	32

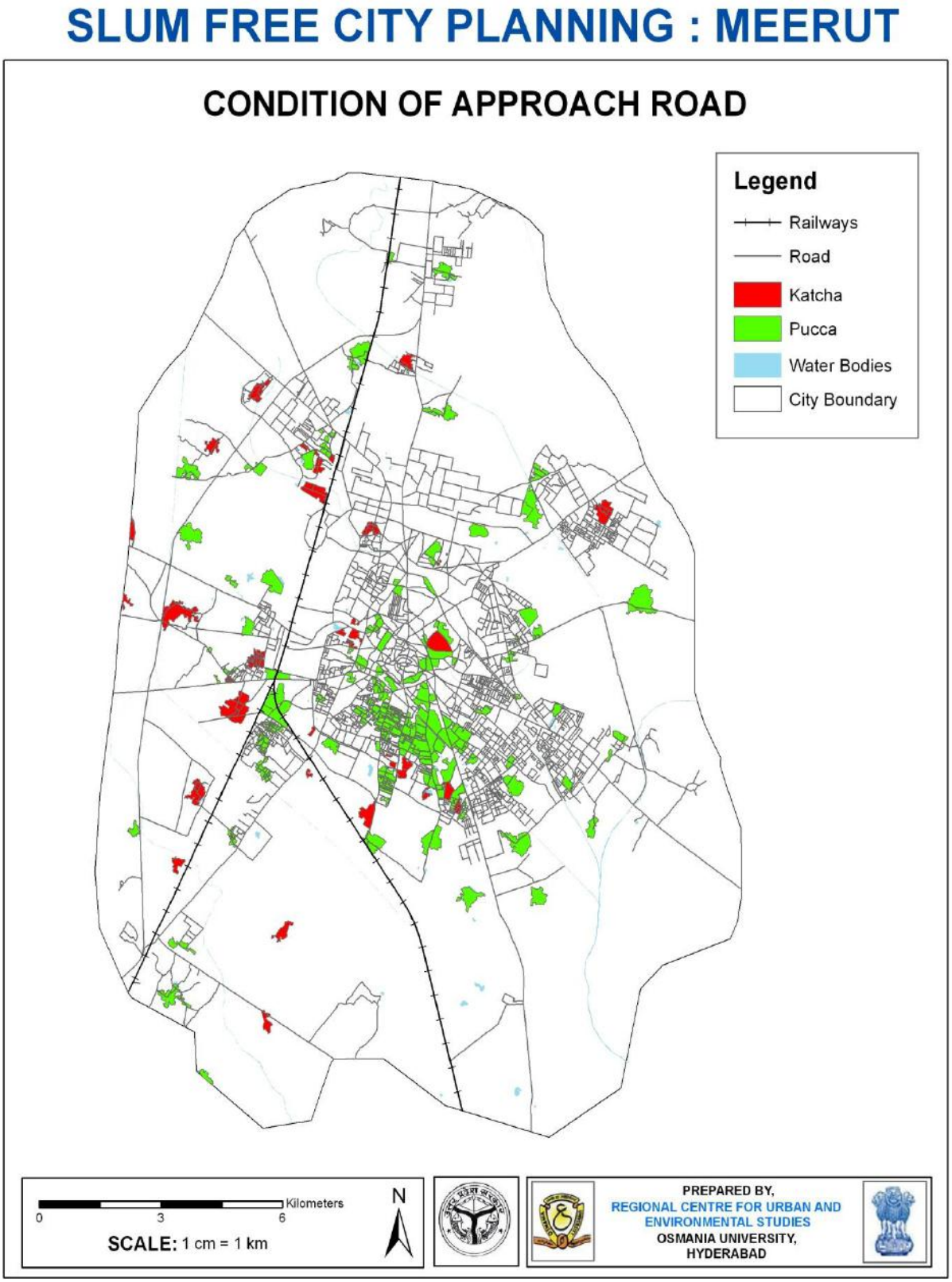
Source: RAY Primary survey, 2011

a. Nature of Approach Road

By and large, 77% of slums in the city are provided/connected with Motorable Pucca roads and 8% are connected with approach roads being Motorable Kutcha in nature. On the other side, 15% of the slums have non motorable pucca &katcha road, making the transportation access difficult; there is a need to upgrade these roads. The *Map 3-11* shows the type of approach road provided to the slums.

b. Distance from nearest Motorable road

Around 69% of the slums have access to the nearest Motorable road within 0.5 Km and 20% between 0.5 Km to 1 Km. For 11% of the slums, the nearest approach road is at the distance less than 2 km.



Map 3 - 11 : Condition of Internal roads in slums

c. Type of Internal Road

In respect to internal roads in the slums, 45% of the slums have Motorable Pucca internal roads while 12% have katcha internal roads. Around 43% of the slums lack in proper internal roads with BT surface.

Picture 3 - 6: Non-Motorable Katcha internal roads in slums

3.6.5 Street Lighting Facility

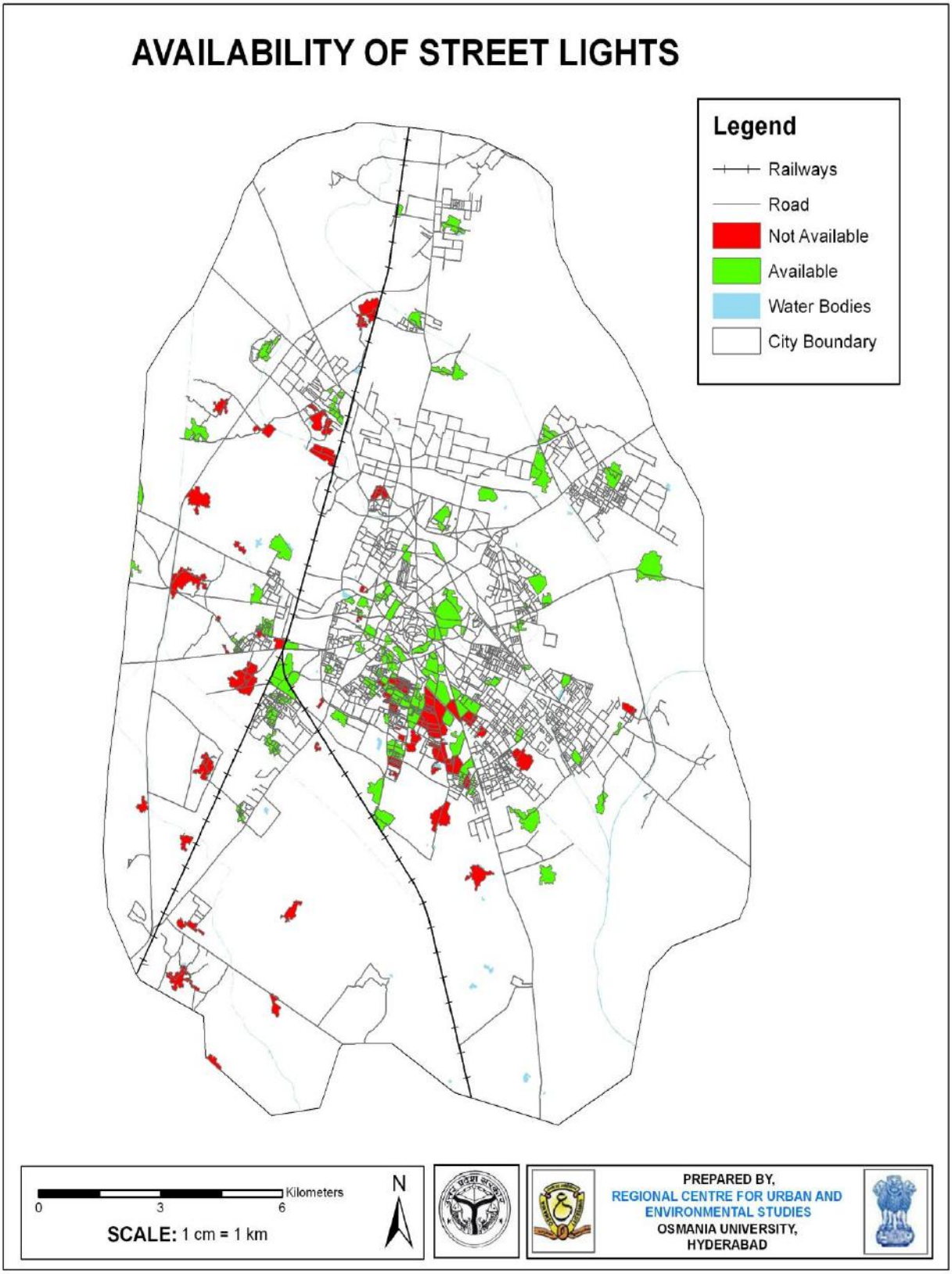
Table 3 - 10 : Availability of Street lighting Facility

	No. of Slums
AVAILABILTY OF STREET LIGHTING FACILITY IN SLUM	
Yes	114
No	71

Source: RAY primary survey, 2011

According to Annexure -1 survey, 62 % of the slums have street lighting facilities, not all of which are in working condition and found to be insufficient. 38% of the slums do not have street lighting facilities, hence it is essential to increase the number of street lights to prevent accidents and other inconveniences.

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



Map 3 - 12 : 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 current level of social infrastructure available to the slum households.

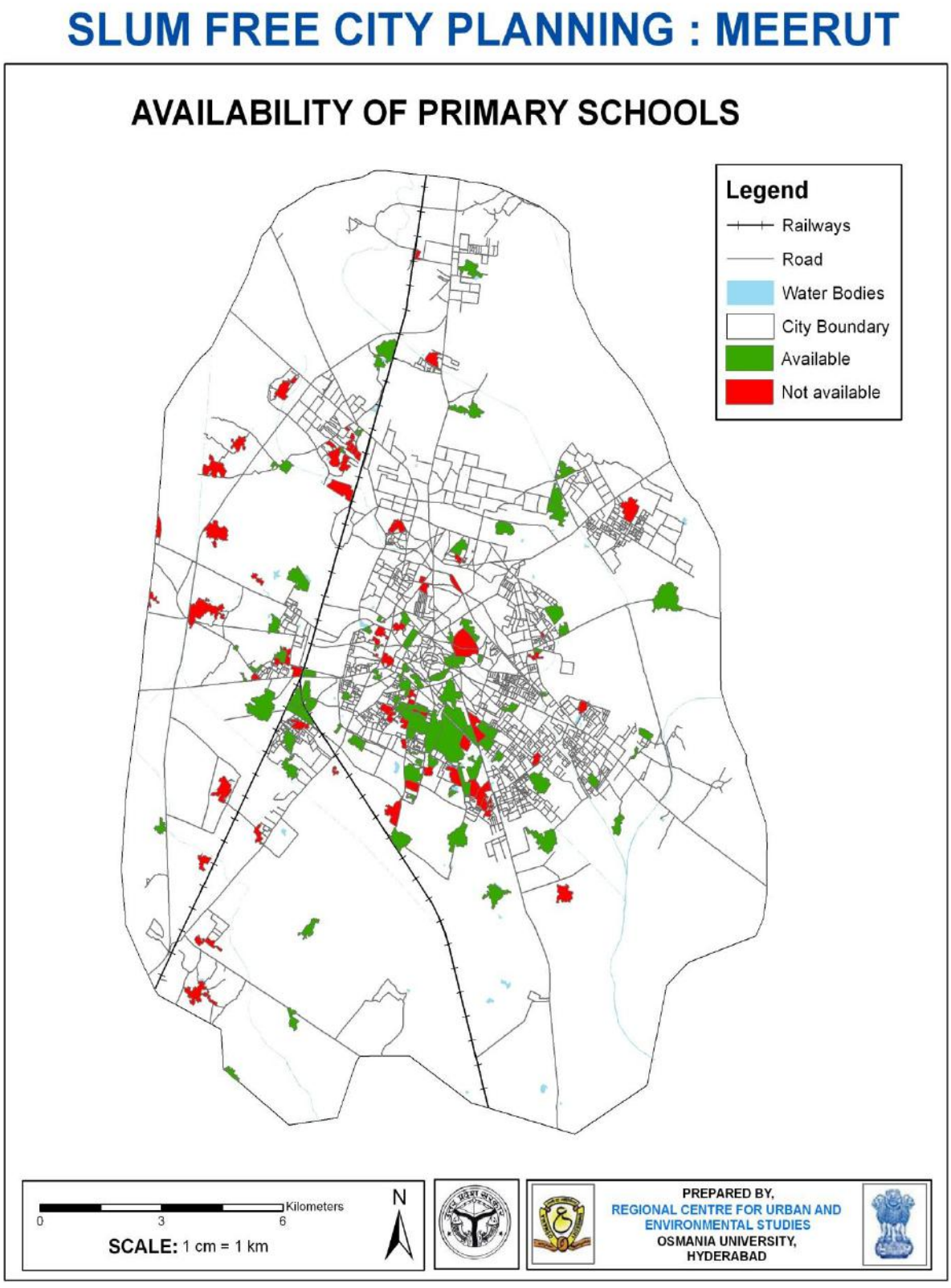
3.7.1 Education facilities

Table 3 - 11: Availability of Educational facilities in Slums

EDUCATION FACILITIES	NO. OF SLUMS HAVING ACCESSIBILITY
Pre-primary School	
a. Anganwadi under ICDS	79
b. Municipal pre-school	26
c. Private pre-school	26
Primary School	
a. Municipal	25
b. State Government	14
c. Private	22
High School	
a. Municipal	7
b. State Government	8
c. Private	24
Adult Education Centre	2

Source: RAY primary survey, 2013

From the *Table 3-11,* it is indicated that 131 slums have accessibility to pre-primary schools hence remaining 54 slums have to be addressed for provision of pre primary education facility. Similarly 124 slums have to be addressed for provision of accessibility to primary schools and 144 slums for High school education facility. (As per Annexure – 1 Survey)



Map 3 - 13 : Availability of Primary school in slums

3.7.2 Health facilities

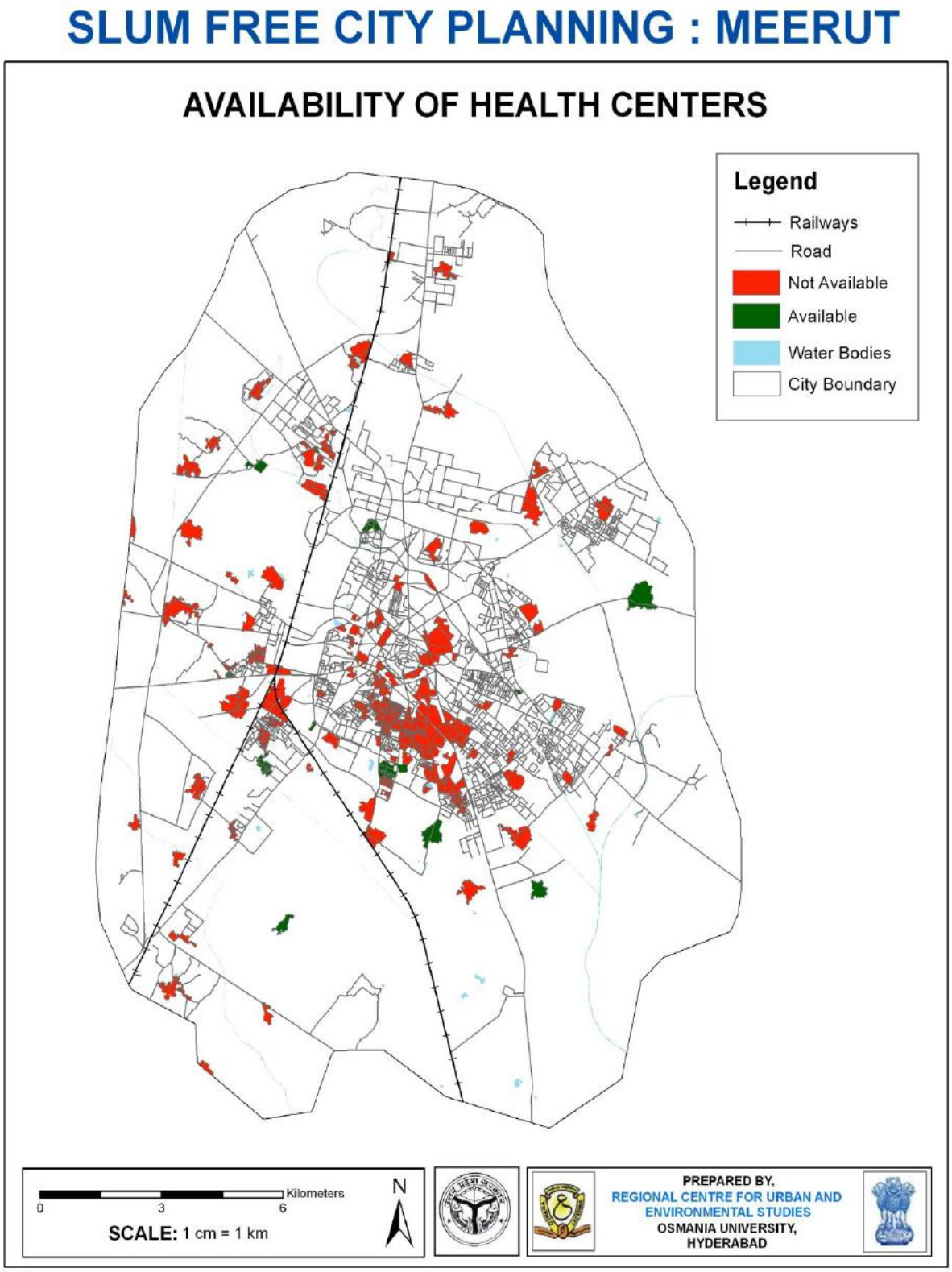
Majority of the health problems in urban slums stem from the lack of access to or demand for basic amenities. Basic service provisions are either absent or inadequate in slums. Lack of drinking water, clean, sanitary environment and adequate housing and garbage disposal pose series of threats to the 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: availability of Health facilities in slums

HEALTH FACILITIES	
Existence of Health Facilities	**No. of slums Having accessibility**
Urban Health Post	1
Primary Health Centre	8
Government Hospital	4
Maternity Centre	3
Private Clinic	16
Registered Medical Practitioner (RMP)	9
Ayurvedic Doctor/Vaidya	21

Source: RAY primary survey, 2011

As per Annexure –I data, 94% of the slums do not have access to any kind of health facilities. Within an accessible distance of 2kms, 4% of slums have primary health centre, 2% of the slums have Government Hospital and only 1% of slums have urban health post. For about 9% 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 - 14 : 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 available social welfare facilities in 185 slums:

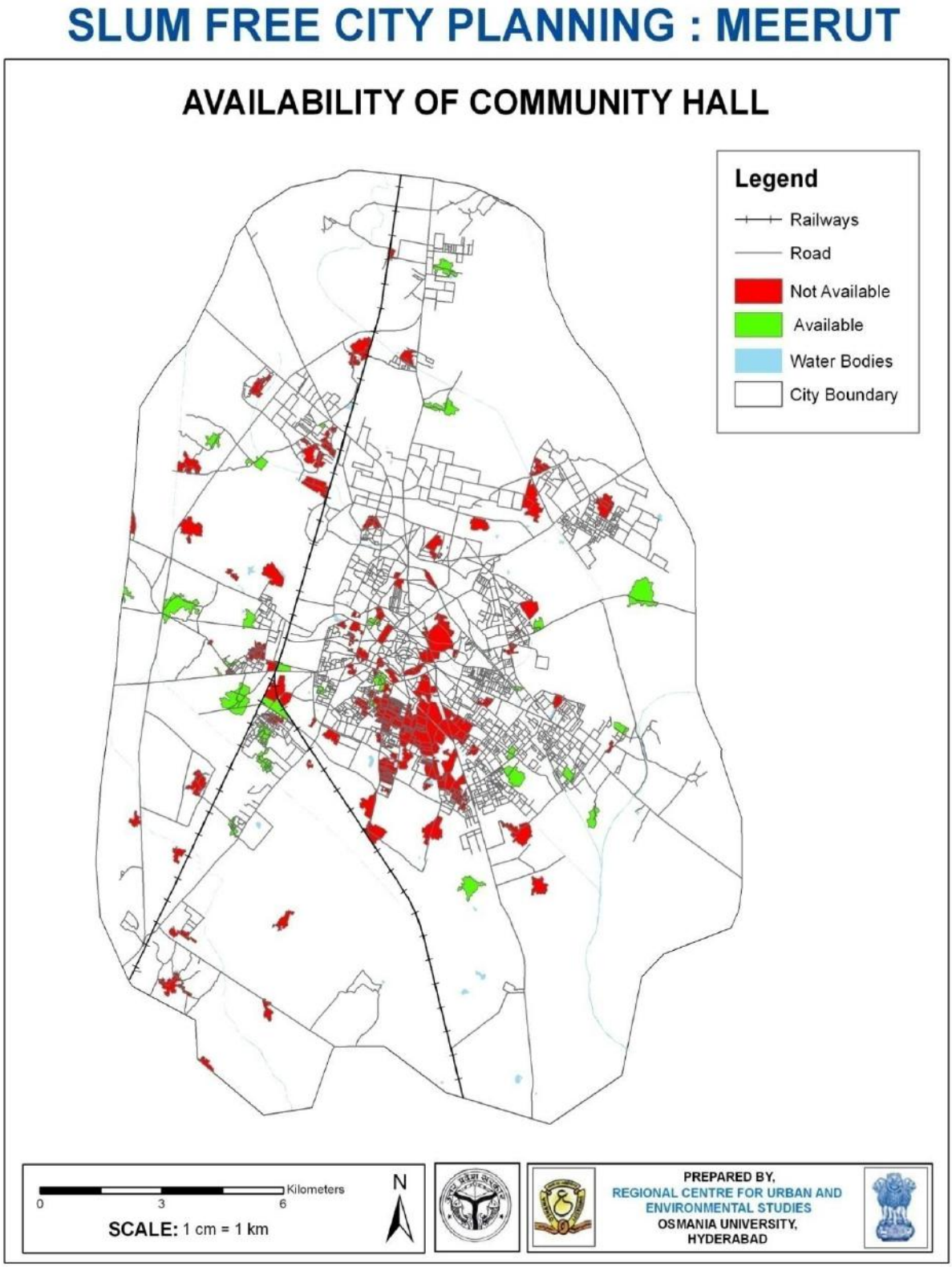
Table 3 - 13 : Availability of Social Welfare facilities in slums

Availability of Facilities within Slum	No. of slums Having accessibility
Community Hall	36
Livelihood/Production Centre	0
Vocational training/Training-cum-production Centre	1
Street Children Rehabilitation Centre	0
Night Shelter	1
Self Help Groups/DWCUA Groups in Slum	8
Thrift and Credit Societies in Slum	11
Youth Associations	2
Women's Associations/ Mahila Smithies	5
Availability of Facilities within Slum	**No of Holders**
Old Age Home	116
Old Age Pensions	3946
Widow Pensions	2260
Disabled Pensions	1761
Availability of Facilities within Slum	**No of Persons covered**
General Insurance	22819
Health Insurance	10574
Slum-dwellers Association	**No of slums**
Yes	0
No	185

Source: RAY Primary survey, 2011

36 slums out of 185 have facility of community halls and all the slums do not have slum dwellers association however 3% of slums have women's associations to empower women with home based employment. In addition, 4% of slums do have self groups as well as credit societies.

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



Map 3 - 15 : Availability of Social Welfare facilities 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 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 Meerut 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 in 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 Meerut.

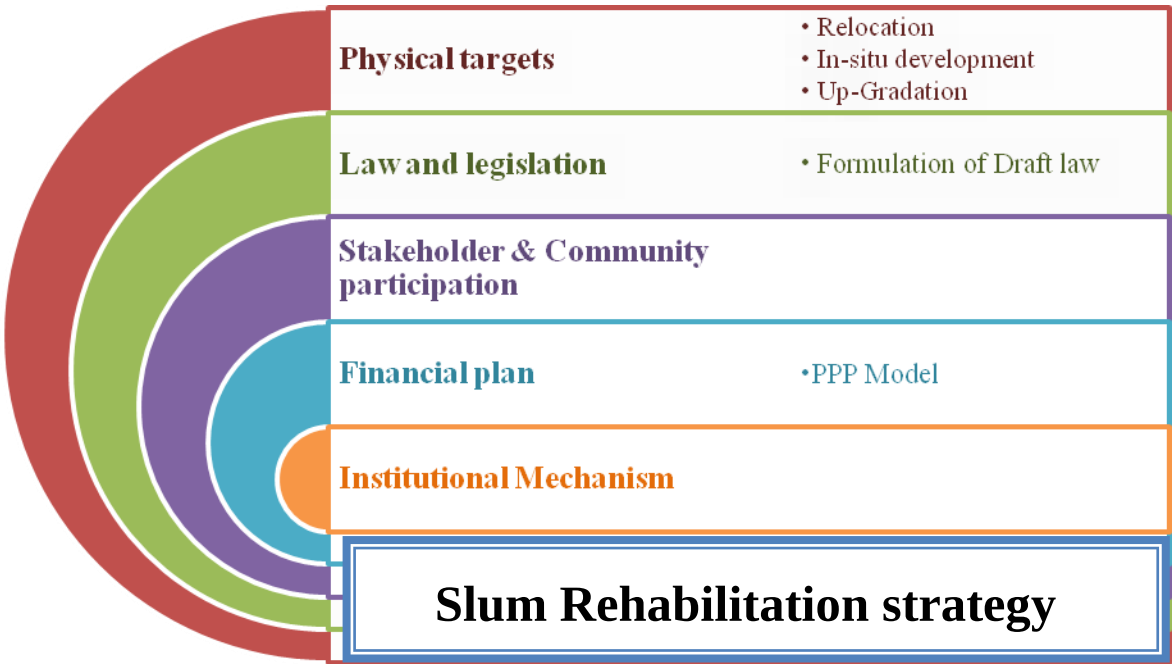


Chart 4 - 1: Components of Slum Rehabilitation strategy

4.1.1 Physical targets

For 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 is categorized based on 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

4.1.2 Law and legislation

An appropriate legislation is a necessity to achieve and implement the development strategies formulated for Slum Free Meerut. 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 Govt. 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.

a. 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 Meerut. 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.

b. 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.

c. 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 Meerut slums to identify the level of urban services. The matrix details the infrastructure and housing services among the slums.

4.1.3 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.

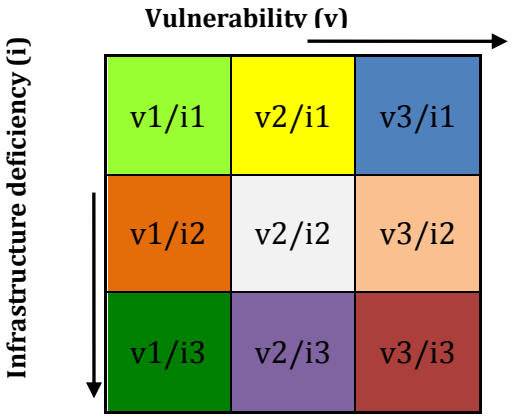


Figure 4 - 1: Model Infrastructure Deficiency and vulnerability matrix

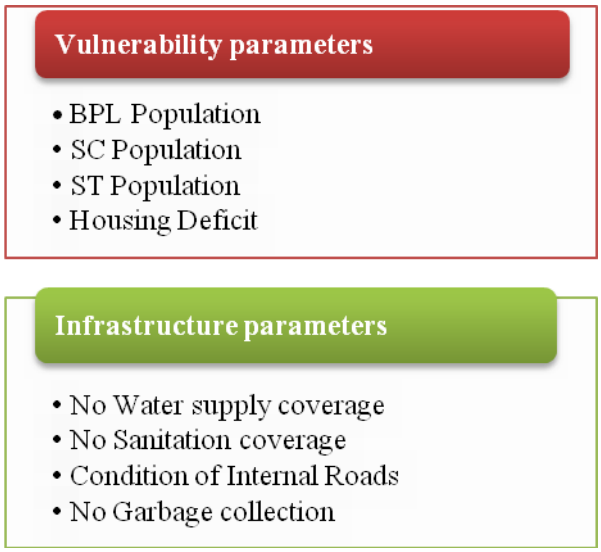
For evaluating infrastructure deficiency and vulnerability the following parameters are considered:

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

i. Housing condition based on structural condition (Pucca, Semi-Pucca and Katcha)
ii. Below the poverty line (BPL) Population, SC/ST population
iii. 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 - 2: 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, 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	Untenable
No of Slums	**165**	**6**	**14**

Out of 185 slums in the city, 165 slums are tenable and 6 slums are semi - tenable due to surrounding non – residential land uses and any other land and 14 are un-tenable for human habitation. 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**

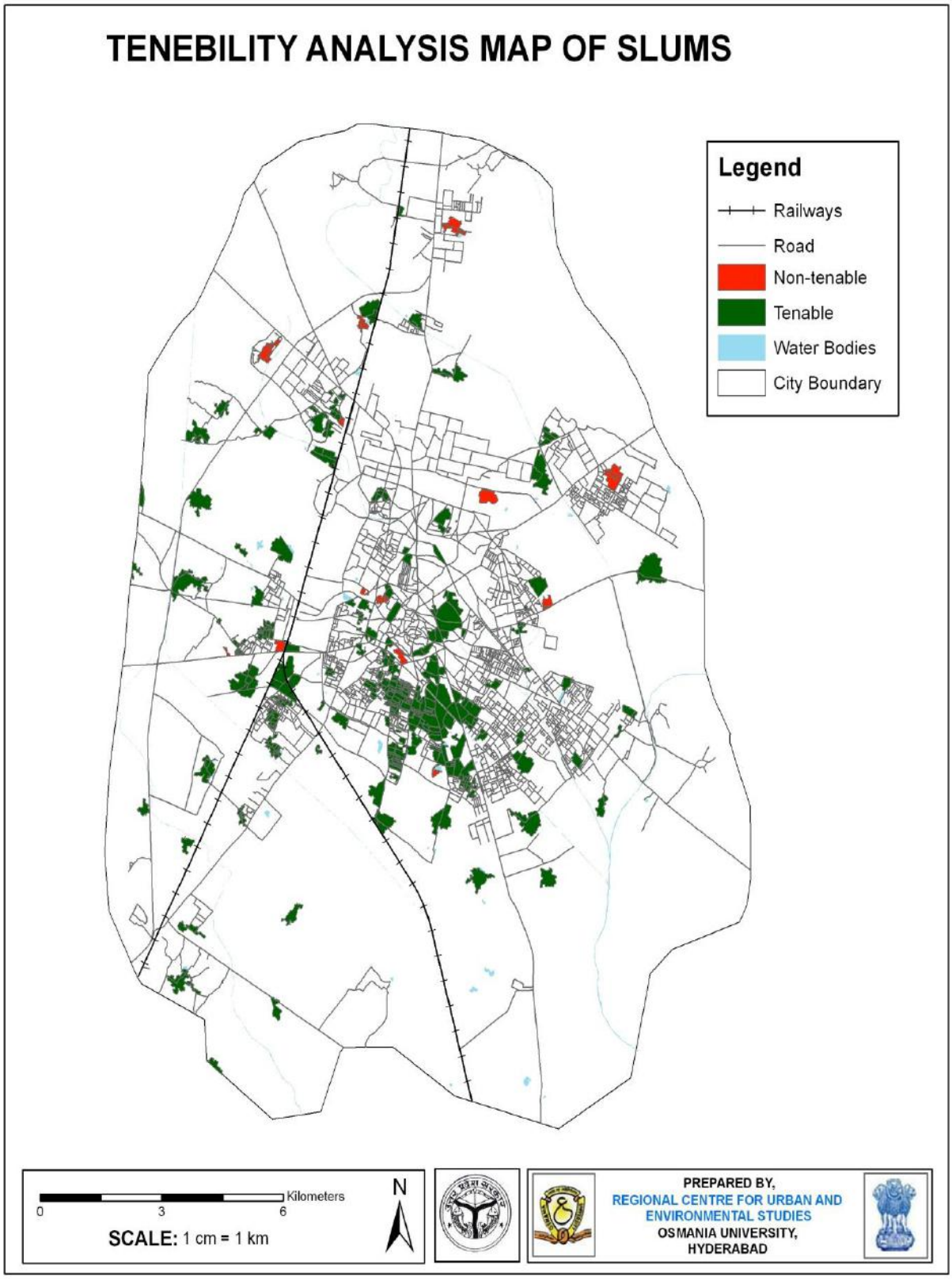
4.2.2 Abutting Land use

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

Legal Status/ Land use	Notified		Non - Notified		Total		Slums in category as % of Total Number of Slums	Households in category in % terms of Total Number of slum Households
	No of slums	No of HHs	No of slums	No of HHs	No of slums	No of HHs		
Residential	111	90329	67	38019	178	128348	96%	98%
Industrial	1	215	0	0	1	215	1%	0%
Commercial	1	265	2	291	3	556	1%	0.5%
Others	1	300	2	1130	3	1430	2%	1.5%
Total	**114**	**91109**	**71**	**39440**	**185**	**130549**		

From the above *Table 4-2,* it is established that 98% of the households are situated in the areas surrounded by the residential use and 0.5% of the slum households are surrounded by Commercial and the remaining 1.5% of households under other land 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.

SLUM FREE CITY PLANNING : MEERUT



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 in slums based on Land tenure status

Land tenure Status	Patta	Possession certificate	Encroached public land	Encroached private land	On Rent	Others
No. of dwelling units	3469	95609	1979	1421	5944	1738

As shown in the *table 4-3*, about 87% of the slum households are registered with possession certificates while 3% are registered and have pattas for their respective lands. On the contrary, 5% of slum dwellers reside on rented lands. 3% of slums are encroached on public and private lands.

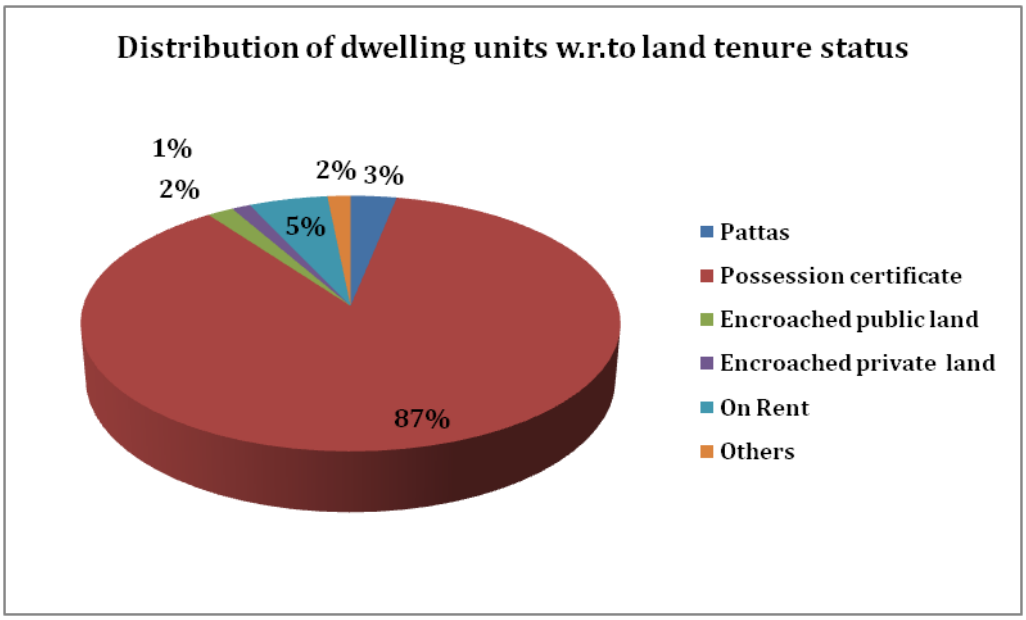


Figure 4 - 2: Distribution of dwelling units in slums w.r.to land tenure status

4.2.4 Ownership of Land Status

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 4–4* classifies the legal status of the slum households based on the ownership and land tenure status.

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

Ownership of Land/ Land tenure (No of DU's)		ULB	Defense	Private	Others
Registered	Patta	1013	0	2221	235
	Possession certificate	25069	2465	67820	255
Un - Registered	Encroached	993	456	1951	0
	On Rent	2751	33	2402	758
	Others	868	13	457	400

About 90% of total dwelling units have registered and the remaining 10% are not registered with any agency. Under the ownership of ULB, 24% of the dwelling units are registered and 4% are unregistered. Similarly 64% are registered and 4% dwelling units are unregistered, belong to the private ownership of the land. Overall under the Defense owned lands, 2% belongs to registered and 0.5% to unregistered. Speaking of ownership, private ownership is termed to be the highest with 68% of the dwelling units under it. Still 72% of the households need a secured status in order to avail better infrastructure.

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

Ownership of Land / Legal Status (No. of slums)	ULB	Defense	Private	Others
Notified slums	33	1	79	1
Non - Notified slums	19	1	48	3

About 18% of the notified slums and 10% of the non notified slums are under the ownership of ULB and in Defense, 1% of the notified slums and 1% of the non-notified slums. While on other side, it is also found that private agencies make the largest by owning nearly 43% of the notified and 26% of the non-notified slums.

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

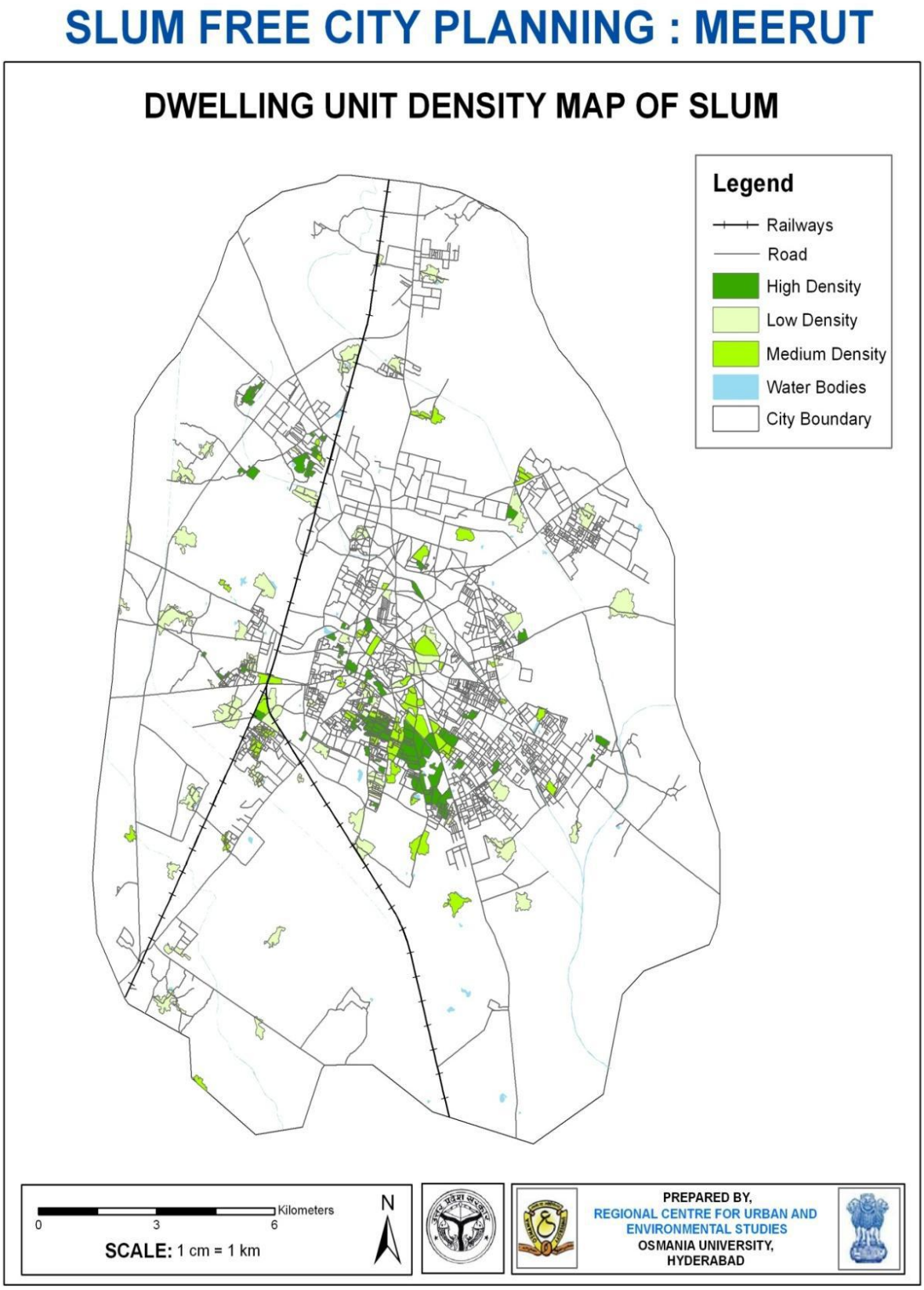
Mode of Development (No of Slums)	Low Density	Medium Density	High Density	Total
Relocation	0	0	0	**0**
In - Situ development	41	3	6	**50**
Up gradation	124	4	7	**135**
Total	**165**	**7**	**13**	**185**

As per the analysis, it is found that 165 slums have low density while 13 slums are High density and the remaining pretty low. Out of 185 slums in the city, 135 were proposed for up gradation mode of development and remaining 50 slums for In-situ development. Under the category of low density, 41 slums have been chosen for In-situ and 124 slums for up-gradation. At the same time, 7 slums which are moderately dense have selected for up-gradation mode with 4 slums and 3 slums for In-situ development. In High dwelling unit density slums, out of 13 slums, 6 slums are proposed for In-situ development and the remaining for Upgradation.

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

4.2.1 Land value

For Meerut 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 - 2: Dwelling unit density map of 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

- 16% of the slums in the city have been into existence for more than 40 years.
- 72 slums are situated along the open and storm water drains and 14 slums are on Hazardous/ objectionable sites.
- In about 11 slums, it is found that the rain water will remnant More than 30 days.
- Even though 48% of the total houses are Pucca in nature, a significant portion of them are found to be in bad condition. 52% of the houses are Semi pucca& Katcha in nature making them vulnerable to any kind of disaster.
- In respect to electricity connections, nearly 13% of the total houses do not have access to electricity.

b. Demography & Employment

- Nearly 45% of the total slum population is living under below poverty line (BPL) accounting 65685 households.
- About 81% of the slum population belongs to back ward social communities (OBC &SC).
- About 47% of the slum population belongs to minority communities constituting 45% of slum households.
- The average literacy among slum residents is only 62% where the female literacy rate is observed to be very less.
- It is found that 15% 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		Non Notified Slums		Total		% HH's of total Households
	No of slums	No of HH's	No of slums	No of HH's	No of slums	No of HH's	
CONNECTIVITY TO WATER SUPPLY							
Fully	68	48459	33	21095	101	69554	**53%**
Partially	22	22164	20	8617	42	30781	**24%**
Not Connected	24	20486	18	9728	42	30214	**23%**
Total	**114**	**91109**	**71**	**39440**	**185**	**130549**	
DURATION OF WATER SUPPLY							
Daily Less than 1 hr	0	0	0	0	0	0	0%
Daily 1-2 hrs	24	23453	5	3649	29	27102	**21%**
Daily more than 2 hrs	65	46630	39	22206	104	68836	**53%**
Once a week	0	0	0	0	0	0	**0%**
Twice a week	0	0	1	40	1	40	**0%**
Not regular	0	0	0	0	0	0	**0%**
No Supply	25	21026	26	13545	51	34571	**26%**
Total	**114**	**91109**	**71**	**39440**	**185**	**130549**	
SOURCE OF DRINKING WATER							
Individual tap	105	35464	57	11889	162	47353	**36%**
Public tap	112	19786	61	9497	173	29283	**22%**
Tube wells/Bore well/hand pump	50	15186	26	7434	76	22620	**17%**
Open well	0	0	0	0	0	0	**0%**
Tank/pond	0	5	0	0	0	5	**0%**
River/canal/lake/spring	0	0	0	0	0	0	**0%**
Others	67	20624	28	9081	95	29705	**23%**
Water tanker	1	44	1	1539	2	1583	**1%**
Total		**91109**		**39440**		**130549**	

53% of the total households are fully connected to city wide water supply system. With respect to drinking water sources 36% of slum households have individual taps as primary source & 64% are dependent on public water taps, tube wells, open wells, hand pump, water tanker and other sources. Hence 64 % households need to be addressed for provision of individual taps. Regardless of the connectivity to city wide water supply system, the major problem in Meerut slums is poor quality of water caused due to waste disposal and contamination of leaked water pipes.

b. Sanitation

Table 4 - 8: Sanitation Details

SANITATION								
		Notified Slums		Non Notified Slums		Total		% HH's of total Households
		No of slums	No of HH's	No of slums	No of HH's	No of slums	No of HH's	
CONNECTIVITY TO WIDE SEWERAGE SYSTEM								
Fully		6	3581	3	3450	9	7031	5%
Partially		11	10299	7	5723	18	16022	13%
Not Connected		97	77229	61	30267	158	107496	82%
Total		**114**	**91109**	**71**	**39440**	**185**	**130549**	
CONNECTIVITY TO STORM WATER DRAINAGE								
Fully		14	14749	14	6206	28	20955	16%
Partially		17	13577	7	2362	24	15939	12%
Not Connected		83	62783	50	30872	133	93655	72%
Total		**114**	**91109**	**71**	**39440**	**185**	**130549**	
LATRINE FACILITIES								
Public/ Community latrine	**Septic tank/flush**	16	2359	5	710	21	3069	2%
	Service latrine	1	140	0	0	1	140	0%
	Pit	0	0	0	0	0	0	0%
Shared latrine	**Septic tank/flush**	24	2680	8	1009	32	3689	3%
	Service latrine	15	562	5	155	20	717	1%
	Pit	10	453	4	205	14	658	1%
Own latrine	**Septic tank/flush**	108	40027	62	17271	170	57298	44%
	Service latrine	56	4937	41	5208	97	10145	8%
	Pit	81	15676	39	5887	120	21563	17%
Open Defecation		82	24275	49	8995	131	33270	25%
Total			**91109**		**39440**		**130549**	

- Of 185 slums, 5% (9 slums) of households are connected and 95% (176 slums) do not have access 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, 28% (52 slums) of households are connected & 72% do not have connectivity to city wide Storm water system.
- 25% of households do not have proper individual toilet system resulting in open defecation.

c. Solid waste management

Table 4 - 9: Solid waste management Details

SOLID WASTE MANAGEMENT				
	Notified Slums	Non Notified Slums	Total	% of Slums
ARRANGEMENT OF GARBAGE DISPOSAL				
Municipal Staff	62	28	90	**54%**
Municipal Contractor	24	20	44	**23%**
Residents themselves	3	1	4	**1%**
Others	0	1	1	**0%**
No Arrangements	25	21	46	**22%**
Total	**114**	**71**	**185**	
FREQUENCY OF GARBAGE DISPOSAL				
Daily	20	12	32	**22%**
Once in 2 days	18	8	26	**13%**
Once in a week	36	23	59	**28%**
Once in 15 days	7	5	12	**7%**
Not Collected	33	23	56	**30%**
Total	**114**	**71**	**185**	
FREQUENCY OF CLEARANCE OF OPEN DRAINS				
Daily	18	9	27	**17%**
Once in 2 days	25	8	33	**19%**
Once in a week	40	25	65	**35%**
Once in 15 days	8	4	12	**5%**
Not Collected	23	25	48	**23%**
Total	**114**	**71**	**185**	

- 37% of slums are not adequately covered with solid waste disposal.
- On other side, 22% 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% (4 slums).
- 28% 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 & Street lights

Table 4 - 10: Road and Street lights Details

Road & Street Lights				
	Notified Slums	Non Notified Slums	Total	% slums of total slums
	No of slums	No of slums	No of slums	
APPROACH ROAD/LANE/CONSTRUCTED PATH TO THE SLUM				
Motorable Pucca	94	49	143	**77%**
Motorable Katcha	8	7	15	**8%**
Non Motorable Pucca	4	3	7	**4%**
Non Motorable Katcha	8	12	20	**11%**
Total	**114**	**71**	**185**	
INTERNAL ROAD				
Motorable Pucca	55	28	83	**45%**
Motorable Katcha	15	8	23	**12%**
Non Motorable Pucca	34	13	47	**25%**
Non Motorable Katcha	10	22	32	**17%**
Total	**114**	**71**	**185**	**100%**
DISTANCE FROM NEAREST MOTORABLE ROAD				
Less than 0.5 Km	81	47	128	**69%**
0.5-1 Km	20	17	37	**19%**
1-2 Km	9	5	14	**8%**
2-5Km	4	2	6	**4%**
>5 Km	0	0	0	**0%**
Total	**114**	**71**	**185**	**100%**
AVAILABILITY OF STREET LIGHT				
Yes	74	43	114	**62%**
No	40	28	71	**38%**
Total	**114**	**71**	**185**	**100%**

- 77% of slums have Motorable Pucca roads and 8% of slums have Motorable katcha road and remaining 15% for Non Motorable Pucca and katcha approach roads, which needs to be upgraded.
- 55% of the slums (102 slums) lack in proper internal roads with BT surface.
- In case of street lighting, 62% of slums have Street lights and 38% lack in street lighting facility, hence essential 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, 185 slums in Meerut 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

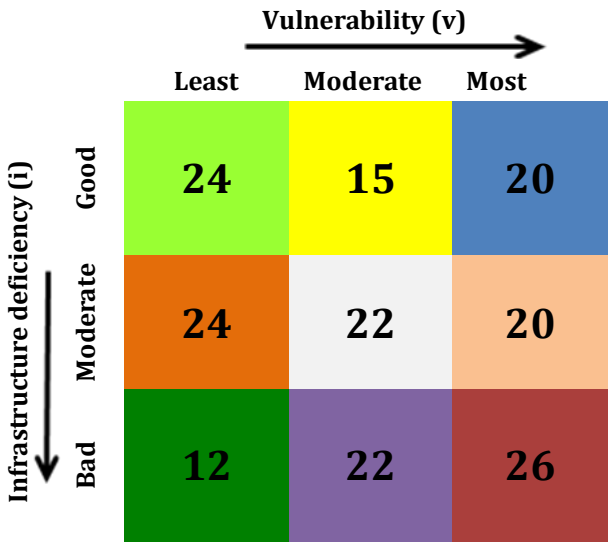


Figure 4 - 3: Slum Deficiency Matrix &Development Options

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

- Least vulnerable and Good Infrastructure – 24 slums
- Least vulnerable with moderate infrastructure – 24 slums
- Least vulnerable with bad infrastructure – 12 slums
- Moderate vulnerable with Good Infrastructure – 15 slums
- Moderate vulnerable with Moderate Infrastructure – 22 slums
- Moderate vulnerable with Bad Infrastructure – 22 slums
- Most vulnerable with Good Infrastructure – 20 slums
- Most vulnerable with Moderate Infrastructure – 20 slums
- Most vulnerable with Bad Infrastructure – 26 slums

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 has been considered to calculate the housing deficiency. 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 on hazardous sites
- 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	0	50	135
No. Households	0	31774	98775
Housing Deficit	0	31774	52283
Housing Deficit	**84057**		

From the above *table 5-1*, it was identified that there is a housing deficient of 84057 households in 185 slums. From development point of view, 50 slums are found to be having Semi- Pucca and Katcha houses greater than 75%, hence considered for In-Situ development while 135 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 were considered
- 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 (Upgradation)

Solid waste management

- For every 30 households = 1 garbage bin

Street lighting

- For every 45 m = 1 street light/light pole

Roads

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

Sl. No	Sector	Unit	Requirement for existing slums
1	Water Supply System	Running length of sub line (Km)	**853.05**
		Raising Main (Km)	**277.44**
		Individual taps (No)	**83196**
		Overhead water tanks (No)	**184**
2	Sanitation	Length of Underground Drainage/Sewer Lines (Km)	**710.58**
		Length of storm water Drainage Lines (Km)	**710.58**
		Individual toilets (No)	**29550**
3	Solid waste management	Garbage dumping Bins (No)	**4358**
4	Roads	Total length of Approach roads (Km)	**5.72**
		Total length of Internal roads (Km)	**484.64**
5	Street Lighting	Street lights (No)	**4858**

Table 5 - 3: Social Infrastructure requirements

Sl. No	Sector	Unit	Requirement for existing slums
6	Education facilities	Anganwadi/Pre-primary	**133**
		Primary schools	**57**
		High schools	**21**
7	Health Facilities	Primary Health Centre	**33**
8	Social & Welfare development	Comm. rooms	**47**
9	Recreation & Open spaces (Ha)		**17.90**

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 47 community halls have been proposed In addition to this open space of area 18 Ha (178953.65 sq.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 in consultative workshop. The mode of development for the pilot DPR slums/first year slums have also been double checked and clarified by project officer, DUDA 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
		13	In - Situ Development
		11	Up gradation
Total		24	
II	2014-15	0	Relocation
		16	In - Situ Development
		27	Up gradation
Total		43	
III	2015-16	0	Relocation
		18	In - Situ Development
		46	Up gradation
Total		64	
IV	2016-17	0	Relocation
		3	In - Situ Development
		33	Up gradation
Total		36	
V	2017-18	0	Relocation
		0	In - Situ Development
		18	Up gradation
Total		18	
Total targeted slums for 5 Years		185	

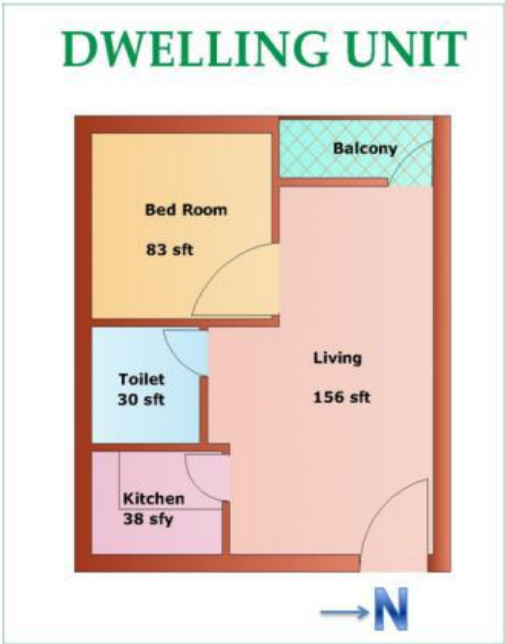
5.2.1 Proposed Modal layout

a. Housing

To make Meerut a slum free city, there is a need to redevelop housing for 84057 households as 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

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.

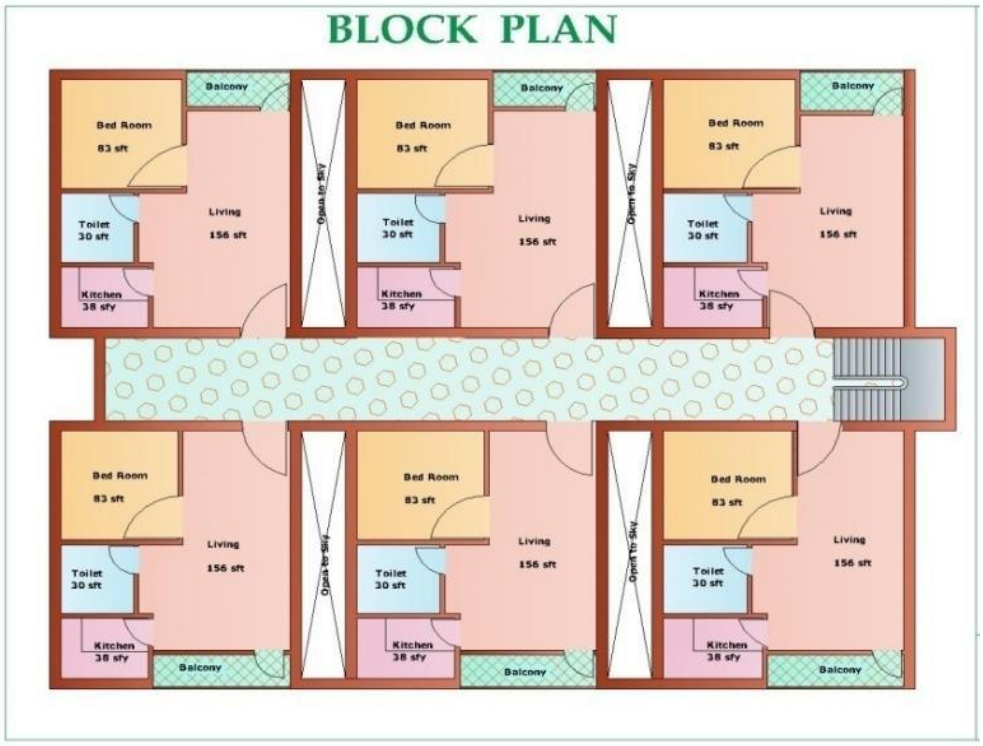
Construction

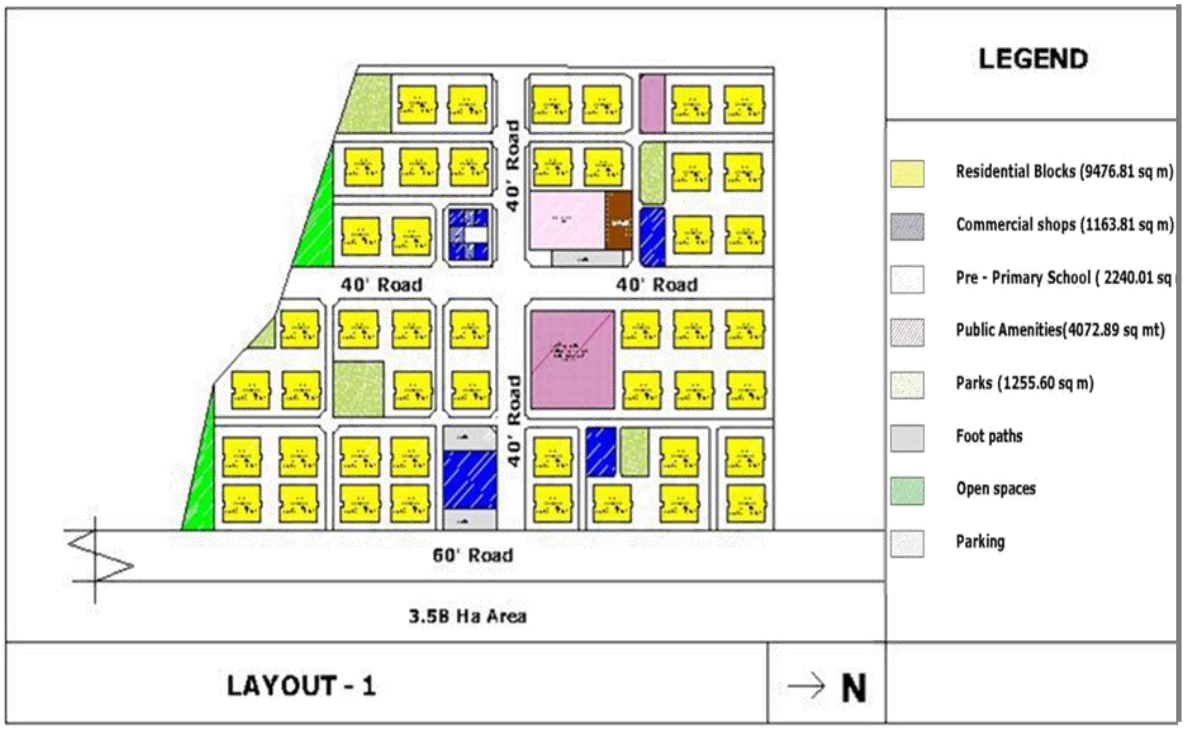
The type of construction will vary with several factors like soil conditions, local requirements and cost of the land. Generally in the smaller towns, which basically have rural culture, multistoried buildings are not acceptable but with circumstances, G+3 has been proposed for slums where ever required. 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.

The plan and specifications of single block are as follows:

Description	Unit
Area of Block	2670.40 sq. ft.
No.of Dwelling Units 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*18) = 828





Map 5 - 1: Model layout for slum development

5.3 MODALITIES / APPROACH

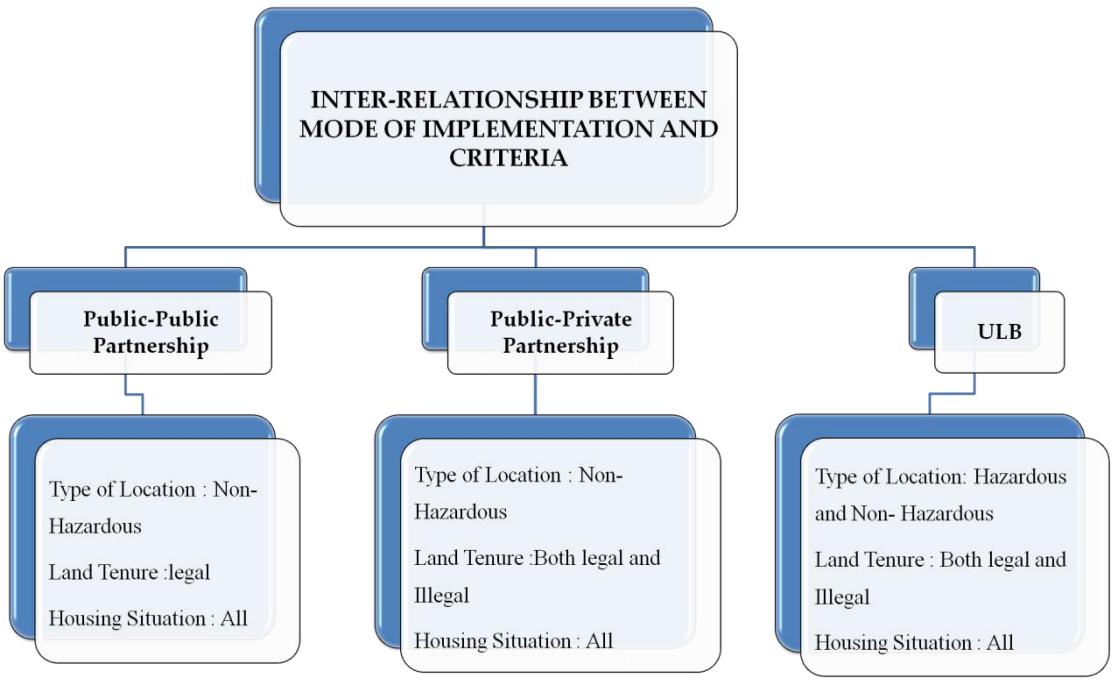


Chart 5 - 1: Modalities & Approach

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 assistance from NGOs/CBOs active in the area of slum housing/ redevelopment 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

i. **Slum Improvement**: Extending infrastructure in the slums where residents have themselves constructed incremental housing.

ii. **Slum Up gradation**: Extending infrastructure in the slums along with facilitation of housing unit up gradation, to support incremental housing.

iii. **Slum Redevelopment**: In-situ redevelopment of the entire slum after demolition of the existing built structures

iv. **Slum Resettlement**: In case of untenable slums to be rehabilitated on alternative site

5.3.1 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 centre's

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 identified 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 Slums	0	50	135
No. Households	0	31774	98775
Housing Deficit	84057		
Cost(Lakhs)	0	108420.28	133345.50
Total Cost(lakhs)	241765.78		

As illustrated in *Table 5-5*, 45% of the total estimated costs is allocated for In situ mode of development while 55% for slum up-gradation in Meerut City. For calculation purpose, costing per unit @ 3.05 lakh per house has been taken into view 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 requirements 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)	**3509.63**
		Raising Main (Km)	**553.63**
		Individual taps (No)	**------**
		Overhead water tanks (No)	**3183.96**
		Sub Total	**7247.22**
2	**Sanitation**	Length of Underground Sewer Line (Km)	**11693.88**
		Length of storm water Drainage Lines (Km)	**11693.88**
		Individual toilets (No)	**3738.89**
		Sub Total	**27126.65**
3	**Solid waste management**	Garbage dumping Bins (No)	**402.37**
		Sub Total	**655.08**
4	**Roads**	Length of Approach roads (Km)	**302.70**
		Length of Internal roads (Km)	**12816.73**
		Sub Total	**13119.53**
5	**Street Lighting**	Street lights (No)	**606.28**
		Sub Total	**606.28**
Total Physical Infrastructure			**48502.04**
Social Infrastructure			
6	**Education facilities**	Anganwadi (No)	450.31
		Primary school (No)	160.07
		High school (No)	170.00
		Sub Total	**780.38**
7	**Health Facilities**	Primary Health Centre (No)	20.64
		Sub Total	**20.64**
8	**Social development**	Community Room (No)	260.09
		Recreation park (sq.mts)	536.78
		Sub Total	**796.87**
Total Social Infrastructure			**1597.89**
Grand Total Cost (Physical + Social) for Infrastructure			**50099.93**

The total cost estimates for infrastructure up gradation and provision is **₹501** Crores, where physical infrastructure is estimated for **₹485.02** Crores and social infrastructure is around **₹15.98** Crores.

The following *Table 5-7* 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	29864.90	61511.89	117975.31	28268.31	4145.36	**241765.78**
Water Supply	770.22	1908.31	2735.20	1274.65	558.83	**7247.22**
Sanitation	3159.53	8064.62	9281.47	4742.87	1878.16	**27126.65**
Solid waste management	34.10	85.73	175.96	73.81	32.77	**402.37**
Roads	1768.87	5254.72	4504.11	1252.02	339.81	**13119.53**
Street Lighting	76.46	179.49	259.13	88.25	2.95	**606.28**
Education	61.24	146.85	369.14	142.40	60.75	**780.38**
Health	0.00	3.97	16.67	0.00	0.00	**20.64**
Social & welfare development	81.46	147.73	317.42	170.32	79.94	**796.87**
Others	2149.01	4638.20	8138.06	2160.76	425.91	**17511.94**
Total	**37965.79**	**81941.51**	**143772.5**	**38173.39**	**7524.48**	**309377.65**

As shown in above table, the total cost projected for 5 years is **₹3093.78** Crores, in which 78% 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.

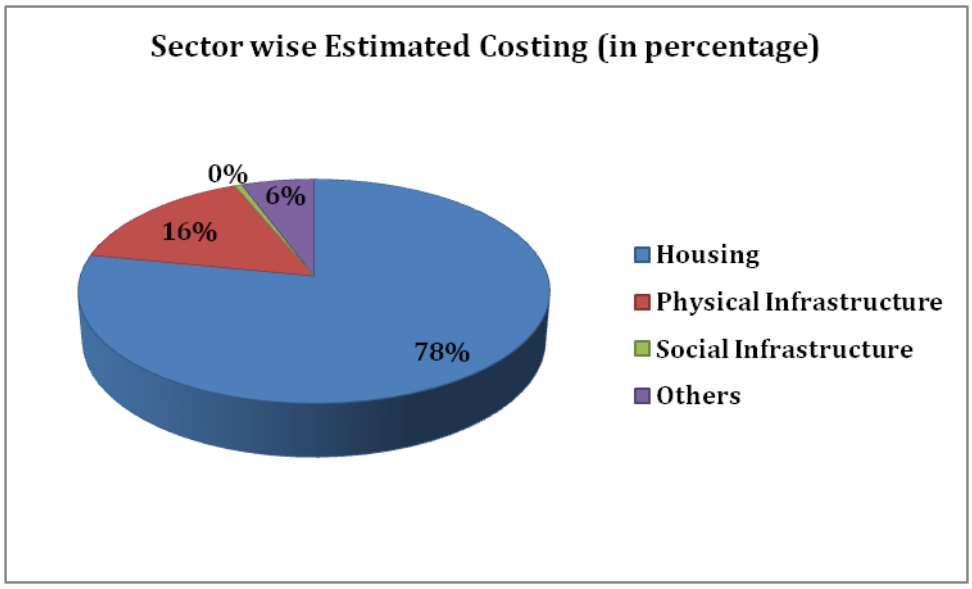


Figure 5 - 1: Sector wise estimated Costing

Among physical infrastructure elements, due priority is given for sanitation for the next 5 years followed by sanitation and roads. About 56% of the costing in physical infrastructure is allocated for sanitation. About 27% of the cost is allocated for roads, 15% for water supply and 1% for Solid waste management and street lighting.

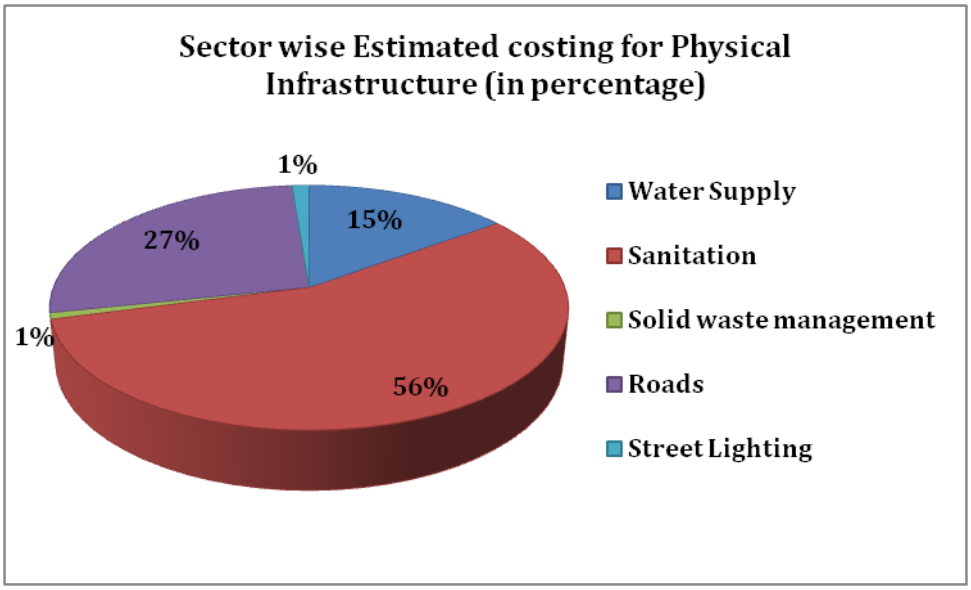


Figure 5 - 2: Sector wise estimated Costing for Physical infrastructure

In the first year of development, 13 slums(6687 housing deficit) have been tentatively proposed for in-situ development with estimated cost of **₹ 213.80 crores** and 11 slums (3935 housing deficit) proposed for Up gradation with estimated cost of **₹ 84.85 crores**, on the lands belonging to the Local body, Private construction of **10,222** houses with needed infrastructure is required.

5.4.3 Other Costs

In general, operation and maintenance costs form a sizeable share of a slum redevelopment budget. In case of Meerut slums, Other costs 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: Year wise distribution of Other costs

Year Wise	O & M	DPR	Project implementation	Capacity building	Off site Costing	Annual estimated other costs (in ₹ Lakhs)
Ist Year	716.34	358.17	358.17	358.17	358.17	2149.02
IInd Year	1546.07	773.03	773.03	773.03	773.03	4638.19
IIIrd Year	2712.69	1356.34	1356.34	1356.34	1356.34	8138.05
IVth Year	720.25	360.13	360.13	360.13	360.13	2160.77
Vth Year	141.97	70.99	70.99	70.99	70.99	425.93
Total	5837.32	2918.66	2918.66	2918.66	2918.66	17511.94

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 **₹175.12** 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 Centre's (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

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 of 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

New Housing

- Availability of public owned vacant lands
- Incentives provided to private sector
- Availability of housing finance to be ensured for low income groups through public agencies and retail finance.

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 make sure 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. Given the fact that Meerut is an Industrial base and one of the most populated cities, an increase of 1% per year is expected.

Table 6 - 1: Projected population for the period 2013-14 to 2017-18

Population Projection		
Year	**Increase in population**	**Projected Population**
2013-2014	7223	726504
2014-2015	7295	736799
2015-2016	7368	744167
2016-2017	7442	751609
2017-2018	7516	751925
Total	**36844**	**-------**

At the end of five years, a total population of **7, 51,925** are estimated for 185 slums in Meerut City.

6.2.2 Household requirement for slums

Table 6 - 2: Housing Requirements for 5 years

Households Projection	
Year	**Households**
2013-2014	1204
2014-2015	1216
2015-2016	1228
2016-2017	1240
2017-2018	1253
Total	**6141**

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 **6,141** households has been projected for five years (seen in *table 6-2*).

6.2.3 Infrastructure requirements

Using the model layout costs for proposed infrastructure elements has been calculated. The proposed dwelling units are **6141** which indicate **7 model layouts** are required for future demand. Hence the infrastructure requirement is indicated in the *Table 6-3*:

Table 6 - 3: Infrastructure requirement for slum prevention from 2013-2018

S. No	Sector	Unit	Requirement for slum prevention
Physical Infrastructure			
1	**Water Supply System**	Running length of sub line (Km)	86.03
		Raising Main (Km)	14.00
		Individual taps (No)	6141
		Overhead water tanks (No)	15
2	**Sanitation**	Length of Underground Sewer Line (Km)	71.68
		Length of storm water Drainage Lines (Km)	71.68
		Individual toilets (No)	6141
3	**Solid waste management**	Garbage dumping Bins (No)	205
4	**Roads**	Length of Approach roads (Km)	1.75
		Length of internal roads (Km)	87.78
5	**Street Lighting**	Street lights (No)	1990
Social Infrastructure			
6	**Education Facilities**	Anganwadi (No)	15
		Primary school (No)	7
		Secondary school (No)	5
7	**Health Facilities**	Primary Health Centre (No)	2
8	**Social and Welfare Facilities**	Community Room (No)	7
		Recreation park (Ha)	2.5

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.

JASSU PURA SLUM -MODEL LAYOUT

Jassu Pura is one among 157 slums located in the core area of Meerut City. It has a total population of 1206 with 201 households and an area of 15201.74 Sq.m. Under the ownership of Meerut City Corporation, Jassu Pura slum is located in the Core area and surrounded by residential use. Of the 179 dwelling units, 45% are semi pucca and 32% are katcha in nature.Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Jassu Pura 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, 234 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 18 dwelling units (DU) has been proposed with a total area of 2636.10 sq. ft. A total of 13 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

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 Jassu Pura Slum:

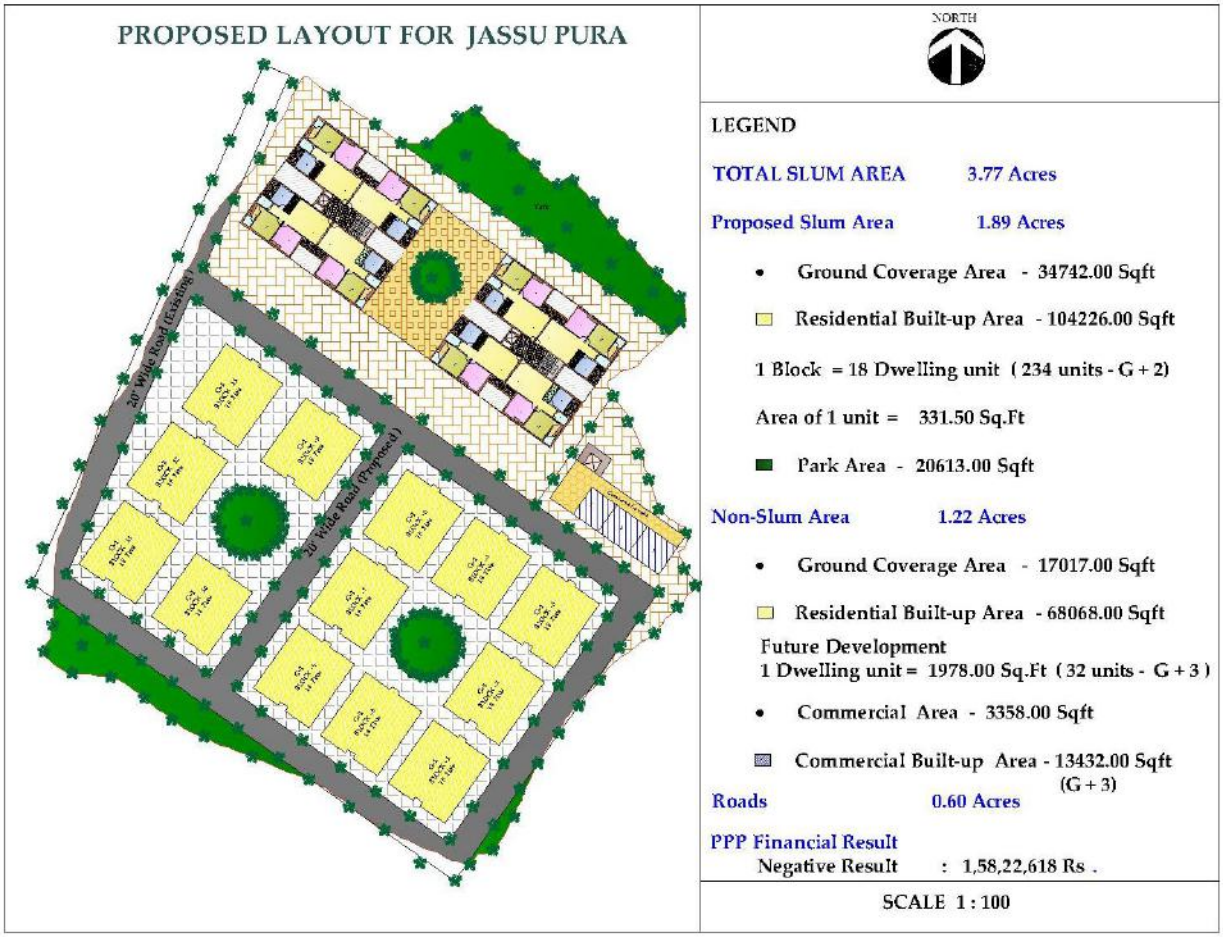
Description	Area (Sq.ft)
Slum Area	3.77 Acres
Proposed Slum Area	104226.00
Residential Area	68068.00
Commercial Area	13432.00
Park and recreation	20613.00
Roads	26566.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 68068.00 Sq.ft for regular residential, 13432.00 Sq.ft of land is allocated Commercial Space and 16% for roads has been reserved .Under this model, potential business opportunities can be created as well as better access to improved infrastructure, thus fostering Jassu Pura 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 Jassu Pura slum:



Map 6 - 1 : Proposed layout for Jassu Pura

RATAN NAGAR SLUM -MODEL LAYOUT

Ratan nagar is one among 157 slums located in the core area of Meerut City. It has a total population of 930 with 155 households and an area of 20954.48 Sq.m. Under the ownership of Meerut City Corporation, Ratan nagar slum is located in the Core area and surrounded by residential use. Of the 155 houses, 46% are semi pucca and 34% are katcha in nature.Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Ratan nagar 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, 155 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
Sit out	6.3x8.0
Total area of Dwelling unit	331.50 (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 15 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 Ratan nagar Slum:

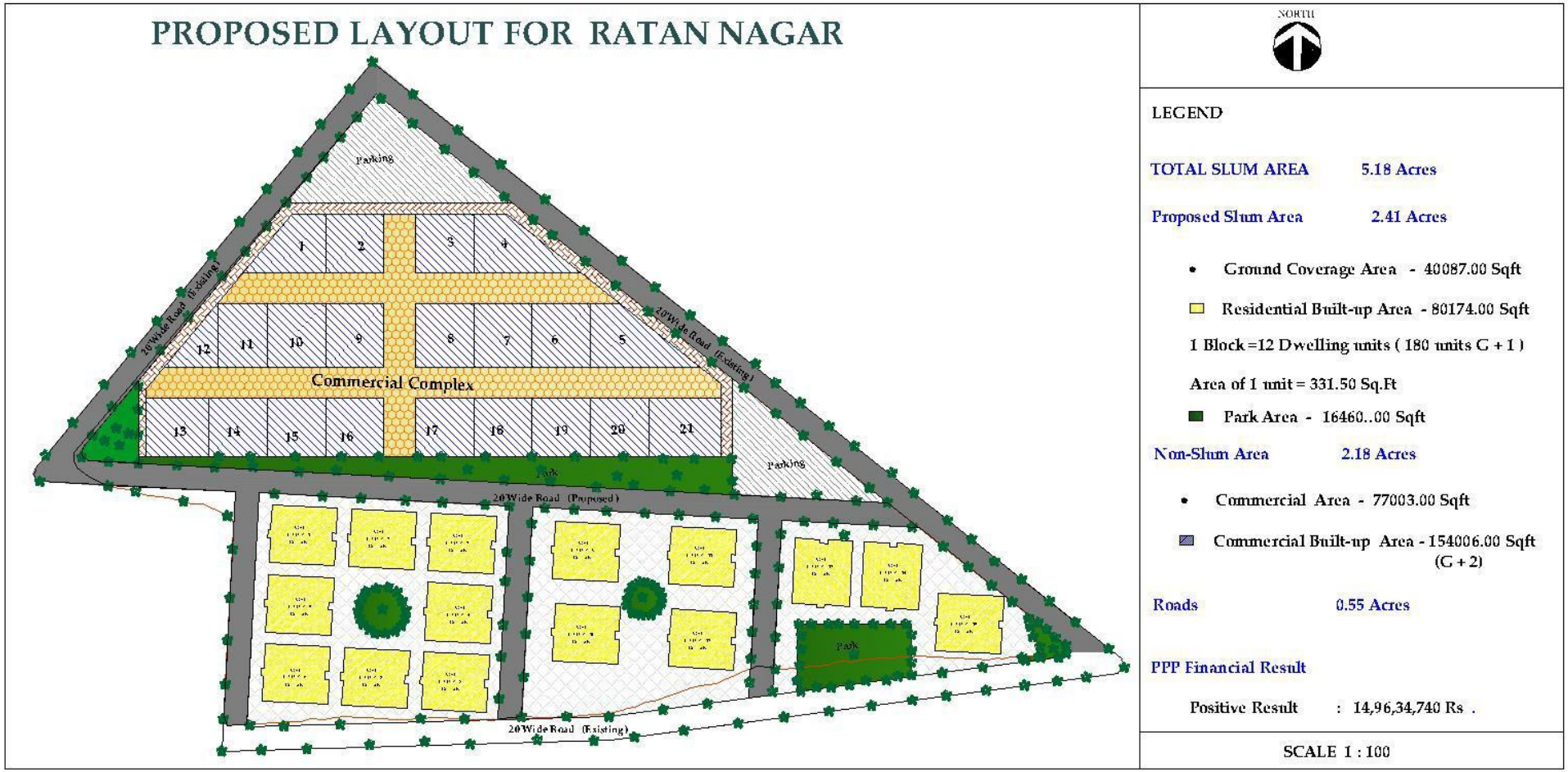
Description	Area (Sq.ft)
Slum Area	5.18 Acres
Proposed Slum Area	80174.00
Commercial use	154006.00
Parking	1396.00
Park and recreation	16460.00
Roads	24072.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 154006.00 Sq.ft of land is allocated for commercial space and 12% for roads has been reserved .Under this model, potential business opportunities can be created as well as better access to improved infrastructure, thus fostering Ratan nagar 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 Ratan nagar slum:



Map 6 - 2 : Proposed layout for Ratan nagar

JUBLI GANJ SLUM -MODEL LAYOUT

Jubli Ganj is one among 157 slums located in the core area of Meerut City. It has a total population of 630 with 110 households and an area of 87094.42Sq.m. Under the ownership of Meerut City Corporation, Jubli Ganj slum is located in the Core area and surrounded by residential use. Of the 110 houses, 100% are semi pucca in nature.Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Jubli Ganj 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, 128 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	8.6 x 17.0
Toilet	6.0x5.0
Kitchen	7.0x5.6
Sit out	6.3x8.0
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

DWELLING UNIT 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 Jubli Ganj Slum:

Description	Area (Sq.ft)
Slum Area	21.52 Acres
Proposed Slum Area	104501.00
Residential Area	85086.00
Commercial use	424074.00
Parking	47777.00
Park and recreation	141943.00
Roads	104907.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 85086.00 Sq.ft of regular residential, **424074.00** Sq.ft of land is allocated for commercial space and 12% for roads has been reserved .Under this model, potential business opportunities can be created as well as better access to improved infrastructure, thus fostering Jubli Ganj 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 Jubli Ganj slum:

Map 6 - 3 : Proposed Layout for Jubli Ganj

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

As seen in the above table, for 185 slums in Meerut city, 50 slums has been targeted for in-situ mode of development and 135 for up-gradation programme 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.

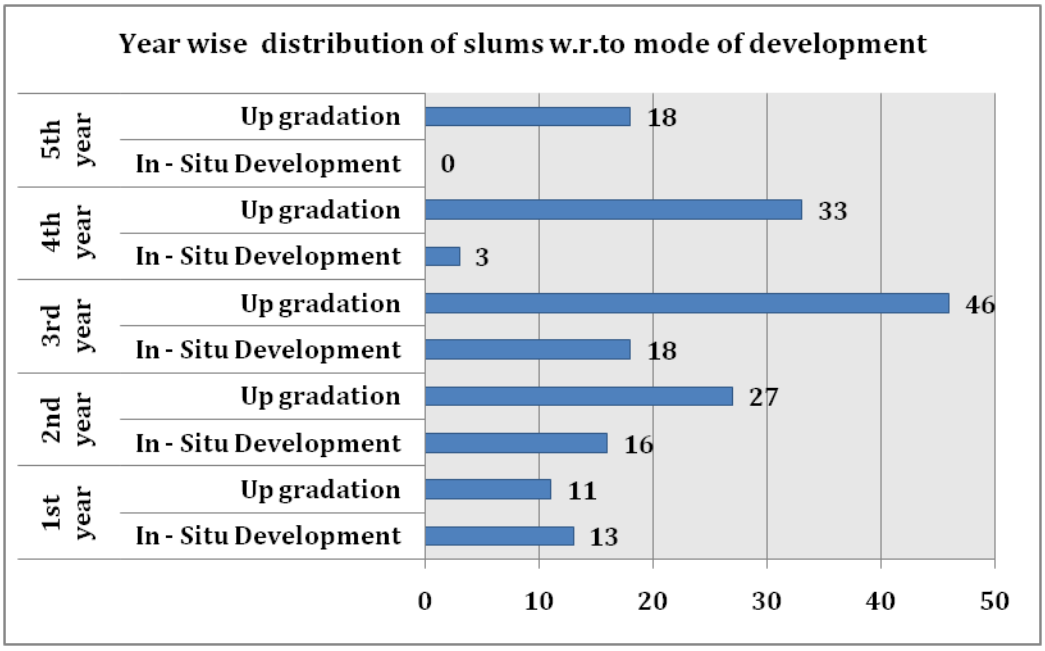


Figure 6 - 1 : Mode of development

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- 1 : Costing for projected households

Costing for projected households		
Year	**Households**	**Estimated cost (in ` Lakhs)**
2013-14	1204	3666.18
2014-15	1216	3887.86
2015-16	1228	4122.53
2016-17	1240	4370.96
2017-18	1253	4637.62
Total	**6141**	**20685.15**

As seen in the above table, an increase of **6,141** households is expected, for which the estimated costs for 5 years is **₹20685.15 lakhs** with an increase of 1%(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 (Offsite 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 will be almost equal to construction of a new layout.
- For up gradation it is equivalent to renovation costs.

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

Table 6- 2 : 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)	325.19
		Raising Main (Km)	25.58
		Individual taps (No)	0.00
		Overhead water tanks (No)	236.25
		Sub Total	**587.02**
2	Sanitation	Length of Underground Sewer Line (Km)	1083.80
		Length of storm water Drainage Lines (Km)	1083.80
		Individual toilets (No)	0.00
		Sub Total	**2167.60**
3	Solid waste management	Garbage dumping Bins (No)	17.22
		Sub Total	**17.22**
4	Roads	Length of main roads (Km)	20.21
		Length of internal roads (Km)	737.35
		Sub Total	**757.56**
5	Street Lighting	Street lights (No)	229.79
		Sub Total	**229.79**
Total Physical Infrastructure			**3759.20**
SOCIAL INFRASTRUCTURE			
6	Education facilities	Anganwadi (No)	45.99
		Primary school (No)	17.93
		High school (No)	36.75
		Sub Total	**100.67**
7	Health Facilities	Primary Health Centre (No)	7.56
		Sub Total	**7.56**
8	Social development	Community Room (No)	34.91
		Recreation park (sq.mts)	68.41
		Sub Total	**103.33**
Total Social Infrastructure			**211.56**
Grand Total Cost (Physical + Social) for Infrastructure			**3970.76**

6.4.3 Other costs

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

Table 6- 3 : Proposed Other Costs

Proposed Other cost (in ₹ lakhs)						
Year	**O & M**	**DPR**	**Project implementation**	**Capacity building**	**Offsite costing**	**Total Other costs**
2013-14	98.62	49.31	49.31	49.31	49.31	**295.87**
2014-15	98.62	49.31	49.31	49.31	49.31	**295.87**
2015-16	98.62	49.31	49.31	49.31	49.31	**295.87**
2016-17	98.62	49.31	49.31	49.31	49.31	**295.87**
2017-18	98.62	49.31	49.31	49.31	49.31	**295.87**
Total	**493.12**	**246.56**	**246.56**	**246.56**	**246.56**	**1479.36**

A total of **1479.36** lakhs has been estimated for the additional costs that are going to be incurred during and after the implementation of the project.

Housing + Infrastructure + Other cost = 20685.15 + 3970.76 + 1479.36

= ₹ 126,135.27 Lakhs

The total of **1261.35 Crores** 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, suitable private Patta lands are identified for rehabilitation of slum areas. In process, the competent authority shall take action for acquisition of lands under the provisions of land acquisition act, 1894.

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. 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.

f. 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.

g. 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 through national sanitation and health related programmes
- Provision of skills and training and nonwage, self employment assistance, the self-employment component in the SJSRY
- Changes in Master Plans that allows for slum renewal and redevelopment, legislation and building byelaws

h. 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 – FINANACING 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 Meerut 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 of Investments for 2013-2018

Sector	Estimated costing for existing slums	Estimated costing for prevention of new slums	Total Project Cost
Housing	241765.78	20685.15	262450.93
Water Supply	7247.22	587.02	7834.24
Sanitation	27126.65	2167.60	29294.25
Solid waste management	402.37	17.22	419.59
Roads	13119.53	757.56	13877.09
Street Lighting	606.28	229.79	836.07
Education	780.38	100.67	881.05
Health	20.64	7.56	28.2
Social development	796.87	103.33	900.20
Others	17511.94	1479.36	18991.3
Total	**309377.65**	**26135.27**	**335512.92**

The present plan of action proposed the investment details in two segments i) **₹ 309377.65 lakhs** towards slum rehabilitation and ii) **₹ 26135.27 lakhs** towards prevention of slums in future. To make slum free city Meerut the overall cost is estimated tentatively at a value of **₹335512.92 lakhs (₹3355.12 crores)**

For slum wise line estimates please refer annexure 2E

7.3.2 Financing Structure

Implementing slum free cities 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 Govt. 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

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