Slum Free City Plan of Action - Agra

Regional Centre for Urban and Environmental Studies
(Sponsored by Ministry of Urban Development, Govt. of India)
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CONTENTS

CONTENTS i
LIST OF TABLES iii
LIST OF CHARTS v
LIST OF FIGURES vi
LIST OF PICTURES vii
LIST OF MAPS viii
ACRONYMS ix
EXECUTIVE SUMMARY xii
ACKNOWLEDGEMENT xiv
CHAPTER 1 – INTRODUCTION 1
1.1 Background 1
1.2 Objectives of Slum Free City Plan of Action 1
1.3 Perspective 1
1.4 SFCPoA Methodology in Agra 2
1.5 Surveys, Investigations & Consultations 5
1.6 Stake holder consultative workshop/Meeting: 6
CHAPTER 2 – CITY PROFILE & OVERVIEW & INSTITUTIONAL FRAMEWORK 10
2.1 Introduction 10
2.2 Physical Characteristics of the City 10
2.3 History and evolution of city 12
2.4 Social and Demographic Profile 14
2.5 Economic Profile 16
2.6 Housing Profile 17
2.7 Land use 18
2.8 Infrastructure 19
2.9 Agra Institutional Setup 23
2.10 Review of slum Development Programmes (Housing trend supply for Urban Poor) 24
2.11 Municipal finance 27
CHAPTER 3 - ASSESSMENT OF EXISTING STATUS OF SLUMS 28
3.1 Diagnostic Assessment of Slums 28
3.2 Listing of Slums –Based on Number, Status, Tenability and Tenure Status 29
3.3 Physical Profile 34

3.4 Demography & Social Profile 38
3.5 Economic profile 42
3.6 Infrastructure 45
3.7 Social infrastructure 59
CHAPTER 4 – SLUM REHABILITATION STRATEGY 66
4.1 Rehabilitation Strategy 66
4.2 Slum Categorization 70
4.3 Slum Rehabilitation Framework 77
CHAPTER 5 – REQUIREMENT & INVESTMENT 83
5.1 Physical requirements 83
5.2 Implementation Plan 85
5.3 Modalities / Approaches 89
5.4 Investment Requirements 90
5.5 Capacity Building 94
CHAPTER 6 - SLUM PREVENTION STRATEGY 95
6.1 Introduction of Slum Prevention Strategy 95
6.2 Housing Stock Assessment in slums 96
6.3 Implementation Plan 97
6.4 Investment requirements 106
6.5 Slum Prevention Reforms 108
6.6 Capacity Building 110
CHAPTER 7 - FINANCING STRATEGY 112
7.1 Touchstone Principles 112
7.2 Investment creation for creation of new affordable housing including rental housing 113
7.3 Financing Plan 113
7.4 Monitoring & Review 119
7.5 Reforms 120
LIST OF ANNEXURES 121

LIST OF TABLES

Table 2-1 : Population and growth rate - Agra 14
Table 2-2 : Population Density of Agra 15
Table 2-3 : Population projection from 2011 and 2031 15
Table 2-4 : Occupational structure 16
Table 2-5 : Trade & Commerce establishment 2004-2005 16
Table 2-6 : Projections of Housing & its shortage in Agra city 17
Table 2-7 : Future Population & Housing projections pertaining to EWS/LIG 18
Table 2-8 : Land Use Break up for additional land 18
Table 2-9 : Existing Land Use of Agra Development Area 2001 19
Table 2-10 : Proposed Land Use as per Master Plan 2021 19
Table 2-11 : State of Sewerage System 20
Table 2-12 : Source wise break up of Solid Waste 21
Table 2-13 : Road length and its maintenance cost in Agra Nagar Nigam Area 22
Table 2-14 : Physical & Demographic profile of Agra city 24
Table 2-15 : Project Wise details of BSUP scheme – Status as of August 2012 (Amount in Crores) . 26
Table 2-16 : Receipts and Expenditure for the Years 2001-2006 27

Table 3-1 : Comparison of city population & area against the slums 28
Table 3-2 : Distribution of the slums w.r.to tenure, land tenability, age and land ownership 30
Table 3-3 : Notification status of Slums 34
Table 3-4 : Summary table of the slums – area, location, abutting land use & flood vulnerability 35
Table 3-5 : Distribution of Slum population w.r.to different social groups 39
Table 3-6 : Current status of water supply in slums 45
Table 3-7 : Status of Sanitation in slums 47
Table 3-8 : Status of Municipal Solid waste management in slums 52
Table 3-9 : Existing condition of Road network in slums 55
Table 3-10 : Availability of Street lighting Facility 57
Table 3-11 : Distance of the slums from the nearest Anganwadi and Pre-primary schools 59
Table 3-12 : Distance of slums from the nearest Primary and High schools 60
Table 3-13 : Distance of slums from the nearest health facilities 62
Table 3-14 : Availability of Social Welfare facilities in slums 64

Table 4-1 : Categorization of slums based on tenability 70

Table 4-2 : Categorization of slums based on abutting status 71
Table 4-3 : Categorization of dwelling units in slums based on Land tenure status 71
Table 4-4 : Categorization of dwelling units based on ownership of land in slums 73
Table 4-5 : Categorization of slums based of land ownership 73
Table 4-6 : Categorization of slums based Dwelling unit density of slums 74
Table 4-7 : Water Supply Details 78
Table 4-8 : Sanitation Details 79
Table 4-9 : Solid Waste Management Details 80
Table 4-10 : Roads and Street lights Details 81
Table 4-11 : Slum Deficiency Matrix &Development Options 82

Table 5-1 : Housing Requirements 83
Table 5-2 : Physical Infrastructure Requirements 84
Table 5-3 : Social Infrastructure Requirements 85
Table 5-4 : Slums to be covered under RAY in the Next 5 Years 86
Table 5-5 : Housing Investment Requirements 90
Table 5-6 : Investment Requirement for Infrastructure 91
Table 5-7 : Sector Wise Estimated Cost (in lakhs) 92
Table 5-8 : Others costing for 5 years 93

Table 6-1 : Projected population for 5 years 96
Table 6-2 : Housing requirements for 5 years 96
Table 6-3 : Infrastructure requirement for 5 years 97
Table 6-4 : Costing for projected Households 106
Table 6-5 : Costing for projected Infrastructure 107
Table 6-6 : Proposed Others Cost 108

Table 7-1 : Summary Investments 113

LIST OF CHARTS

Chart 1-1 : SFCPoA Methodology for Agra 4
Chart 1-2 : Agencies & Stakeholders involved 5

Chart 4-1 : Components of Slum Rehabilitation strategy 67
Chart 4-2 : Vulnerability and Infrastructure deficiency 70

Chart 5-1 : Modalities & Approach 89

Chart 7-1 : Financing Structure 114

LIST OF FIGURES

Figure 3-1 : Distribution of slums in the city w.r.to land tenability status 32
Figure 3-2 : Percentage distribution of slums in the city w.r.to age 32
Figure 3-3 : Percentage distribution of slums w.r.to Physical location 36
Figure 3-4 : Housing condition of dwelling units in the slums w.r.to structure type and electricity.... 37
Figure 3-5 : Distribution of Households in slums w.r.to different social groups 39
Figure 3-6 : Distribution of population in slums w.r.to different social groups..... 39
Figure 3-7 : Distribution of slum household's w.r.to occupational status 43
Figure 3-8 : Distribution of households w. r. to monthly income 44
Figure 3- 9: Distribution of Households w.r.to type of toilet use..... 50

Figure 4-1 : Model Infrastructure deficiency and vulnerability matrix 69
Figure 4-2 : Distribution of dwelling units in slums w.r.to land tenure status..... 73

Figure 5-1 : Sector wise estimated Costing 92
Figure 5-2 : Sector wise estimated Costing for Physical infrastructure..... 93

Figure 6- 1: Mode of Development 105

LIST OF PICTURES

Picture 2-1 : Taj Mahal in Agra 13
Picture 2-2 : Street in Agra (1885) 13
Picture 2-3 : Local commercial centre 16
Picture 2-4 : Waste thrown along nallah 21
Picture 2-5 : Agra (B.R Ambedkar) University 22

Picture 3-1 : Water stagnation in Ugara 35
Picture 3-2 : Water stagnation in Tal Firoz khan 35
Picture 3-3 : Slums along open drain- Ugara 36
Picture 3-4 : Location of Tal Firoz khanalong major transport alignment 36
Picture 3-5 : Kolhai slum Demolished house 38
Picture3-6 : Kachhpura semi-pucca houses 38
Picture 3-7 : Sources of water supply -Chili pada 45
Picture 3-8 : Municipal water tap - Shekh Gulakhi 45
Picture 3- 9 : Open drain- Shekh Gulakhi 48
Picture 3-10 : Bad sanitary condition-Shidh Shahani nagar 48
Picture 3-11 : Clearance of Drains in slums 54
Picture 3-12 : kutcha road -Gyas pura 57
Picture 3- 13 : Pucca road-Prakash nagar 57
Picture 3-14 : Prakash nagar slum 57
Picture 3-15 :Kachhpura slum 57
Picture 3-16 : Education facilities 60
Picture 3-17 : Health facilities 62

LIST OF MAPS

Map 3-1 : Location of slums in Agra 29
Map 3-2 : Tenure status of Slums 31
Map 3-3 : Land Ownership of Slums 33
Map 3-4 : Population distribution in Slums 40
Map 3-5 : Slums Connected to City-Wide Water supply System 46
Map 3-6 : Slums Connected to City-Wide Storm Water Drainage System 49
Map 3-7 : Slums Connected to City –Wide Sewerage System 51
Map 3-8 : Frequency of Garbage Clearance 53
Map 3-9 : Condition of Approach Roads 56
Map 3-10 : Availability of Street Lights 58
Map 3-11 : Availability of Primary Schools 61
Map 3-12 : Availability of Primary Health Centers 63
Map 3-13 : Availability of Community halls 65

Map 4-1 : Tenability Analysis of Slums 72
Map 4-2 : Land Ownership of Slums 75
Map 4-3 : Density of Dwelling Unit in Slums 76

Map 5-1 : Model Layout 88

Map 6-1 : Proposed layout for Nai Basti 101
Map 6-2 : Proposed Layout for Raksha Nagar 104

ACRONYMS

ADA –Agra Development Authority

AMP –Agra Master Plan

ANN –Agra Nagar Nigam

BPL –Below Poverty Line

BSUP – Basic Services for Urban Poor

CBD – Central business district

CBO – Community Based Organization

CCA – Compensatory City Allowance

CDP - City Development Plan

CDS - Community Development Societies

CGG - Centre for Good Governance

CO – Community Officer

CURE – Centre for Urban and Regional Excellence

DPR – Detailed Project Report

DU - Dwelling Unit

DUDA – District Urban Development Agency

EWS - Economic weaker section

FAR –Floor Area Ratio

FSI - Floor Space Index

GIS – Geographical Information System

GoI – Government of India

HH's - Households

HRA – Housing Rent Allowance

HUDCO – Housing And Urban Development Corporation Ltd

IHSDP – Integrated Housing and Slum Development Program

JnNURM – Jawaharlal Nehru National Urban Renewal Mission

LDPE - Low Density Polyethylene

LIG - Low Income Group

LPCD –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

NGO's – Non-Governmental Organizations

NHC - Neighborhood Communities

NHG - Neighborhood Groups

NNRC – National Network Resource Centre

NOAPS –National Old Age Pension Scheme

O&M – Operation & Maintenance

PO - Planning Officer

POA - Plan Of Action

PPP - Public Private Partnership

RAY – Rajiv Awas Yojana

RCUES - Regional Centre for Urban and Environmental Studies

RCV - Resident Community Volunteers

SEZ –Special Economic Zone

SFCPoA – Slum Free City Plan of Action

SHG – Self Help Groups

SJSRY – Swarna Jayanti Shahari Rozgar Yojana

SLNA - State Level Nodal Agency

SLSC - State Level Scrutinize Committee

STEP UP - Skill Training for Employment Promotion amongst Urban Poor

SUDA – State Urban Development Agency

TDR - Transferable Development Rights

TPIMA - Third Party Inspection and Monitoring Agency

UCDN - Urban Community Development Network

UDPFI - Urban Development Plan Formulation and Implementation

ULB - Urban Local Body

UPHDB – Uttar Pradesh housing and Development Board

UPJN – Uttar Pradesh Jal Nigam

UPRSAC –Uttar Pradesh Remote Sensing Applications Center

USHA - Urban Statistics for Human Resource & Assessments

UWESP - Urban Women Employment & Self help Programme

UNITS

1 Crore (Cr) – 100 Lakhs

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

1 Hectare (Ha) -2.471 Acres (Ac)

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

1 Million – 10 lakhs

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

EXECUTIVE SUMMARY

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

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

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

The present report is the tentative Plan of Action for Slum Free City under the scheme of Rajiv Awaz Yozana (RAY) sponsored by the Ministry of Housing and Urban Poverty Alleviation (MoHUPA), Govt. of India. To implement the scheme, the city of Agra is selected as one of the Pilot Cities for the development of 417 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 Agra** as a preventive measure. 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 Agra.

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 Agra

Agra city is the district headquarters of Agra district and well-known tourist destination in India. The city has 417 slums with 123,846 households. About 56% of the city population lives in slums. Among the slum population, 87% belongs to OBC and SC division of social groups and only 1% is living below the poverty line (BPL). It is found that the slums are having a housing deficit of 9068. In concern to Infrastructure, 43% of the slum households do not have access to individual water supply connections and 121 out of 417 slums are not connected to city wide water supply system. Ironically, it is found that about 42% of the slum households practice open defecation. In this context, the plan of action provides line estimates for housing and infrastructure gaps and proposes civic amenities as per RAY guidelines and the report calls for an approval and action to prepare DPR's for year wise phased slums.

ACKNOWLEDGEMENT

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

RCUES, Hyderabad has been awarded the project of preparation of 'Slum Free City Plan of Action' under Rajiv Awas Yojana (RAY) Scheme for Agra, Lucknow, Kanpur, Allahabad, Varanasi, 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.

We would like to thank Centre for Urban and Regional Excellence (CURE), Agra for their cooperation in carrying out the task of RAY primary surveys, providing us the data and for partnering with us in this project.

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 Agra 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 Agra

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

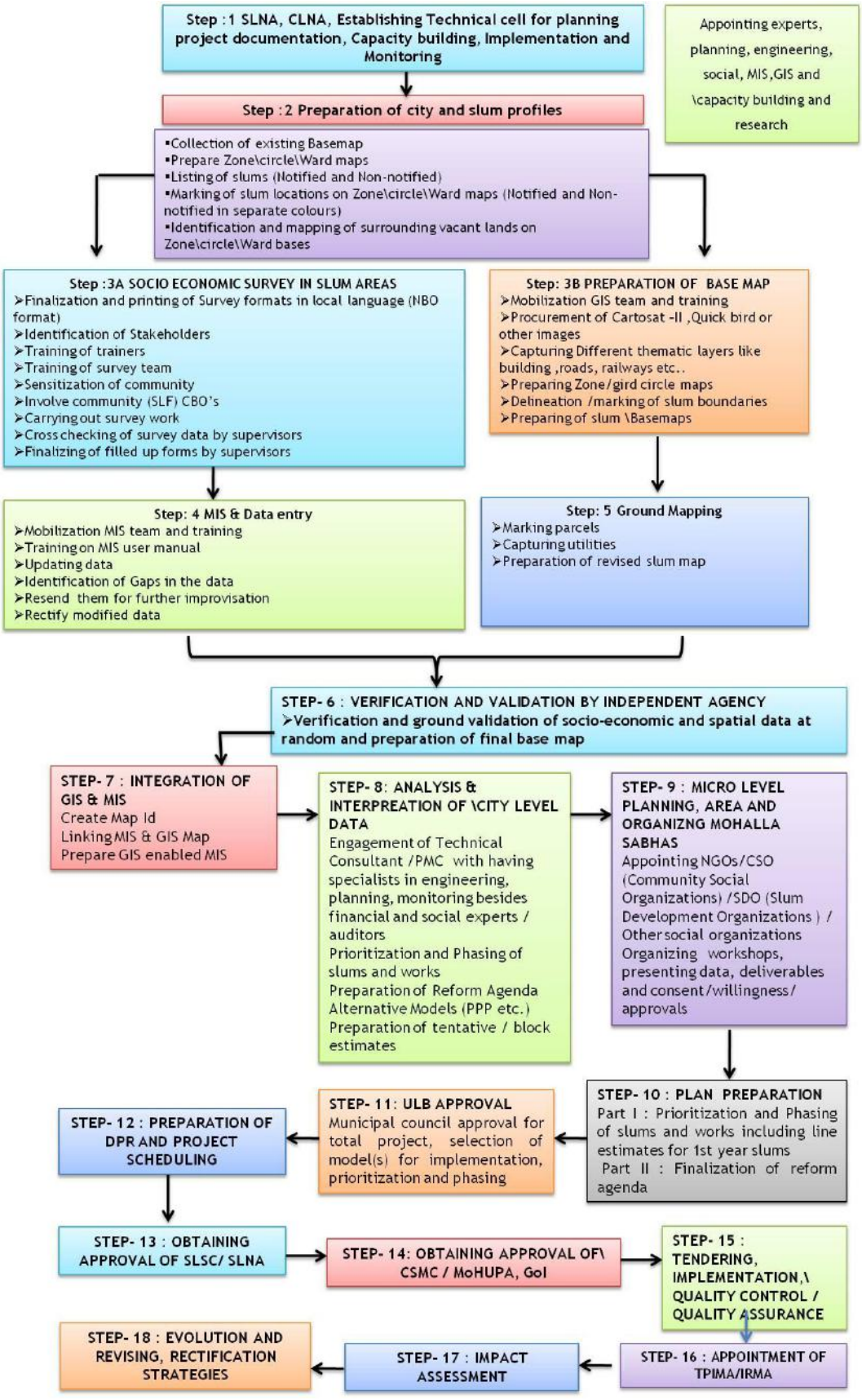


Chart 1-1 : SFCPoA Methodology for Agra

1.5 Surveys, Investigations & Consultations

1.5.1 Listing of Surveys and Timelines (annexure)

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

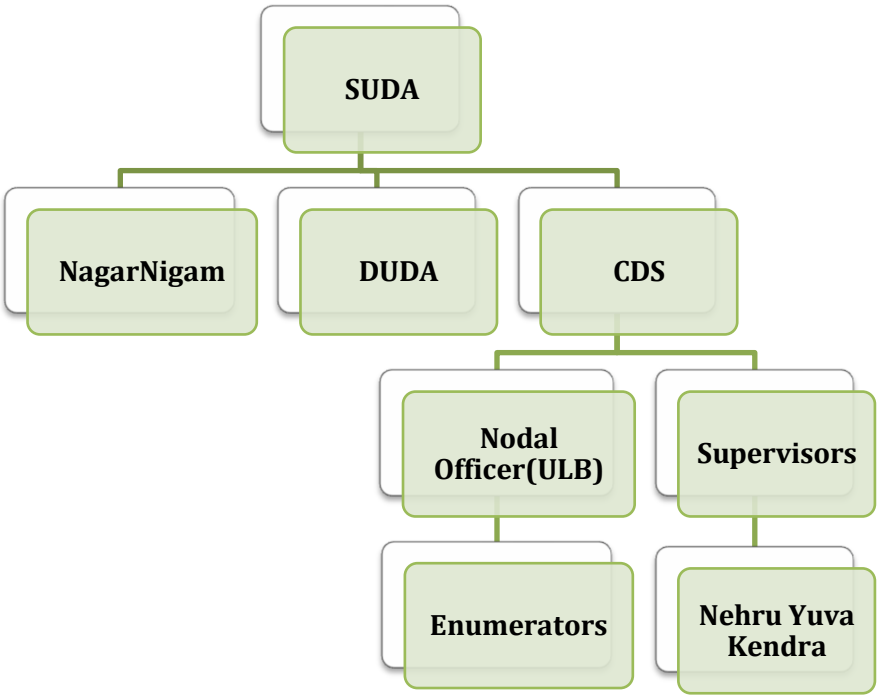


Chart 1-2 : Agencies & Stakeholders involved

1.5.2 Agencies (including procurement process) & Stakeholders involved

State Urban Development Agency (SUDA) as State level authority and District Urban Development Agency (DUDA) as city level authority have been the Nodal agencies to monitor the quantity and quality of surveys performed by individual cities. DUDA is headed by Project Officer (PO) who is in charge for one city, a nodal officer for a ULB and number of supervisors for quality and quantity check upon the enumerators who have done the surveys.

Member of Community Development Societies (CDS), Self Help Groups constituted under SJSRY and other schemes have been involved in conducting surveys and a minimum qualification of SSC was taken as Enumerators eligibility to collect information and to fill up the survey forms and the process will be monitored by respective DUDA staff.

a. City level Technical cell

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

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

b. GIS mapping

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

c. MIS

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

d. Stakeholder Consultation

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

1.6 Stake holder consultative workshop/Meeting:

The State Urban Development Authority (SUDA), Government of Uttar Pradesh have prepared Slum Free City Plans for 6 cities (Lucknow, Kanpur, Agra, Meerut, Agra, Varanasi) in the first phase using the consultative services of Regional Centre for Urban and Environmental Studies (RCUES)

Hyderabad and submitted the draft report of Plan of Action for each city. As part of Plan preparation, a consultative stakeholder workshop of Agra was held on 22nd May, 2013 at Meeting hall in Agra Nagar Nigam Office from 11 AM. The purpose of the meeting was to discuss about the draft Plan of Action, significance of the programme, review upon the gap assessment analysis for the city.

1. The meeting was chaired by Shri Indrajeet Balmiki, Mayor of Agra city along with Shri Dinesh Kumar Singh, Municipal Commissioner, Agra Nagar Nigam, Shri Tripati, Additional Municipal Commissioner, Agra Nagar Nigam, Shri Kansal, General Manager, Jal Nigam, Agra. Shri Kamal Kumar Singh, SUDA, Lucknow, Dr. G.Vasanth Kumar, Project Coordinator and 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 Agra Nagar Nigam, District Development Authority, water supply board, ward corporators, local NGOs, various other public representatives, few slum dwellers, few residents from the city, print and electronic media representatives.

2. The meeting started at 11am in the meeting hall of Nagar Nagam office. Shri. IndraJeet Balmiki, Mayor, Agra City briefed the poor condition of slums and Infrastructure in the city and expressed hope that the Plans prepared under Rajiv Awas Yojana will answer to the issues in an effective way. He expressed his appreciation for the State Urban Development Authority

(SUDA), District Urban Development Authority (DUDA) for implementing the programme to make Agra Slum free. He extended his appreciation for RCUES – Hyderabad, the consulting agency on the completion of Draft Slum Free City Plan of Action and for organizing the stakeholder workshop.

3. Dr.G.Vasanth Kumar, Project Co-ordinator, RCUES, Hyderabad, explained the need, objectives and framework of Rajiv Awas Yojana. He explained the step by step methodology followed for preparation of Slum Free City Plan of Action.

4. Shri.M.Rama Rao, RCUES, Hyderabad made a presentation detailing 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 Agra city to make it slum free.

5. 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.

6. Smt. Anamika, Project Officer, DUDA, Agra thanked the dignitaries for their valuable suggestions and invited the slum dwellers and citizens of Agra, who attended the workshop for their suggestions.

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

   a. The Draft Slum Free City Plan of Action should be made available to the general public through DUDA and Nagar Nigam

   b. The major city wide problems like water supply and sewerage disposal has to be addressed prior as these two are the major problems facing by majority of the slum dwellers. The existing system of disposing sewerage in the Yamuna River flowing in the city has to be stopped and an alternative has to work out.

   c. Shri Mathur, senior citizen of Agra city recommended that the sewerage disposal line has to be laid at least in the Yamuna River flowing beyond the city. The existing system of mixing sewerage into Yamuna River flowing within the city has to be stopped as this contributes the main reason for polluting Yamuna water and the rich environment and heritage of Agra city.

   d. Sandeep Upadhyay, resident of 13th ward, Agra city said that a monitoring committee should be appointed at the city level and at each slum level to monitor the work at every stage. The ward committees and the local slum dwellers have to be made part in the committee.

   e. Mohan Singh Lohi, resident of ward 72 said that many of the projects earlier failed due to the reason for lack of maintenance after completion of the project. He suggested for appointing a committee or making an institution responsible for sustainable maintenance of project after implementation.

   f. Sandeep Upadhyay, resident of 13th ward suggested that the monitoring of the work in the slums has to be done on quarterly basis i.e., the monitoring committee has to check and certify the work at every 25% of work completion.

   g. Ashok Kumar Kushba, resident of ward 80 said that the DPR's preparing for slum improvement are just showing the designs of water supply network, sewerage and other technical aspects to be implemented in slums, but they are failing to answer the major basis of the problem viz., what is the source of water supply to the city? The quality of water supplied? Where the sewerage is disposed at the end?

h. Karan Veer Singh, a local slum dweller recommended that the DPR prepared should plan for the sustainability by also considering the future requirements. He expressed his happiness for conducting the stakeholder meeting.

The meeting ended with the vote of thanks proposed by Shri M.Rama Rao, RCUES 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 recommendation of consultation with ward corporators and committees for monitoring the surveys and DPR preparation of slums is considered.

3) The aspect of water supply and sewerage disposal would be dealt as priority areas

4) The design plan of dwelling unit and slum layout would have to be decided with the consultation of respective slum dwellers and DUDA.

Refer Annexure attached for the list of participants of meeting

CHAPTER 2 – CITY PROFILE & OVERVIEW & INSTITUTIONAL FRAMEWORK

2.1 Introduction

The state of Uttar Pradesh is one of the prominent states in the North eastern region of India with Lucknow as its capital, falling under 'A' category[1], while Agra is classified as 'B' category[1] city. Agra Municipal Corporation (also called as Nagar Nigam), is one of the largest municipalities in the state that came into existence in the year 1959 under Mahapalika adhiniyam of the state. City municipal area is divided in total 80 wards/zones and a member (the Corporator) from each ward is elected to form the Municipal Corporation. The present Mayor is **Shri Indrajeet Balmiki**. The city administration is headed by an IAS officer as Commissioner of Municipality.

2.2 Physical Characteristics of the City

a. Location

Being centrally located on the national map, Agra (aka Akbarabād) forms an important regional urban center and a prominent tourist destination in India. It is a Class I town, municipality and administrative head quarters of Agra District, falls under Agra division of Uttar Pradesh. The city of Agra is situated on the Western Bank of river Yamuna at about 200 Kms from Delhi in the state of Uttar Pradesh. City spatial extension falls at 27°12' N latitude and 78°12' E longitude. Its borders touch Rajasthan to its west and south, the district of Firozabad to its East and the districts of Mathura and Etah to its North.

b. Geography

Agra lies on the parts of the Great Indo-Gangetic Plain region and the strata consist of mainly sandy soil. The sub-soil water level is generally 6 to 8m below ground level. The ground levels at Agra vary from RL 150 m to 170m. The city stretches for about 9.0 kms along the Yamuna River. The major part of the city is on the Western side of Yamuna and has grown beyond the river on the eastern side and is called the Trans Yamuna area while the original part is called as CIS Yamuna.

c. Climate

The climate of Agra is extreme and tropical in nature with a varying temperature dropping to 3°C in winter and rises to 47°C in summer. Thick fog in December and January makes city suffer from travel delays. Rainy season starts lasts from June to September; annual rainfall of 686 mm is recorded. Winter starts in November and lasts till February.

d. Connectivity and Linkages

Agra is well connected with other parts of the country by rail and road networks and also air.

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

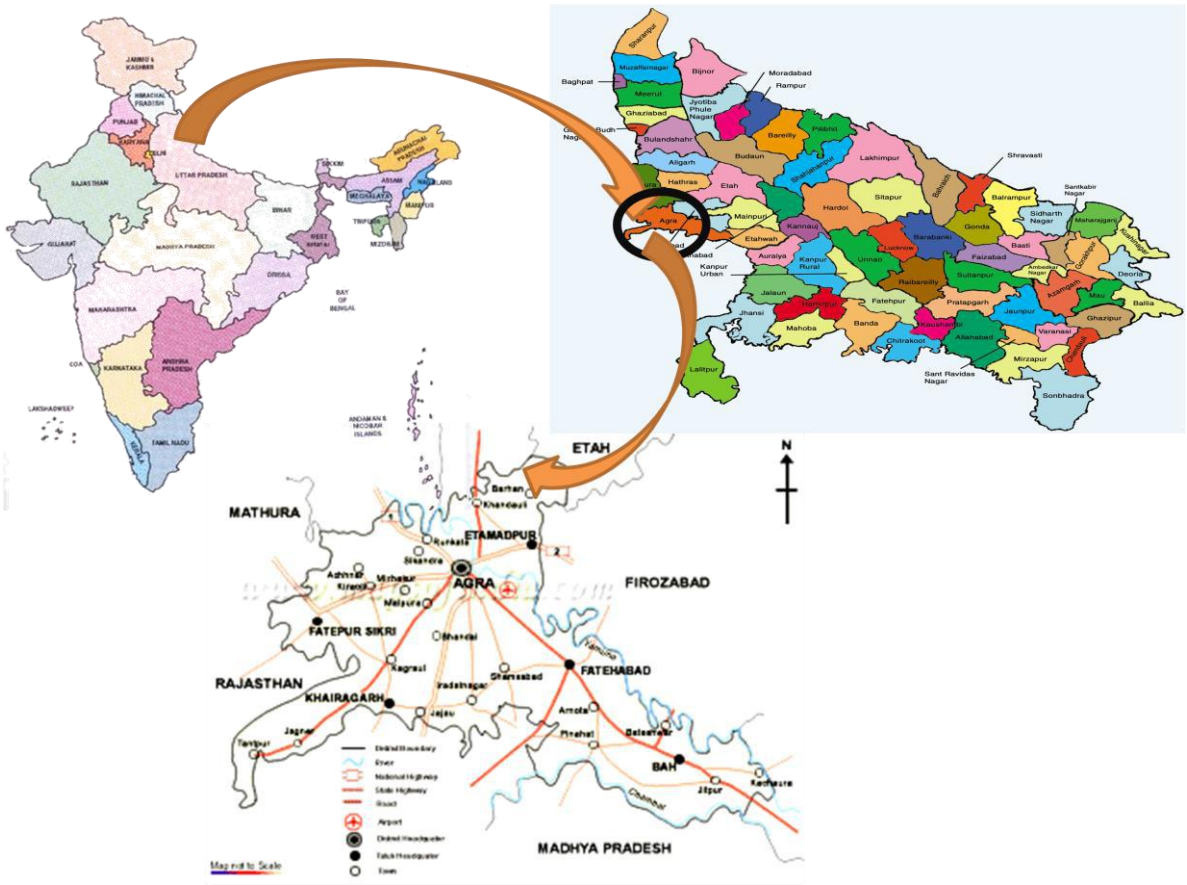


Figure 2-1 : Location and connectivity of Agra

Road

National highways NH-2, NH-3, NH-91, and NH-11 and passing through the city. Yamuna expressway starts at NH-2 connecting Agra with Greater NOIDA. The linkages provided by the National highways are:

- NH-2 connects Agra with Allahabd on one side and Delhi on other end.
- NH-3 originates in Agra in Uttar Pradesh, generally travels southwest through Dhaulpur in Rajasthan, Morena, Gwalior, Shivpuri, Guna, Biaora, Maksi, Dewas and Indore Madhya Pradesh and Dhule, Nasik, Thane and terminates at Mumbai in Maharashtra.
- NH-11 connects Agra with Jaipur.
- NH-91 links Ghaziabad, on the outskirts of New Delhi to Kanpur through Agra

Rail

The city lies on central train line between Delhi - Mumbai and between Delhi – Chennai has direct connections with cities like New Delhi Mumbai, Kolkata Chennai, Hyderabad Bangalore, Pune Bhopal, Indore, Kochi, Gwalior, Jabalpur, Ujjain, Lucknow, Jaipur, Trivendrum, etc. There are three main railway stations in Agra:

- Agra Cantt is the main railway station and lies southwest of the Taj and Agra Fort.
- Agra Fort Railway Station (Station Code: AF) near Agra Fort
- Raja Ki Mandi a small station and the other stations in and around Agra are Idgah, Billochpura, Agra City, Yamuna Bridge.

Air

Agra has its own domestic airport, which is located 13 km from the city centre. Apart from Indian Airlines, few private airlines also provide flight services to and from Agra. However, nearby city, i.e. Delhi (200 km) having an international airport.

2.3 History and evolution of city

Agra city is of historic importance, which is amply evident from the numerous historical monuments in and around the city. The Hindu epic Mahabharata refers to it as 'Agraban', part of Brij Bhoomi, the homeland of Lord Krishna. The earliest recorded history of Agra is its establishment by a local king in 1475. The city was the capital seat of Mughals in ancient times. The heritage of the city is linked with the Mughal dynasty but numerous other rulers also contributed to the rich past of this city. Agra was founded by Sikandar Lodi in the 16th century. It grew into an important power centre under the Delhi Sultan Sikandar Lodi and he shifted his capital from Delhi in 1504. Babar also stayed in Agra for some time and introduced the concept of square Persian-styled gardens. Emperor Akbar built Agra fort and Jehangir did the beautification with gardens and palaces. The city has a proud possession of "Taj Mahal" as one of the Seven Wonders of the World, now declared as World Heritage Site. The post-Mughal era of Agra saw the rule of Jats, Marathas and finally the British taking over the city. In addition to its historic importance, Agra is a main center of political, economic, commercial and cultural activities.

The origin and growth of Agra can be traced to several hundred years, which witnessed a series of historical events leading to its present form, structure, character, culture and economy. The growth of Agra started with the imperial favour, as a seat of emperor of India. In the process of development the city started influencing over the vast region and became the regional capital, which initiated its growth during the British and post independence period.

Legend has it that Agra was founded during the region of Ugrasen, grandfather of Lord Krishna. The existence of Agra city was accounted for in 1080 A.D., by Khawaja M,S.Salman, a poet, as a flourishing city with a string fortress built amidst river and lake hills. This was ruined by the invader Muhammad Gazni in 1080 A.D., which reduced Agra to a small town. Agra continued as a village until the core of the present city, was laid by Raja Badal Singh around 1475 A.D.

Agra's golden era was during Akbar (1556-1605 A.D) and Shahjahan (1627-1658 A.D.) periods. Akbar rebuilt a much larger and more magnificent red sandstone fort at the site of Badalgarh Fort in year 1565. The topographically elevated site by the river was highly defensible. It is roughly semicircular in shape stretching half a mile along the river. The seventy feet high walls along with bastions, battlements, towers and massive gates, housed palaces, mosque, and houses of officials, gardens and market squares. His Agra developed around the fort on the west bank of yamuna and was the nucleus of the 16th and 17th century mughal city. The pattern of development was very much like a small semi circular ring encircling the fort towards its North west, west and south west while the eastern side fronted onto the Yamuna. A web of bazaars all radiating from the fort, adjoining a ring road can be discerned even in the present layout of Agra. This seems to be the oldest part of the city on the west bank, as we know it today. The population of Agra during Akbar`s time was about two lakhs and the accounts of Ralph Fitch, who visited Agra in 1585 A.D., give some idea of the city as it must have been at the time- "Agra is a very great city and populous, built with stone, having fair and large streets with river running by it. The road to Fatehpur Sikri was also constructed during this period.

Shahjahan`s reign was perhaps the most glorious for the Mughal capital, after which it underwent a slow decline, the imperial favor having shifted to Delhi instead. It was during the time of Shahjahan that suburbs of Tajganj, Lohamandi and Shahganj were added to the city. Tajganj was the direct result of the building of Taj Mahal, as it housed the craftsmen the craftsmen who worked on it. Shahjahan was a prolific builder and besides the Taj itself, he added a huge number of other smaller edifices to the city. "Travels in the Mughal Empire" by Francois Bernier, a French traveler who visited India from 1656 to 1665, provides some very clear and therefore valuable account of the city at that time.

Picture 2-1 : Taj Mahal in Agra

The city area, on one side of the river was seven sq. km, having seven km in length and one km in breadth. On the eastern bank, it covered 2.5 sq. km. All houses faced the river side, he nobles mansions were located nearest the fort and fronting onto the river, and a number of structure were added on to the fort, some replacing the earlier Akbar`s edifices. Heights of building varied from three to four stories. There was also an important market called Nakhas for animals like horses, camels, oxen and all kinds of merchandise. An octagonal (Muthamman chowk) existed between Delhi gate of the Redfort and Jama Masjid. It had canals and fountains, pathways, shops of stone masonary with cusped arches on all sides.

Colonial Period (1803-1947 A.D.)

The colonial period saw further expansion of the city. In 1803 Agra was formally under the British. Not only were the outlying peripheral areas were developed, but also large chunks of the mughal city were rebuilt upon. The continuous mughal urban fabric of the time of the later mughals became dissected and criss crossed by the intrusion of colonial development. The chowk was destroyed in 1871-73 when the railway track was laid out and the Agra fort railway station was founded on its site and Agra became an important railway junction. The civil lines towards the north, the introduction of the railways, factory area lining the river towards the north east and the cantonment to the south with its golf course and racing ground, were the major additions during this time.

Picture 2-2 : Street in Agra (1885)

The surviving mughal city now existed in only isolated with a girdle of colonial development. Thus, Akbarabad, Tajganj, Shahganj, Lohamandi and Gokulpura from distinct patches of mughal urban fabric within a colonial encirclement, a number of new roads like Lawerence, Gwalior, taj and Mall road were built during this period. The 19th century construction work also included the strand road connecting Taj Mahal and Redfort, as a famine relief measure in 1838. The present day Shahjahan Park was a relief public works undertaking in 1879.

Post Colonial to Present Day

The Post Colonial growth, that has largely taken place in the immediate aftermath of partition, is extremely haphazard and amorphous, it consist largely of the mushrooming of a huge number of refugee colonies all around the colonial city, the central commercial and office functions still being located within Mughal and the colonial enclaves, thus causing considerable stress to these, specially to the old Mughal areas.

2.4 Social and Demographic Profile

2.4.1 Population growth

The population of Agra city is 15.74 lakhs as per Census 2011 with a decadal growth rate of 23.45 per cent. During the post-independence period commerce showed a phenomenal increase with the associated industrial development and establishment of industrial estate, which resulted in the increase of city population. The male and female population are 849,771 and 724,771. Child population (0-6 years) in Agra city are 186,516 were 105,279 are boys and 81,237 are girls. The child forms 11.8% of total population of Agra City. The town has witnessed a constant increase in population from 1961 to 2011 with a varying decadal growth rate. The population increased by nearly three folds over the last six decades with increase in population from 462,142 in 1961 to 1,574,542 in year 2011. The growth of the population can be seen from the below table 2-1. Agra city comes under Agra metropolitan area along with urban outgrowths. Population of metropolitan area is 1,746,467. Male constitutes 942,441 and female constitutes 804,026 of the total population.

Table 2-1 : Population and growth rate - Agra

Year	Population (Lakhs)	Increase (Lakhs)	Decadal growth rate (%)
1961	4.62	---	---
1971	5.91	1.07	27.92
1981	7.81	1.90	32.15
1991	9.78	1.97	25.22
2001	12.75	2.97	30.37
2011	15.74	3.00	23.45

***Source**: Census of India, 2011*

Slum Population: As per 2001 census, slum populations in the city are 121,761 residing in 17,760 households constituting 9% to the city population. The male and female population are 65,830 and 55,931. The average slum household size is 6.8 which were slightly greater than city household size of 6.4. As per the CDP report (2006) there are 252 slum pockets with a population of the order of 551,178 i.e. about 44 per cent of the total population. A preliminary annexure I verification survey has been carried out in June, 2011 on the basis of NBO annexure format (RAY guidelines). As per the survey slums population in the city are 885,801 and households are 123,846 residing in 417 slums of city.

2.4.2 Density

The area under Municipal Corporation of Agra jurisdiction is 141 sq km. Overall population density of the town is 11,166 persons per sq km (i.e. 112 persons/ha), which is considerable, compared to other class B cities in Uttar Pradesh. The municipal area has been increased from 68 to 141sq.km during 1981-91. Change in the gross density of Agra over the last two decades is shown in *Table 2.2.*

Density increased by 30 units (Pop/Ha) as a result of 28.07 growth rate from 1991 to 2001 and a mere (4 units) increase is recorded from 2001 to 2011.

Table 2-2 : Population Density of Agra

Year	Population	Area(sq.km)	Gross Density (pop/sq.km)	Density (pop/Ha)
1991	9.78	141	6,940	69
2001	12.75	141	9,043	91
2011	15.74	141	11,166	112

***Source**: Census, 2011 and CDP-Agra*

2.4.3 Sex Ratio

As per the census 2011, the current sex ratio (female population per 1000 male) in Agra town is 853, which is lower than the state urban average of 912 and national urban average of 940. However sex ratio has been increased significantly from 821 to 853 from 1981 to 2011. Child sex ratio of girls for 1000 boys is 772.

2.4.4 Average Household Size

As per census 2001, average household size of Agra city is 6.4 i.e. 197,656 households for 1,275,134 population. It is higher when compared to the state average of 6.3 and national average of 5. In slum areas, average household is 6.8 (Census-2001), which borders to city household size.

2.4.5 Literacy rate

Average Literacy rate of Agra is 63.44% (Census-2011), it is lower than state urban average of 75.14% and the national average of 84.98%. The number of literates are 880,530 of which 503,805 (67.67%) are male and 376,725 (58.54%) are female.

2.4.6 Population projection

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

The data used for these projections are the summaries of the 1991, 2001 and 2011 census. The average growth rate of last three decades is considered to calculate future population because of the consecutive variability of decadal growth rate and the value here is 26 percent. Population projected till 2031 with five year interval by average decadal growth rate are shown in Table 2-3:

Table 2-3 : Population projection from 2011 and 2031

Year	2011	2016*	2021*	2026*	2031*
Population	1,574,542	17,79,232	19,83,922	22,43,831	24,99,741

2.5 Economic Profile

Agra is basically a commercial city. The major part of its industrial activity is in the form of small-scale and house-hold industries. These are mainly located in the old Mughal city particularly Lohamandi, Rakabganj, Kotwali, Tajganj areas. The large scale units are located in Chatta and Hariparvat areas. The important industries are textile, leather, foundries, diesel engines, generator sets, electrical goods, fans, pipes, C.I, casting, leather goods including shoes, steel rolling, packaging materials, etc. The major handicrafts are marble, leather, carpet, brassware, and artistic dari and jewellery crafts.

Picture 2-3 : Local commercial centre

The work force participation rate (WFPR) of the city is 25.5 per cent. The occupational structure of the city shows that the majority of the working population is engaged in tertiary sector (88.68 per cent) and minimum in primary sector 3.50 per cent. The following *table 2-4* details out the occupational structure of the city.

Table 2-4 : Occupational structure

Occupational structure	2001		1971	
	Number	Percentage	Number	Percentage
Primary	9961	3.50	4410	2.87
Secondary	22252	7.82	13325	8.69
Tertiary	252437	88.68	135660	88.44
Total	284650	100.00	153395	100.00

Source: *Census 2001 & 1971*

During 1971-2001, the employment scenario of the city has been changed. It has been observed that in contrast to other cities of India, the employment in secondary sector has been decreased from 8.69 percent to 7.82 per cent. This may be due to the closure of many manufacturing units in the city to protect the environment for the sake of the Taj. It is also interesting to note that during these periods; the primary sector has also seen increase of 3.5% in 2001 from 2.87% in 1971. It is the fact that this increase may be large number of agricultural labor force. The tertiary sector or service sector has not shown much increase from 88.44 per cent in 1971 to 88.68% in 2001.

Agra is a commercial city. There are more than 50000 shops & commercial establishments registered at Nagar Nigam. The average growth rates of commercial establishments are high compared to hotels & restaurants.

Table 2-5 : Trade & Commerce establishment 2004-2005

Details	2004-2005
Shops and Commercial establishments	50188
Hotels and Restaurants	146
Market stalls	195
Market vendors	462
Offices and Institutions	1144
Total	52135

Source: *Detailed Project Report for Integrated Solid Waste Management Systems for Agra*

2.6 Housing Profile

The traditional old city of Agra has undergone transformations over time, still retaining its original character. Areas adjacent to the old city exhibit dense development due to its proximity to Agra, which have become the tourist attraction of the city. The Central city is constantly under great development pressure due to proximity to the core areas. This is because of availability of all services, cultural attractions and work places. The peripheral areas are becoming more popular among the people as they provide more organized development pattern with infrastructure being relatively in better conditions. According to 2001 census, the total household in the city are 1,97,656 comprises of 12,75,134 population and the average Household size is 6.4. The household in 2011 are 2,46,022 (projected by taking average HH size of last two decades) consisting of 1,574,542 population.

Housing Shortage

Housing, one of the basic services for the common man has given top priority in RAY plan preparation process. As indicated by the last three decades population growth rate, it is seen that there is a growth rate of 25% from 1981-1991 and it improved to 30% (1991-2001) and declined to 23% (2001-2011), but the housing scenario is in different line resulting gap.

Estimated Housing shortage in 2011 is 14,595 on the basis of household size 6. Considering the same average household size 6 for 2011-2021 and 5 till 2031 and 2% as dilapidation rate per decade the housing shortage was calculated. The future Housing requirement and shortage were calculated and depicted in Table 2-6. The housing shortage by 2031 will be 2,53,956 units in particular with households in 2011. These projections are made excluding slum households as they will be developed under this RAY scheme.

Table 2-6 : Projections of Housing & its shortage in Agra city

Year	2011	2016	2021	2026	2031
Projected Population	1,574,542	17,79,232	19,83,922	22,43,831	24,99,741
Housing Requirement	2,62,423	2,96,538	3,30,653	4,48,766	4,99,948
Considered HH size	6	6	6	5.5	5.5
Housing Shortage	14,595	17,361	18550	32637	36,360

Source: *Projection made based on Data from Census of India and Master Plan 2021*

EWS/LIG Housing

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

In Agra the slum households coming under Below Poverty Line (BPL) and assuming certain percentage (6% in Agra) of the households live in other parts of the city are considered as EWS/LIG population and housing projections are calculated with reference to projected population and household size as in table 2-6 for the next 20 years (2011-2031) as per the RAY guidelines.

Table 2-7 : Future Population & Housing projections pertaining to EWS/LIG

Year	2011	2016	2021	2026	2031
EWS/LIG Population	4,72,363	5,33,770	5,95,177	6,73,149	7,49,922
EWS/LIG Housing	74,978	84,725	94,472	1,06,849	1,19,035

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.

2.7 Land use

The first Master Plan of Agra was prepared for the plan period 1971-2001. In this Master Plan the land use was prepared for an area of 8360 Ha. The second Master Plan for a plan period of 2001-2021 stands approved and the land use break up is provided for an area of 20036.97 Ha would be utilized for urban activities, including housing, commerce, industries, tourism, community services, transport, parks, amusement and entertainment centres, parks and parking spaces. About 50 per cent of area is for residential use and about 2 percent for commercial use.

The Master Plans 2001 approved by the Govt. of Uttar Pradesh in the year 1973 envisage following land use break up (*table 2-8)* for the additional land of the order of 8360 Ha.

Table 2-8 : Land Use Break up for additional land

S. No.	Land use	Area in Hectare	Area in Percentage
1	**Residential**	3254	39.0
2	**Commercial**	300	3.5
3	**Community Facilities**	1252	15.0
4	**Govt. and commercial office space**	60	0.7
5	**Industrial**	1040	12.4
6	**Open space & reservation**	1000	12.0
7	**Transport**	1254	15.0
8	**Others**	200	2.4
	Total	8360	100

Source: *Agra Master Plan-2021*

From the above table it can be seen that, the percentage of area for residential use is less than 40 percent. Master Plan 2021 for the city of Agra for the plan period 2001-2021 has also been approved by Government of Uttar Pradesh on 20.8.2004, where in the following existing land use for the Agra Development area and proposed land use have also been given as under (table 2-9 & 2-10).

Table 2-9 : Existing Land Use of Agra Development Area 2001

S. No.	Land use	Area in Hectare	Area in Percentage
1	**Residential**	4866.34	61.84
2	**Commercial**	148.74	1.88
3	**Wholesale Commercial**	58.88	0.75
4	**Community Facilities**	842.62	10.66
5	**Govt. and commercial office space**	177.93	2.25
6	**Industrial**	542.72	6.87
7	**Open space & reservation**	105.22	2.25
8	**Historical monuments**	116.48	1.47
9	**Traffic and Transportation**	858.65	10.87
10	**Crenulations / Burial Grounds**	31.25	0.40
11	**Nursery**	24.09	0.30
12	**Gardens**	69.12	0.87
13	**Sewage farms**	38.35	0.49
	Total	7901.39	100.00

Source: *Agra Master Plan-2021*

The revised Master Plan 2021 takes into account the requirements of growing urban population of 2021 and focusing on city's historical and archeological significance. Master Plan 2021 envisages an urban area of the order of 20,000 Ha which has been subdivided into various land uses as given in the table 2-10.

Table 2-10 : Proposed Land Use as per Master Plan 2021

S. No.	Land use	Area in Hectare	Percentage
1	**Residential**	9923	49.53
2	**Commercial**	544.17	2.72
3	**Industrial**	1606.31	8.01
4	**Office**	508.40	2.54
5	**Tourism**	178.18	0.89
6	**Public and semi public**	1763.40	8.80
7	**Traffic & Transportation**	2161.60	10.79
8	**Recreation and open spaces**	875.40	4.37
9	**Other open spaces**	421.58	2.10
10	**Others**	2054.13	10.25
	Total	20036.97	100.00

Source: *Agra Master Plan-2021*

2.8 Infrastructure

2.8.1 Water Supply

The UP Jal Nigam is vested with the responsibility of the design and execution of water supply works and wastewater (sewage) collection, transportation and disposal related works. While Jal Sansthan, Agra is responsible for the operation and maintenance (O&M) of water supply system and wastewater collection (sewerage) system. The source of water supply in the city is mainly surface water. The river Yamuna is the only surface water source, which enters the town from northeast corner, flow towards south of the city for some distance and then turns towards left. The transmission mains carry water from the source to the water treatment plants and subsequently towards the Master Balancing Reservoirs for further distribution to the consumers. Presently there are two water works namely Jeoni Mandi water treatment plant and Sikandara water treatment plant. Both the treatment plants are giving a final output of about 270 mld.

As per the CDP, the per captia supply to the city should be 150 liters out of which 135 lpcd goes to meet domestic demands 15 lpcd of water over and above 135 lpcd will take care of institutional demands, floating population and other demands. As per standard of 150 lpcd the water requirement for the projected population (2031) would be of 340 mld and if 30% wastage during distribution is also considered then the water requirement would be 442 mld. As per estimate of U.P. Jal Sansthan 70% of the area is covered by piped water supply however in some of the areas the supply is uneven. The water quality of river Yamuna is far from satisfactory as per CPCB norms.

In the slum areas and areas where water supply line is not available, deep bore hand pumps has been installed and the community is getting their water from those hand pumps. There are about 4017 stand posts and about 4598 hand pumps in the city. These areas are facing acute water shortage so there is an urgent need for the augmentation of water distribution network of these areas.

2.8.2 Sewerage and Drainage

The city of Agra has underground sewerage system, which is operated and maintained by the Agra Jal Sansthan. Planning, construction and commission of the projects related to sewerage system is under the purview of Jal Nigam. In most of the zones of Agra city, sewer lines have not been laid except for certain parts of in old city area, which were laid in the year 1976. The existing system is spread over the area of 1400 hectares but devoid of proper house connection and mostly the sewage goes into the open drains. The system is badly silted, choked and damaged at number of places and overloaded due to the growth of population the city. Improper means of disposals of wastewater has also resulted in environmental pollution and creates unhygienic conditions. In urban areas, a large population is not covered by safe sanitation facilities due to lack of well established sewerage system.

Table 2-11 : State of Sewerage System

Wastewater generated daily (mld)	153
Present operating capacity/ Capacity of Treatment Plants (mld)	90.25
Area covered under the sewerage system	17%

Source: *Agra, Jal Sansthan ; May 2006*

Three Sewage Treatment Plants (STPs) were built under Yamuna Action Plan Phase I. The STPs at Burhi ka Nagla (2.25 mld) and Peela Khar (10 mld) are made to perform beyond capacity, but still treat only 10% of the sewage they receive. Mean while, the Dhandupura STP (78 mld) remains underutilized. Besides effluent from these STPs do not conform to CPCB discharge standards. The following are the major issues recognized (CDP) regarding sewerage:

- The area covered by the sewerage system is only 17 per cent
- About 50 per cent of the sewerage system is not in working condition.
- The STPs are made to perform beyond capacity, but still treat only 10% of the sewage they receive.
- Treatment capacities being inadequate, results in discharge of untreated sewage into water bodies, particularly river Yamuna and other nallahs
- The STPs at Dhandupura treats city sewer and discharge of 17 nallahs whereas STPs at Pila Khar and Magla Budi treats only discharge coming from nallah water.

There are about twenty-five major drains in city, which directly falls into the river Yamuna and there are about thirty-eight secondary drains. Mantola nallah is the longest nallah of the city and covers around one third of the city catchments. Primary and secondary drains/nallah's are of mixed type i.e

kutcha and pucca. These drains/nallahs are mainly made in brick masonry without plaster and some portion in stone masonry. These drains are heavily silted and broken in many places and are in very bad conditions. Project for providing drainage system in Sikandra, navalganj, Bhim nagar and Mustfa quarters areas of the city, costing Rs. 5.65 crore was sanctioned of which physical progress worth Rs. 4.42 core is complete and remaining is under progress (CDP). Additionally an amount of Rs.0.95 crore was also sanctioned for desilting and repairing of four drains namely Paliwal park drain, Mantoal drain, Bhario drain and Taj East Gate drain.

2.8.3 Solid Waste Management

The waste generated from the city includes household waste, commercial waste, clinical waste and industrial waste. About 628MT of solid waste is generated every day in the city, which comes out to be about 492 grams per capita per day. For the purpose of solid waste management the city is divided into 19 sanitary wards. Each sanitary ward comprises 3 to 5 wards and is managed by a Sanitary Inspector.

Table 2-12 : Source wise break up of Solid Waste

Source	Waste generation per day (MT)	Percentage
Domestic	271	43.15
Shops and Commercial establishments	262.5	41.80
Petha waste	36	5.73
Hospital waste	9.4	1.50
Other*	49.1	7.82
Grand total	628	100

* Construction & demolition waste, waste generated by floating population

Source: *Agra Nagar Nigam Detailed project Report for Integrated Solid Waste Management*

Picture 2-4 : Waste thrown along nallah

From the above table it can be observed that the domestic waste is the major source of waste generation in the city. The average waste generated from the city is 492 grams per capita per day, which is higher than the standard/norms prescribed in the Manual on Municipal Solid Waste Management; Ministry of Urban Development & Poverty Alleviation, Government of India; 20001 (270 grams per capita per day for city with population in between 10 lakhs and 20 lakhs). Agra is famous for its petha sweet and petha making produces substantial quantity of organic waste. It also produces large quantity of vegetable waste mainly peelings, seeds and fleshy part around the seeds. There are around 400 petha industry units.

The households, shops do not store the waste at source nor do they segregate the waste as recyclable and non-recyclable waste. Most of the waste is thrown on the streets. There is no organized arrangement for house-to-house collection of waste in almost whole city except for some parts in the city. Thus on account of limited and unorganized system of primary collection on household level street sweeping is the only method left for primary collection. Street sweepers collect the waste on streets and transfer it to temporary storage deposits from where it is carried by vehicles to the disposal site. The disposal is carried out, without any treatment, following the method of crude dumping where the waste is neither spread nor covered. In some areas the garbage waste is recklessly burnt in open dump yards placed on the main highway road. The present dumping site is at Shahdara near Jarnah nallah on Agra-Firozabad road.

2.8.4 Road network

The road network within the city is not developed enough to cater for the requirement of tourism, which Taj Mahal attracts. Intermediate Public Transport (IPT) is the popular mode of transport due to lack of proper public transport system. In fact the road network of the city offers poor level of service affecting safety, efficiency and economy of traffic operation within the city. The total road length in Agra Nagar Nigam area (including pucca road, semi pucca road, kaccha road) is 1724 km The year wise change in road length and the maintenance cost has been concisely presented in table 2-13 (2003 - 2006).

Table 2-13 : Road length and its maintenance cost in Agra Nagar Nigam Area

S. No	Type	Total length (km) 2003	Maint. Cost in (2003-04)	Total length (km) 2004	Maint. Cost in (2004-05)	Total length (km) 2005	Maint. Cost in (2005-06)	Total length (km) 2006
1	**Pucca**	1050.35	331.89	1079	368.21	1110.00	531.21	1169.00
2	**Semi Pucca**	370	82.97	346.00	122.73	320.00	227.96	267.00
3	**Kutcha**	303.65	-	298.90	-	294.00	-	288.00
	Total	1724.00	414.86	1724.00	490..94	1724.00	759.88	1724.00

Source: *Agra Nagar Nigam*

It is evident, from the decreasing Kachha and Semi Pucca road length in proportion with the increasing Pucca roads that some work has been done in conversion of type of roads. This might be the reason behind the increasing maintenance cost where the road length remains unchanged. The width of existing roads is varying from 7m to 18m.

2.8.5 Street lighting

Agra Nagar Nigam is responsible for the operation and maintenance of street lights in the city, There are about 28,048 light points in Agra. As per National Transportation planning and Research Centre (NATPAC) study, 1994, only 35-40% are functional at any given point of time. Normally a team of 1 lineman and 2 helpers can handle 1000 points for repair and maintenance, so to handle 28,048 light points, Manpower required is 28 teams where as only 11 teams are available in Agra Nagar Nigam which is insufficient.

2.8.6 Education

Agra University was established on 1st July 1927 to cater the needs of then United and Central provinces. At present it offers the well sophisticated technical and non technical courses. It draws the students from all corners of the country particularly from Uttar Pradesh. This historic Agra University was later rechristened as Dr. BhimRao Ambedkar University. Dayalbagh Educational Institute, Central Institute of Hindi, St. John's College, Agra College and Motilal Nehru Medical College are the other premier higher educational institutions located in the city, offering quality education in their respective fields.

Picture 2-5 : Agra (B.R Ambedkar) University

Apart from the higher education, there are 416 primary, 114 middle and 56 senior secondary high schools, two polytechnic college (source: Census town directory, 2001) are present in the city to offer basic education to the city population and surrounding country side.

2.8.7 Health

Hospital of Motilal Nehru Medical College (Govt.) is equipped with all facilities in order to provide medication for the patients. Apart from this, 31 (general and specialized) hospitals, 9 nursing homes and 16 dispensaries, 4 Tuberculosis Clinics, 13 family welfare centers, are available in the town to render their service to the public.

2.8.8 Other facilities

As the city exceed million plus population the services like Police station, fire station, postal and telegraph services, Banking facilities, Agriculture and Non Agriculture credit societies (29), Parks & Stadiums (1), Cinema halls (28), Auditorium (3), Public libraries and reading rooms (4) etc are existing in the city. The fire station helps in handling the fire accidents in the city and its coverage area. There were 105 banks (2001) of both nationalized and private sector were located in the city in order to facilitate public, a positive sign of economic development.

2.9 Agra Institutional Setup

Agra Municipal area of 141 sq. km is governed by the Municipal Corporation of Agra (Agra Nagar Nigam – ANN). All the civic facilities have to be provided by the Municipal board as per the provision of 74th constitutional amendment act, 1992. Municipal commissioner heads the Municipality who is a state government officer. The elected representatives formulate a governing body which is headed by chairperson. Both play the major role in delivering the services to the people and development of the city. At present the governing body encompass of 80 councilors led by Shri Indrajeet Balmiki as mayor.

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

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

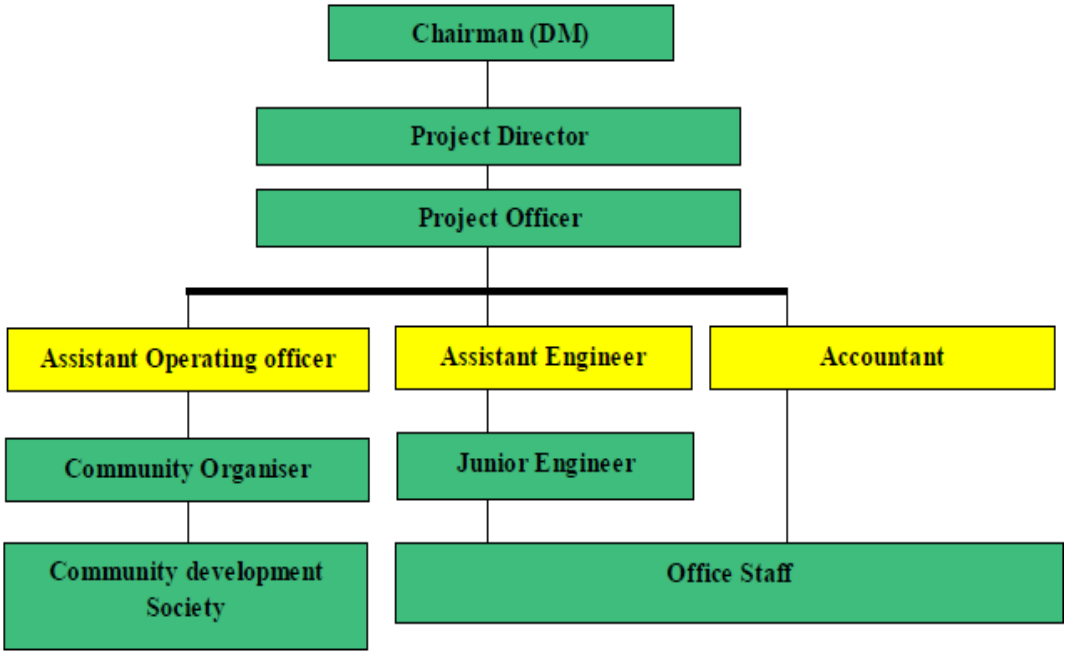


Figure 2-2 : Organization Structure of DUDA

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

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

PARAMETER	UNIT	VALUE
Municipal Area	Sq.km	141
Population (2001)	No.	12,75,134
Population (2011)	No.	15,74,542
Population Density 2011 (Persons per Ha.)	No.	112
Children (0 - 6 yrs) 2011	No.	186,516
Literates (2011)	No.	880,530
Average Literacy rate	%	63.44
Sex Ratio (2011)	No.	853
Child Sex Ratio (2011)	No.	772
Households in the city (2001)	No.	1,97,656
Number of Wards	No.	80
Number of Slums Settlements	No.	417
Slum Population (2011)	No.	885,801
Slum Households (2011)	No.	123,846

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

2.10 Review of slum Development Programmes (Housing trend supply for Urban Poor)

BSUP:

Basic Services to the Urban Poor (BSUP) is a sub-mission under JNnURM and administered by the Ministry of Housing and Urban Poverty Alleviation.

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

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

In Uttar Pradesh Seven cities has been selected which are having million plus population and Agra is one among them. The number of projects started in city under BSUP scheme is 10 and the numbers of dwelling units (DU's) approved with a cost of 605.55 crores are 16793. Modes of development, for five projects are In situ, four projects are Relocation and for the remaining one project is a combination of In-situ and up gradation. Amount released by State Level Nodal Agency (SLNA) i.e. State Urban Development Authority (SUDA) including both state and central government share to the District Urban Development Authority (DUDA) is 279.93 crores. Out of 16793 DU's, 14320 DU's had been initially selected to start the construction work. As of August 2012, construction of 8441 DU's is completed, 2763 units' construction is in progress and the remaining 3116 units are yet to be start. Irrespective of the construction of work a total of 2399 DU's have been allotted to the beneficiaries. The project wise status is given in the *table 2-15*.

Uttar Pradesh Rajkiya Nagar Nirman (UPRNN) and Agra Development Authority (ADA) and Awas Vikas Parishad (AVP) are the implementing agencies of the projects in Agra. UPRRN takes care of 6 projects i.e. construction of 10553 DU's out of 16793 DU's, ADA took up 2 projects of 5000 DU's construction and the rest 1240 DU's (one project) construction dealt by AVP.

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

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

Project No.	No. of DU's Approved	Project type	Project cost	Amount Released by SLNA to DUDA (state + Central share)	Amount utilized DUDA	Work started	Completed	In progress	Not started	Implementing agency	Allotted
1	3640	Relocation	127.27	55.00	74.49	3640	3392	192	56	ADA	--
2	2708	In-situ	116.25	51.00	37.65	1358	540	561	257	UPRNN	490
3	2335	In-situ	95.18	41.59	34.48	1212	491	379	342	UPRNN	491
4	1536	In-situ	71.34	31.38	31.09	1536	459	568	509	UPRNN	459
5	1360	Relocation	51.98	32.14	32.015	1360	1360	0	0	ADA	
6	950	In-situ	39.78	17.42	18.57	950	330	311	309	UPRNN	330
7	604	In-situ	35.14	15.61	16.59	604	157	236	211	UPRNN	157
8	2420	In-situ	34.78	14.58	21.53	1277	472	516	289	UPRNN	472
		Upgradation				1143	--	0	1143	UPRNN	--
9	632	Relocation	19.04	11.62	15.13	632	632	0	0	AVP	--
10	608	Relocation	14.79	9.59	13.25	608	608	0	0	AVP	
Total	16793		605.55	279.93	294.93	14320	8441	2763	3116		2399

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

2.11 Municipal finance

Resource mobilization and financial stability is of paramount importance for any city's health and plays a vital role in the development. The source of revenue for Agra Nagar Nigam is primarily categorized into tax based and non tax based. The tax based revenues mainly includes revenues from collected property tax, advertisement, professional and terminal taxes. While the non tax based from state government generally include shared taxes, general and specific purpose grants and regular grants recommended by state finance commissions. In addition, capital receipts consist of loan from the government and revenues earned from sale of land and grants received on account of MP and MLA funds. The revenue expenditure constitutes the establishment expenditure, operation and maintenance, interest payment and others on service provision by ANN. The following *table 2-16 presents* a comparison of the receipts and expenditure of Agra for the years 2001-2006.

Table 2-16 : Receipts and Expenditure for the Years 2001-2006

S. No.	Particulars		Years (Rs. in INR/Lakhs)			
		2001-02	2002-03	2003-04	2004-05	2005-06
1	**Taxes**	874.09	519.52	623.78	1180.39	646.37
2	**Non-Taxes**	3808.8	3671.18	3059.98	4025.3	6486.64
3	**Transfers including Grants**	2874.59	2684.02	2707.31	3626.36	6097.51
	TOTAL	4682.89	4190.7	3683.76	5205.69	7133.01
1	**Establishment**	2488.00	2410.51	2303.34	2759.76	3082.32
2	**O&M Expenditure**	405.57	530.45	470.15	514.73	519.06
3	**Capital Expenditure**	429.86	453.64	514.88	827.56	893.46
4	**Others**	1207.49	972.29	593.94	895.09	1134.94
	TOTAL	429.86	453.64	514.88	827.56	893.46
1	**Loans**	Nil	Nil	Nil	Nil	Nil
2	**Grant**	319.52	405.99	390.55	201.80	261.02
3	**Financing Institutions**	Nil	Nil	Nil	Nil	Nil
	TOTAL	319.52	405.99	390.55	201.80	261.02
1	**Expenditure**	539.10	469.41	0.25	301.50	228.36
2	**Income**	13.60	135.00	105.31	358.50	184.41

Source: *Agra CDP*

As per the JnNURM CDP report, the tax Receipts are only in the range of about 10% to 20% of the total revenue receipts. As such dependence on non- tax receipts is high. Major portion of Non-Tax receipts arises from receipts from State Finance.

The revenue expenditure show a declining trend during the years 2002-03 and 2003-04, with higher decline in 2003-04 and reversal of the decline from 2005 onwards. Similarly for capital expenditure, major portion of Capital receipts accrue from Tenth Finance Commission, amounts to about 90% of the total capital receipts except in the year 2003-04 and 2001-02.

CHAPTER 3 - ASSESSMENT OF EXISTING STATUS OF SLUMS

3.1 Diagnostic Assessment of Slums

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

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

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

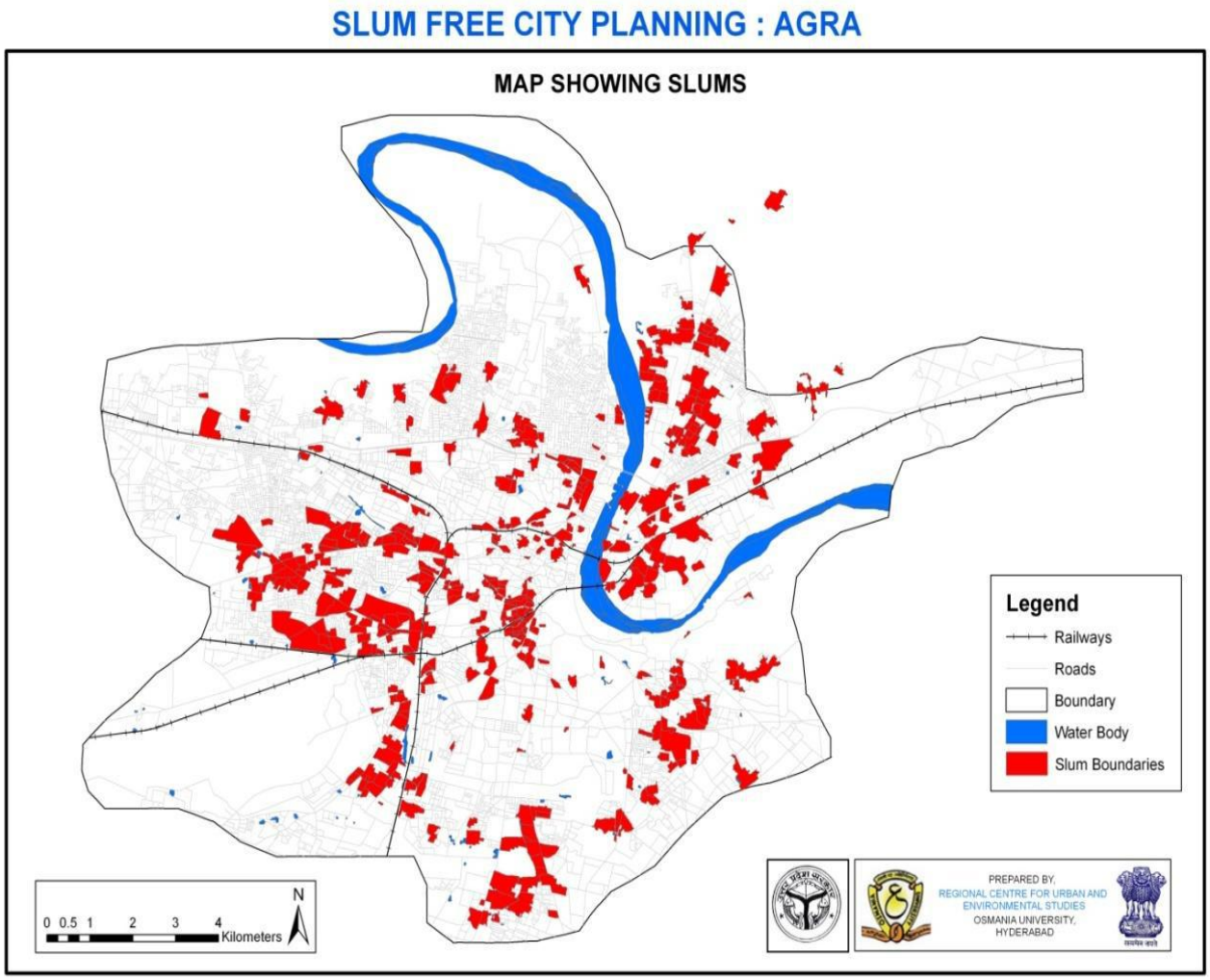
Agra being one of the significant tourist cities in India has 417 slums with 123846 households, in which 213 Notified and 204 Non-notified. There is a housing deficit for 9068 households. From amenities view, 43% of slums do not have access drinking water sources and 60% households lack connectivity to storm water drainage system and 58% with no underground sewer system. On the demographic front, BPL population forms 1% of the total population where 48% belongs to SC. 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 for year wise phased slums.

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.
15,74,542	8,85,801	56	14100.0	2007.59	14%

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

As shown in the *Map 3-1*, 325 slums are located in the core part of the city, while the other 92 slums in fringe areas. The abutting land use around the slums is predominantly residential in nature.



Map 3-1 : Location of slums in Agra

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

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

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

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

Of the total 417 slums, 406 slums are on State government lands, 4 slums are under local body, 6 slums are private lands and remaining 1 slums were situated on land belongs to Railway land. As shown below in the *table 3-2*, 83% of the slums possess a secured tenure status and remaining 17% slums have un-secured tenure status representing un-pleasant living condition.

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

Tenure			Land Tenability		
Status	**Secure**	**In secure**	**Tenable**	**Semi Tenable**	**Non - Tenable**
No. of Slums	345	72	405	4	8
Age of Slum					
Age	**0-15 years**		**More than 20 years**		
No. of Slums	8		409		
Land Ownership					
Ownership	**Local Body**	**State Government**	**Railways**	**Private**	
No. of Slums	4	406	1	6	

Source: *RAY Primary survey, 2011*

3.2.1 Distribution of Slums by Land Tenure Status

Land tenure is an important part of social, political and 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 shown in the *Table 3-2*, 83% of the slum lands are secured and have access to basic amenities and in possession of certification and while 17% of the slums are Insecure, which needs regularization. While identified slums have some security of tenure and fall under the purview of municipal service provision, the unidentified slums fall outside the net of formal service provision.

3.2.2 Distribution of Slums by Land Tenability Status

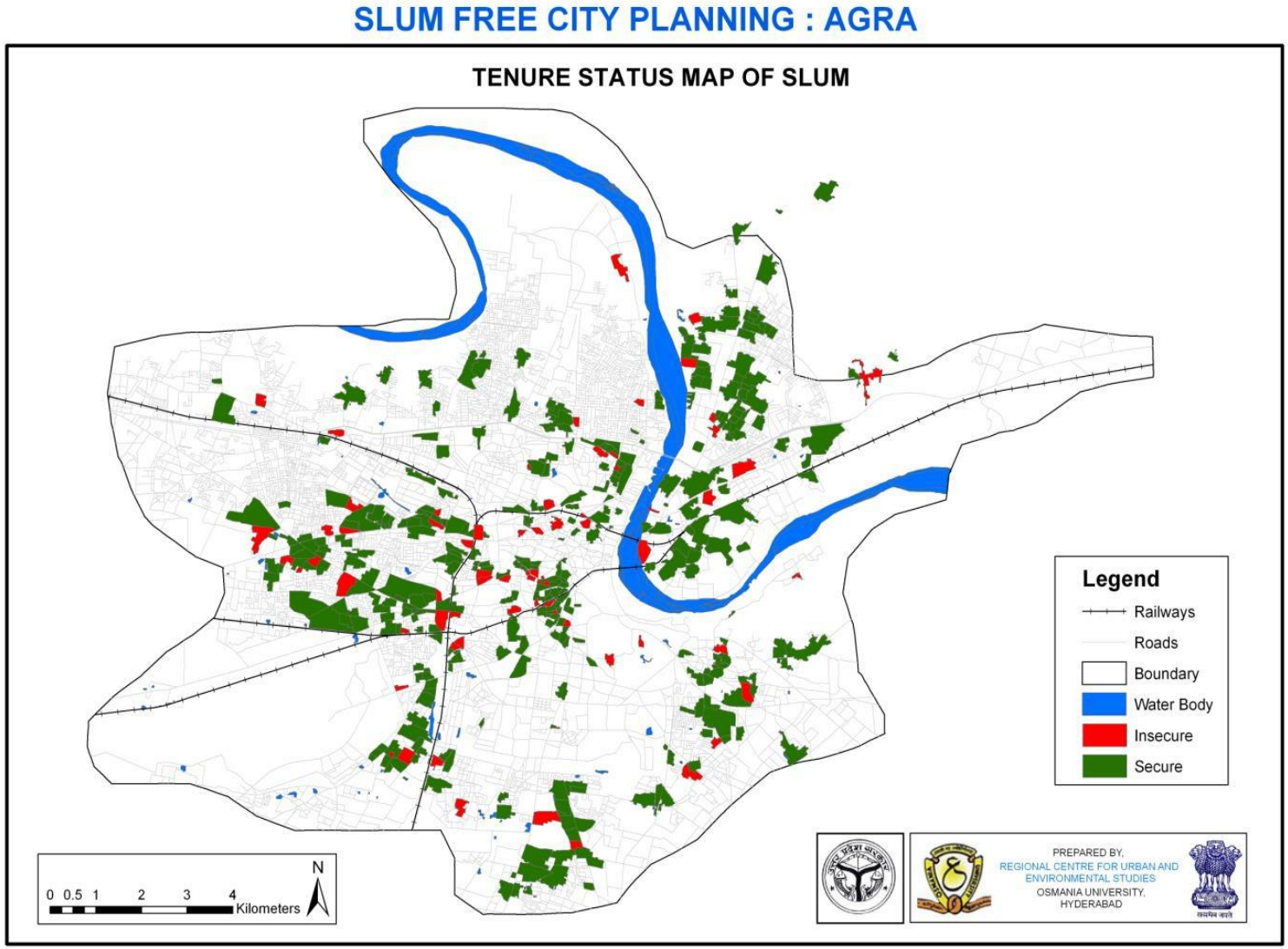
The land status of all listed slums/informal settlements should be classified by the ULB as tenable[2], semi tenable[3] or untenable[4] in order to determine whether the land is fit for human habitation and void of health hazards (RAY Guidelines).

As shown in *Figure 3-1*, the current land tenability status for the 417 slums as identified has been presented where 97% (405 slums) of the slums are found to be tenable, 1 % (4 slums) of the slums are semi-tenable 2% (8 slums) of the slum are Un-tenable.

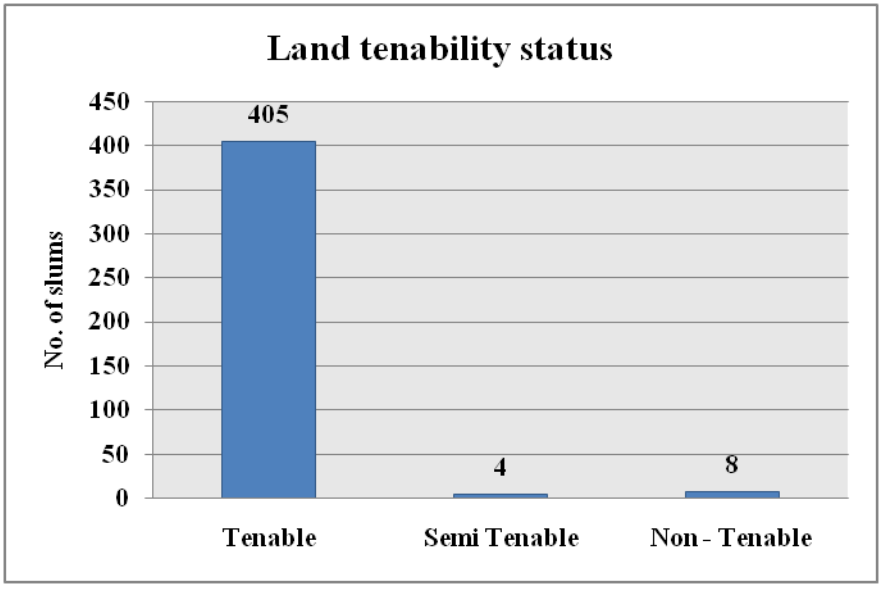
[2] According to RAY, Tenable slums means all slums which are not located on hazardous locations suitable for human habitation and the land not earmarked for any major public facilities and therefore it can be regularized in the same location.

[3] Semi tenable slums are those slums which are located on land zone for non-residential uses as prescribed by the master plan.

[4] Untenable slums are those settlements which are on environmentally hazardous sites, ecologically sensitive sites, prohibited areas around heritage sites, and on land marked for public spaces, utilities and services and infrastructure. These shall include settlements in lake/tank beds or near hazardous or polluting industries / activities which are detrimental to the life and property of the inhabitants occupying them.



Map 3-2 : Tenure status of Slums



Source: *RAY Primary survey, 2013*

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

3.2.3 Distribution of Slums by Land Ownership

It is observed over that 98% of the slums are built on lands are owned by State Government and local bodies, followed by 2% owned by Private Ownership and slums built on railway lands.

3.2.4 Distribution of Slums by Age

Age of the slum is one of the important information to assess the condition of a slum in any city. Considering the fact that Agra being one of the oldest habitat as well as the major agricultutal centre in the state of Uttar Pradesh, it has slums into existence over more than 20 years. It is interesting to note that 98% of the slums in the city have been into existence for more than 20 years with remaning 2% of slums less than the 20 years. (*shown in Figure 3-2*).

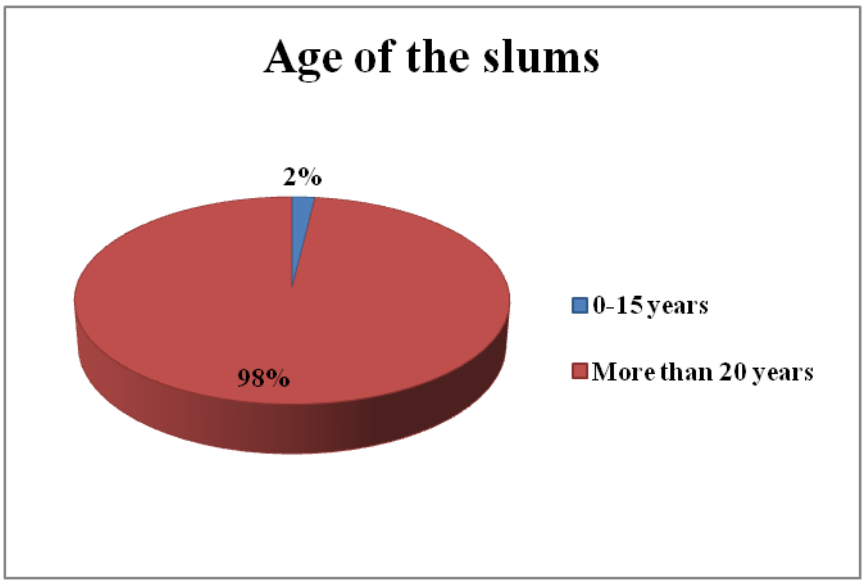
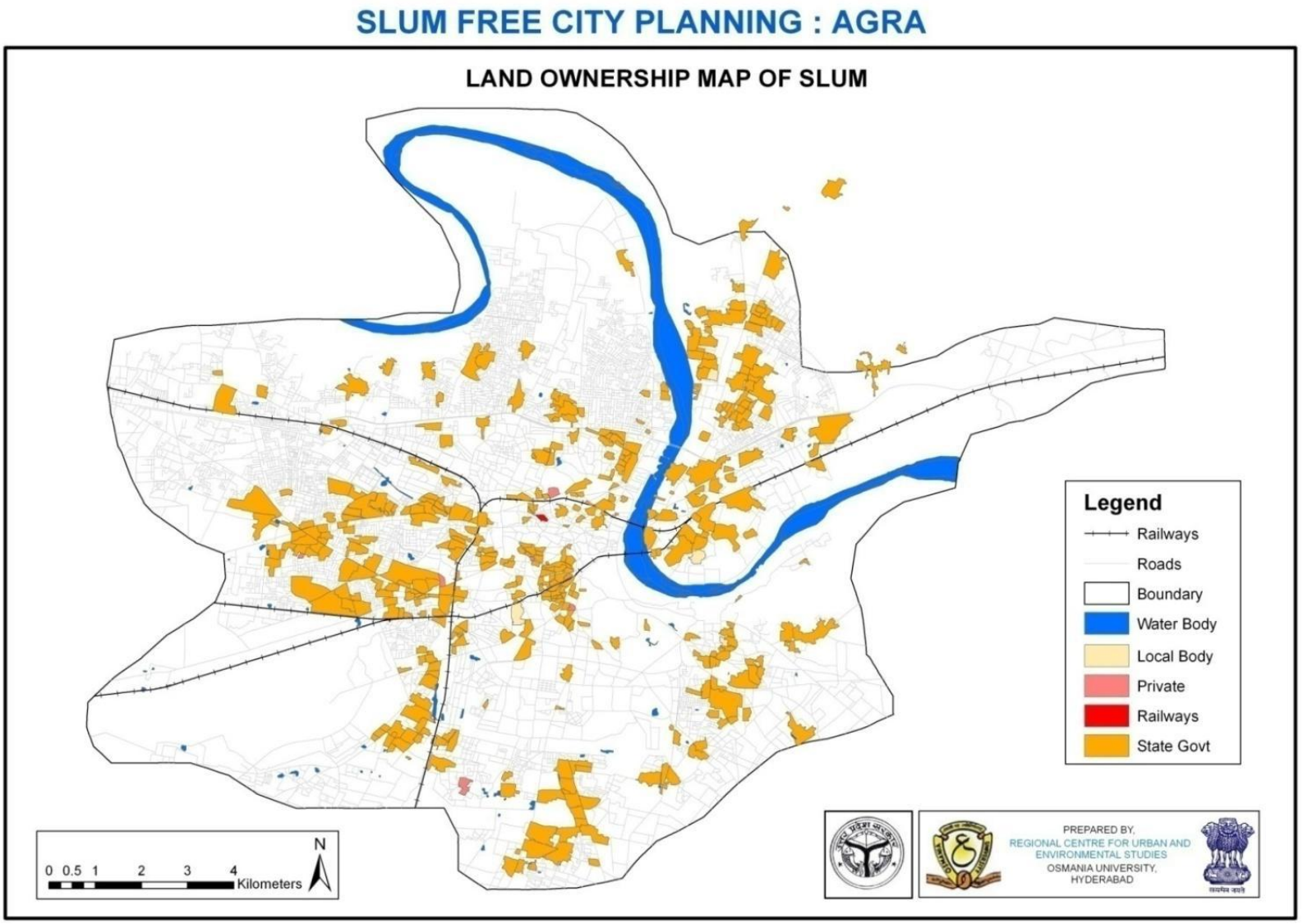


Figure 3-2 : Percentage distribution of slums in the city w.r.to age



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", they tend to receive higher level of services and those unrecognized by the local bodies were considered as "non-notified slums". As per CURE data, Agra the city is having a total of 417 slums. 213 slums were notified and 204 are identified as non-notified slums. The Annexure – I primary survey has been done for all 417 slums in the city.

Table 3-3 : Notification status of Slums

	Notification Status			% Proportion of Slums	
Status	**Notified**	**Non-Notified**	**Total**	**Notified**	**Non-Notified**
No. of slums	213	204	417	51%	49%

Source: *DUDA, Agra*

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

3.3 Physical Profile

Slum and squatter settlements in Agra are growing at alarming rates due to increased construction activities and industrial activities. The general composition of majority of slums comprises of scheduled tribes, scheduled caste, and other backward classes, 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
- Vulnerability to floods
- Abutting land use
- Housing type

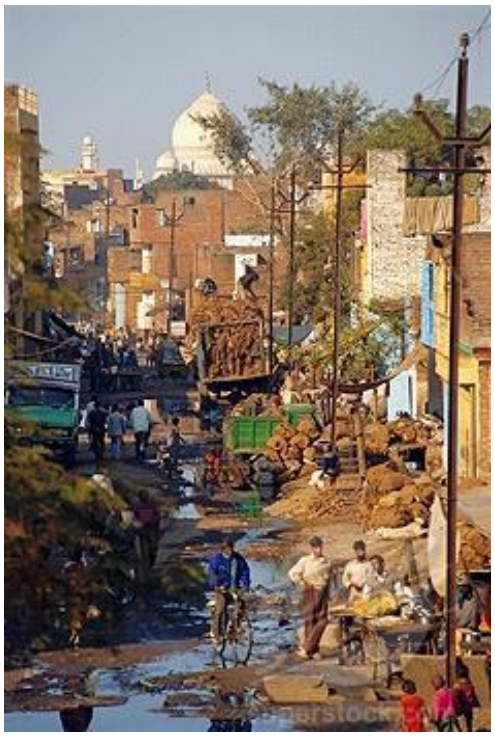


Table 3-4 : Summary table of the slums – area, location, abutting land use & flood vulnerability

Area of Slum								
Area (Ha)	**0 - 1 Ha**		**1 - 2 Ha**		**2-3 Ha**		**3 - 4 Ha**	**More than 4 Ha**
No. of Slums	40		75		89		53	160
Location of Slums in City								
Location	**Core area**				**Fringe area**			
No. of Slums	325				92			
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**	**On River/ Water body bed**	**Hazardous / Objectionable**	**Non-Hazardous / Non - Objectionable**
No. of Slums	45	30	31	153	9	0	148[5]	1
Slums Prone to Flooding Due to Rains								
No. of Days	**Not Prone**		**Up to 15 days**		**15 - 30 days**		**More than 30 days**	
No. of Slums	2		269		144		2	
Type of Area Surrounding Slum								
Type of Use	**Residential**		**Industrial**		**Commercial**	**Institutional**	**Other**	
No. of Slums	413		0		0	0	4	

Source: *RAY Primary Survey, 2011*

3.3.1 Distribution by Slum Area

According to recent survey, slum population constitutes 56% of the total city population while the total slum area (2007.59 Ha) is about 14% of the total city area. Nearly 62% of slum areas are found to be in the range of 0-4 Ha remaining 38% of the slum area is above 4 Ha. The total slum area under the ownership of ULB is 16.74 Ha, and the State government is 1942.26 Ha; for Private ownership is 47.15 Ha.

Picture 3-1 : Water stagnation in Ugara

Picture 3-2 : Water stagnation in Tal Firoz khan

[5] It is noticed that 148 slums (as per annxure-1 data) belongs to others (Hazardous or objectionable), however many slum settlements have been along the banks of Yamuna river and could be managed to reside in same locations with some preliminary layout changes. However upon consultation with DUDA staff it has been decided to consider only 8 slums as hazardous which in turn have been proposed for relocation.

3.3.2 Flood Prone Slums

As indicated in the *Table 3-4*, 2 slums are found not prone to floods, 269 slums are found up to 15 days, and the remaining 146 slums are found to be flood prone with rain water remnant for 15-30 days or even more, indicating lack of safety to the slum dwellers.

3.3.3 Distribution of Slums by Physical location

Out of 417 slums, 325 slums are located in core area such as in old city and in other residential areas and remaining 92 were located in urban fringe. With respect to the physical location, around 11% of slums are located along the major storm water drains, 7% along other drains7% along the railway lines, 37% of the slums are along major transport alignment, 2% of the slums are along river / water body bed, 36% of the slums are hazardous/ objectionable slums The percentage of slums with respect to various physical settings is shown in the *Figure 3-3*.

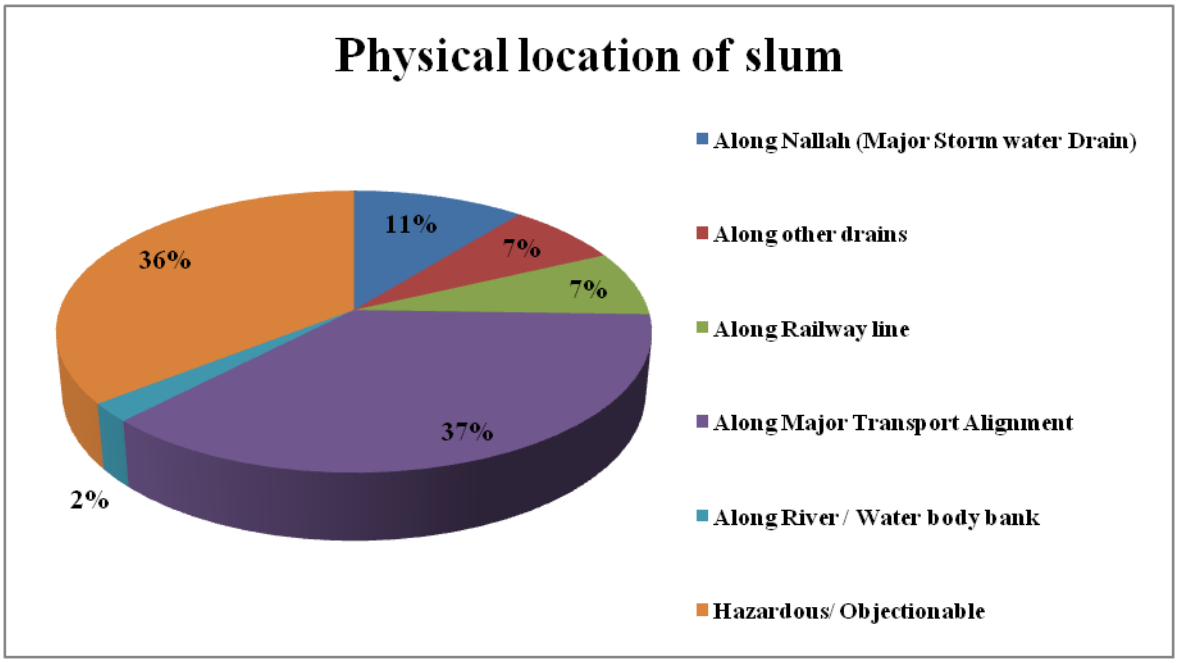


Figure 3-3 : Percentage distribution of slums w.r.to Physical location

Picture 3-3 : Slums along open drain- Ugara

Picture 3-4 : Location of Tal Firoz khanalong major transport alignment

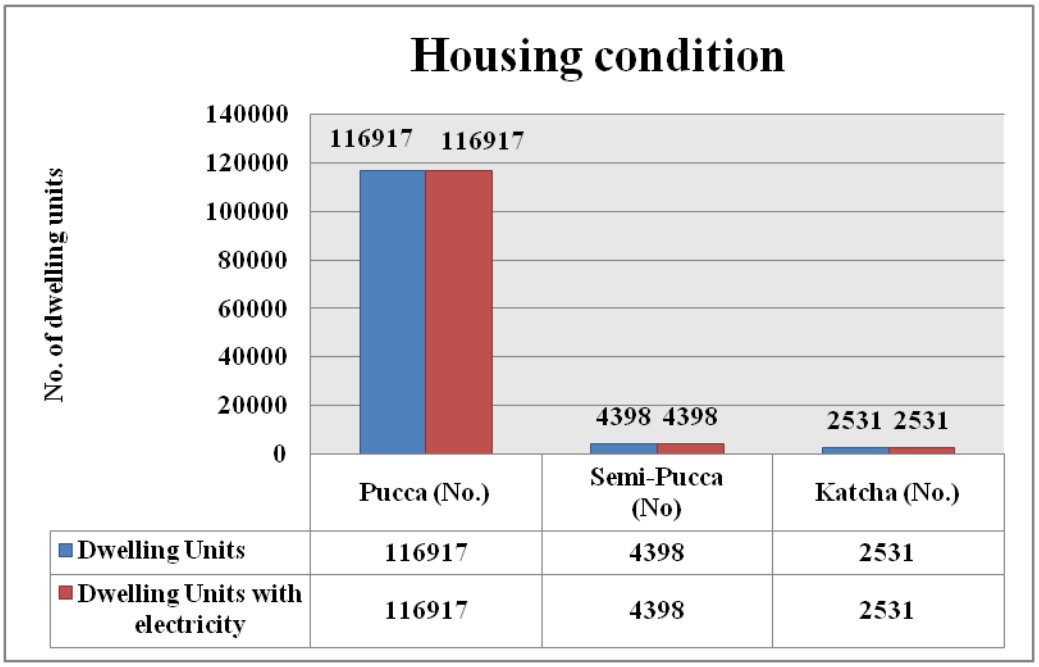
3.3.4 Distribution of Slums by Abutting Land use

Looking into the abutting land use, it reveals that 99% of the slums are surrounded by residential land use, followed by 1% other land uses (as seen in *table 3-4*). Of the 92 slums located in the fringe areas, 96% of the slums are bounded by residential and remaining 4% surrounded by other land uses respectively.

3.3.5 Distribution of Slums by Housing type

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

In Agra the total No. of dwelling units in the slums are 123846. Out of these, 94% of dwelling units are Pucca constructions, 4% units are Semi-Pucca and the remaining 2% are katcha in nature. All the dwelling units are provided with electricity connection.



Source: *RAY Primary survey, 2011*

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

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 11 slums have semi Pucca + katcha houses more than 75% while 398 slums in the latter category.

Picture 3-5 : Kolhai slum Demolished house

Picture3-6 : Kachhpura semi-pucca houses

Based on the income levels and the affordability levels of the households, the kind of housing is determined and varies accordingly. Similarly in Agra, 94% 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 90% of the houses are self-occupied and 10% 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.

3.4 Demography & Social Profile

3.4.1 Population

According to Annexure 1 primary survey, the total population in **417 slums** is **885801** residing in **123846** households, with an average household size of 7. The average population density of slum area in the city is 61 persons per Hectare. The ***Katra Wazir Khan*** slum is having the highest population (13248) and ***Kachhwan Gali Basti*** slum is having the lowest (38).

3.4.2 BPL Population & Households

The BPL population constitutes about 1% of the slum population. In ***Nagla Bar*** slum about 21% of the slum population is BPL population. Of the total slum households, 1% are BPL households i.e., 1385 households.

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

Particulars	SC	ST	OBC	Others	Total
Total slum population	428116	10314	344850	102521	885801
Total Households	57338	1488	55111	9909	123846
Total BPL population	5371	50	2813	83	8317
Total BPL Households	895	6	467	17	1385
No. of women headed households	4005	86	3775	335	8201
No. of persons > 65 years	15091	201	14161	2167	31620
No of child labors	19253	360	17580	1654	38847
No. of physical handicapped persons	1195	20	897	111	2223
No of mentally challenged persons	358	8	305	14	685
No. of Persons with HIV-AIDs	10	3	9	1	23
No. of persons with tuberculosis	1511	17	866	52	2446
No. of persons with Respiratory diseases	2248	20	1610	127	4005
No. of Persons with Other Chronic Diseases	556	7	380	21	970

Source: *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 Agra, SCs and OBCs constitute the major proportion. About 87% of the population living in slums belongs to OBC & SC division of social groups. About 98% of OBC & SC population in slums is under BPL.

In consideration with households, about 91% of the households in the slums belong to OBC and SC division of social groups. Of total slum households, about 46% belong to SC group of social division.

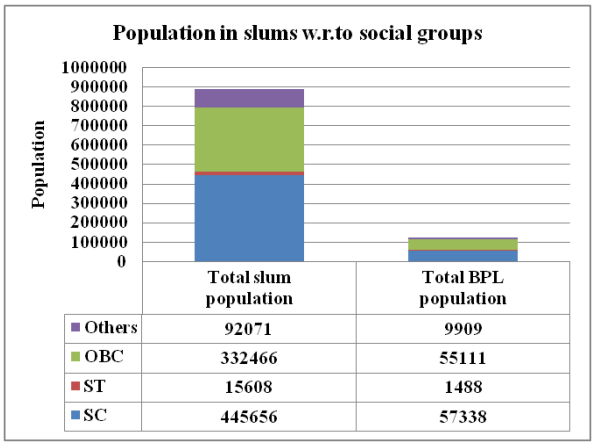


Figure 3-6 : Distribution of population in slums w.r.to different social groups

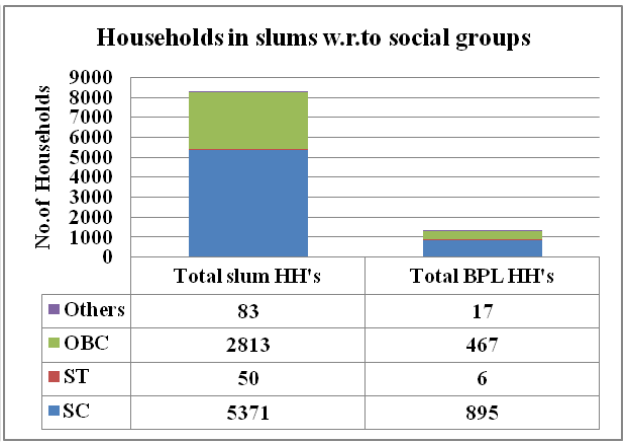
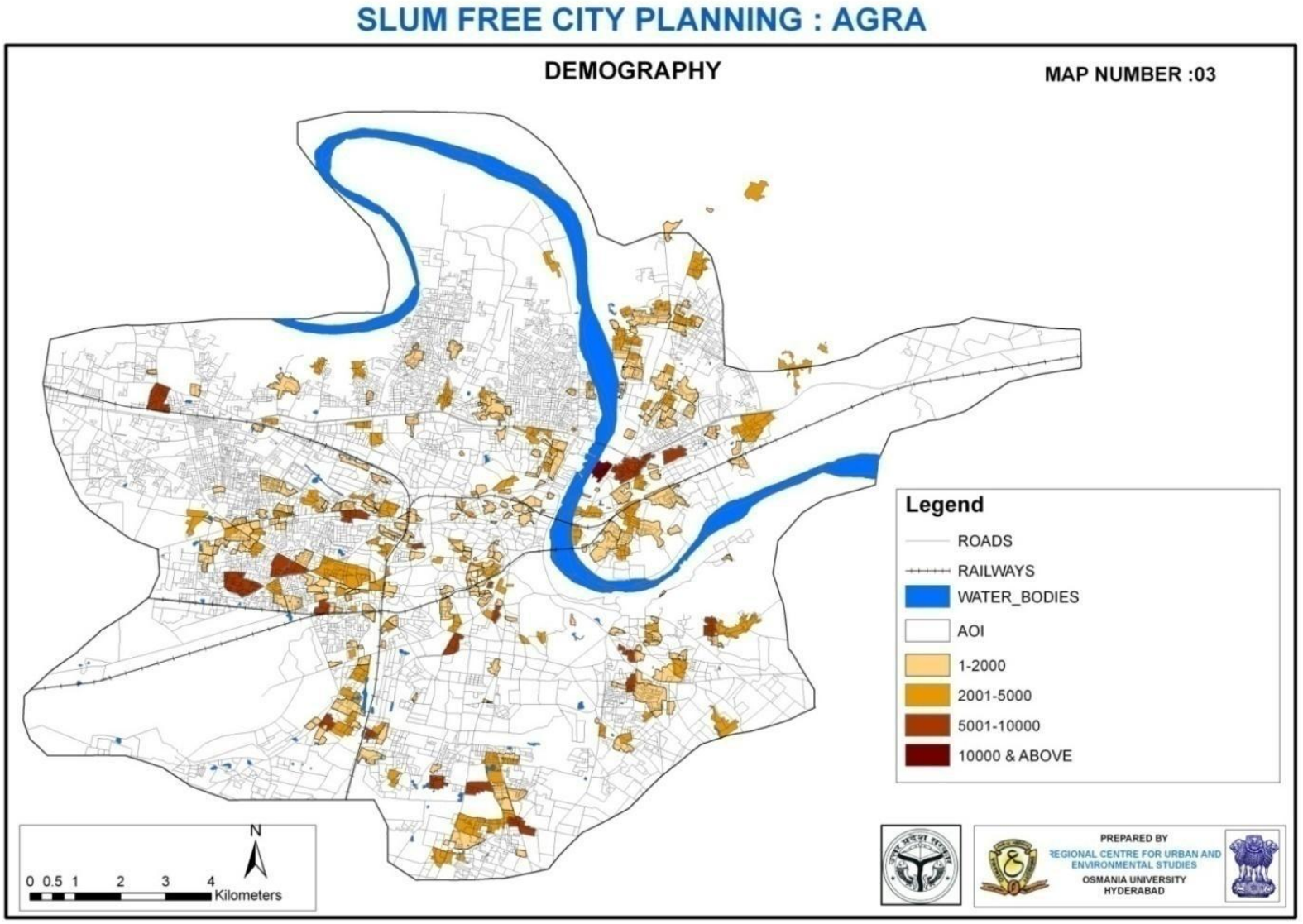


Figure 3-5 : Distribution of Households in slums w.r.to different social groups



Map 3-4 : Population distribution in Slums

3.4.4 Literacy rate

The literacy rate of slums in Agra is 75%, where the male literacy rate is observed to be more compared to female literacy rate. In respect to different backward social groups, SC population has the literacy rate of 75%, followed by OBC group with 70% of literate persons.

3.4.5 School Dropouts

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

As per Annexure-I survey, it is found that a considerable number (67600 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.

3.4.6 Number of Slums by Disability Status and senior citizens

As per Annexure -1 survey it is found that about 0.3 % 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 i.e. 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). As shown in the *Table 3-5*, the persons with more than 65 years of age constitute 4% of the slum population.

3.4.7 Number of households by Health Condition

Poor water and unsanitary conditions leads to adverse effects on health of households living in the slums. Given the fact that Agra is a major touristic center, it is quite apparent that the slums are characterized by poor/crammed housing conditions, lack of good sanitation and contaminated water supply. Due to contamination of water and outlet of effluents into the river, thus making the households be exposed to skin irritation, respiratory problems and other diseases. Indicated in Annexure –I, 0.3% of the population is suffering with Tuberculosis and 0.5% with respiratory problems.

For slum wise Demographic details, please refer Annexure-1C.

3.5 Economic profile

The economic base of Agra City depends mostly on industries, tourism, trade and commerce. The major part of its industrial activity is in the form of small-scale and house- holds industries that comprises of textile, leather, foundries, diesel engines, generator sets, electrical goods, fans, pipes, C.I, casting, leather goods including shoes, steel rolling, packaging materials and cottage industries - petha. These industries are mainly located in the old Mughal city particularly Lohamandi, Rakabganj, Kotwali, Tajganj areas and the large scale units are located in Chatta and Hariparvat areas.

With close proximity to River Yamuna, the industries receive greater impetus and also an added advantage. Due to lack of fertile lands and more vulnerable to floods, agriculture in Agra is practiced as a subsidiary activity limited to very few areas. Therefore, it facilitated the growth and development of industries. Hence employment in agriculture shifted to allied sectors.

Agra has been a center of traditional handicraft industries from the Mughal times. A number of factors contributed in building this image like the availability of raw materials: leather, stone, and cotton threads within the city or the region, marble from makrana, red sandstone from Bharatpur. Besides a massive amount of building activity was going on during the Mughal period and a number of craftsmen were hired to develop local skills. All these factors attributed towards Agra becoming the stronghold of traditional handicraft industries.

The history of growth of traditional handicrafts begins with the Mughal Empire. In the British period, the economy had undergone certain changes mainly because of alteration in trade routes and the railways. But the city of Agra continued to play its role as a regional center. It was famous for zari work, silk weaving, stone inlay and other major handicrafts such as marble, leather, carpet, brassware, artistic dari and jewellery.

Given in the CDP report 2006, a major chunk of the population is engaged in tertiary sector (88.68%), about 1% of the total population in the city lives below poverty line. As evident, a significant amount of the working population from slums is employed in these economic activities, but however nearly 12% of the slum households are still un-employed. The marble is colored red to give contrast while working**.**

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

3.5.1 Livelihood profile

Two types of labor exist in all economies: skilled and unskilled. Skilled labor is the portion of workers in an economy that have specific, technical industry skills relating to business and the production of goods. Engineers, welders, accountants and scientists are a few examples of skilled labor. Unskilled labor is the cheaper and less technical portion of the workforce that makes up a large part of an economy's labor market. This workforce plays the important part of performing daily production tasks that do not require technical abilities. As indicated in survey, 25% of slum population is illiterate with lack of skill and professional training, making it difficult for them to obtain skilled employment opportunities in Agra, hence end up doing low or moderately paid jobs on a daily basis.

The composition of the work force conveys a picture of quality of life people maintain and their social and economic activities. As per Agra City Development Plan 2006, around 88% of the population is involved in tertiary sector such as construction, transportation, trade and commerce, and banking and less than 4% is involved in primary and secondary sector such as household industry. The unemployment in slum dwellers could be potentially mitigated by implementing schemes such as SJSRY, STEP UP and other livelihood oriented training programmes initiated by Govt. of India.

Majority of the working population in the slums is engaged in tertiary sector which comprises of wholesale business, informal sector, tourist guides, rickshaw pullers, sweepers, street vendors, preparation of souvenirs such as replica of Taj Mahal and other home based small businesses.On the other hand, women in the families are majorly involved in tertiary activities such as domestic help and in the making of petha. In addition, a certain amount of the slum working population is involved in industrial activities such as shoe making, leather goods and ancillary industries supporting foot wear. On the other hand, slums households located in urban fringe area are involved as agricultural laborers due to the presence of fewer agricultural lands in close proximity.

3.5.2 Distribution of slums households by Occupation Status

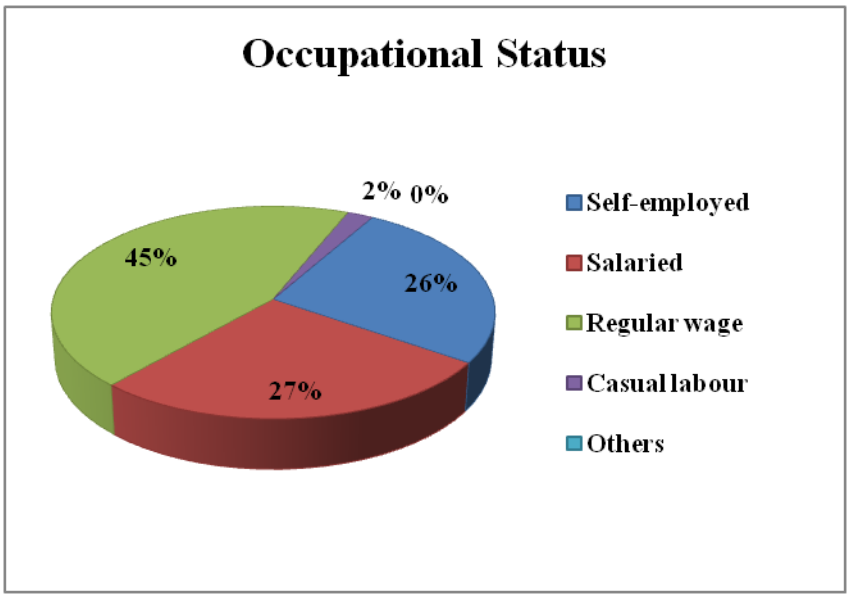


Figure 3-7 : Distribution of slum household's w.r.to occupational status

As per Annexure –I survey, it is inferred that 2% of the households are found to be working as casual laborers and 45% on regular wage basis as they are semi-skilled. Around 27% is found to be working on a monthly salary, indicating a secured position.

As per the recent Annexure –I survey, 2% 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.

3.5.3 Monthly Income by Households

The monthly income of 1 % households ranges between Rs.1500 to Rs.2000 and 6% households earn between Rs.2000 to Rs.3000 while 93% earns above Rs.3000 per month.

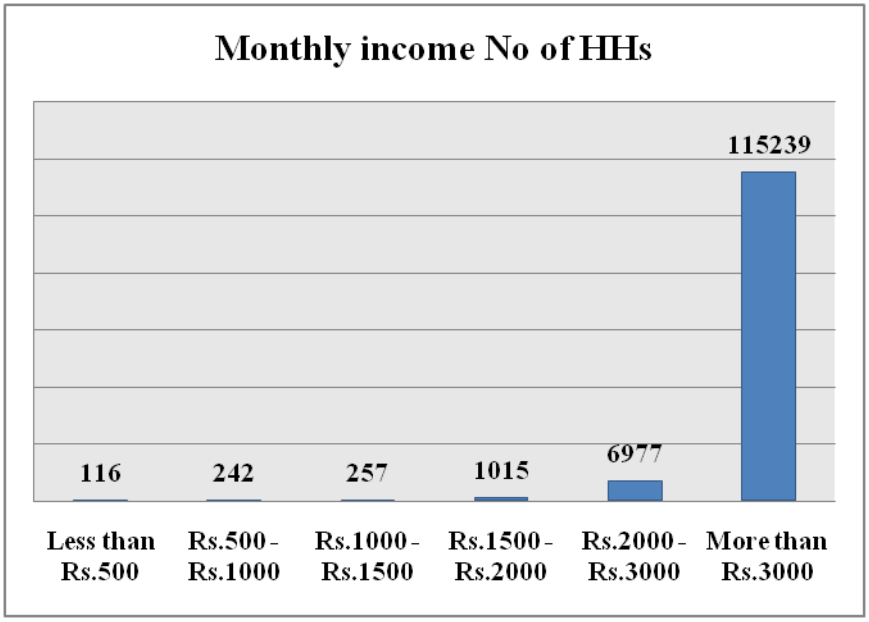


Figure 3-8 : Distribution of households w. r. to monthly income

Further, the livelihood pattern has been become indefinite and irregular for the households, where 93% of them are earning more than Rs.3000/- per month and 0.5% of the households earn less than Rs.1500 per month. In addition, it is also observed that child labor number is rapidly increasing where a need is felt to curtail it. There is urgency in creating economic assistance can 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 Infrastructure

Sustainable growth of a city depends on its infrastructure facilities. Lack of infrastructure 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 found prevalent. Information on access to services in terms of Physical Infrastructure of Agra city has been collected and a brief analysis of the current status of the Agra Municipal Corporation. Water Supply, sewerage, Storm Water drainage and Solid Waste Management are taken in to consideration.

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	288		8			121	
Existing situation of Water Supply							
Ownership	**No. of Individual Taps**		**No. of Public taps**			**No. of Tube wells/ Bore wells / Hand pumps**	
No. of Connections	69688		342			5663	
Duration of Piped Water Supply to Slums							
Duration	**Less than 1 hr daily**	**1-2 hr daily**	**More than 2 hrs daily**	**Once in a week**	**Twice a week**	**Not regular**	**No supply**
No. of Slums	25	75	161	7	1	5	143

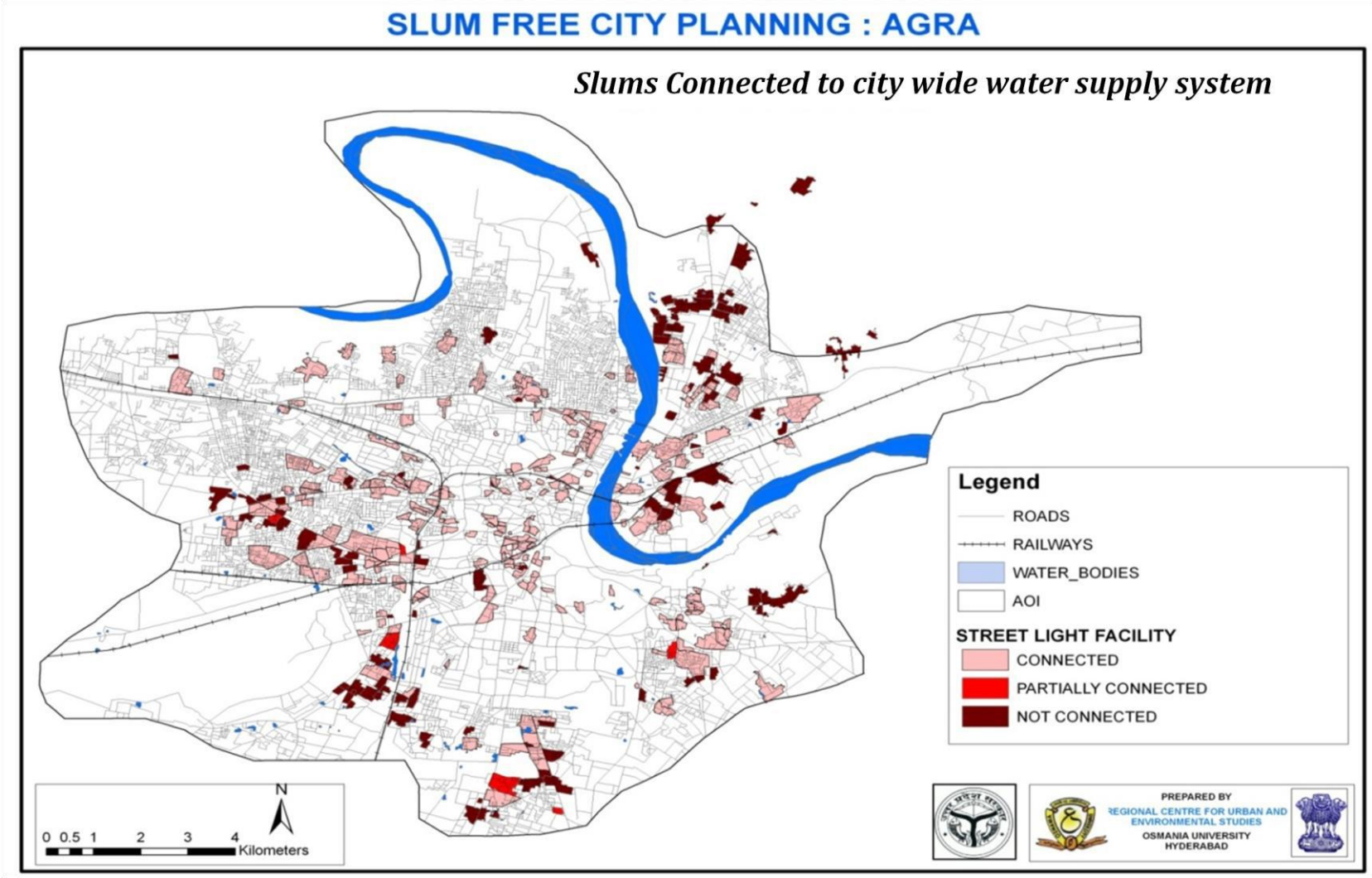
Source: *RAY Primary Survey, 2011*

a. Connectivity to City Wide Water Supply System

Most of the slum households either have direct access to services or access them through community or common facilities. Of the total slums, 69% of it is fully connected to the city wide water supply system; 2% is partially connected. The remaining 29% of the slums do not have connectivity to city water supply system. The following *map 3-5* shows the number of slums that are connected to city wide water supply system.

Picture 3-7 : Sources of water supply -Chili pada

Picture 3-8 : Municipal water tap - Shekh Gulakhi



Map 3-5 : Slums Connected to City-Wide Water supply System

b. Existing source of drinking water

Over 57% of the households have individual water supply connections with protected drinking water is being supplied to 69688 Households by the AJS. Hence a significant percent of 43% of the households do not have access to drinking water and dependent on public water taps, tube wells, open wells, hand pump and water tanker. In a slum it is observed that on an average about 5 households are sharing one public tap.

c. Duration of Piped Water Supply

The duration of water supply usually is once in a day, once in couple of days or more than 2 hours where 63% of the slums have access to piped water supply on a daily basis. In order to achieve 100% piped water supply it is necessary to address for 143 slums. Despite the connectivity to city wide water supply system, the major problem observed to be is the poor quality of water.

3.6.2 Sanitation

Sanitation and sewerage system are not only the basic necessities of life, but they are also crucial for achieving the goal of "Health for All". Increased sanitation coverage is directly linked to improvement of health status.

Lack of sanitation is a universal problem when it comes to slums and is markedly less than access to other basic services. While, it is worthwhile to note that the proportion of people having access to sanitation in urban areas is considerably greater when compared to their rural counterparts, however the problems are more exacerbated in slums.

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

Table 3-7 : Status of Sanitation in slums

Drainage and Sewerage Facility				
Type of facility	**Storm water drainage**	**Underground drainage / Sewer lines**	**Digester**	**Not connected to sewer or digester**
No. of Households	45572	51506	0	5921

Connectivity to City Wide Storm Water Drainage System			
Status	**Fully Connected**	**Partially Connected**	**Not Connected**
No. of Slums	165	0	252

Connectivity to City-Wide Sewerage System			
Status	**Fully Connected**	**Partially Connected**	**Not Connected**
No. of Slums	162	0	255

Latrine Facility Used by Households										
Type of Latrine	**Public Community**			**Shared Latrine**			**Own latrine**			**Open Defecation**
	Septic tank/ flush	**Service latrine**	**Pit**	**Septic tank/ flush**	**Service latrine**	**Pit**	**Septic tank/ flush**	**Service latrine**	**Pit**	
No. of Households	71	0	0	0	0	0	59804	4974	6952	52116

Source: *RAY Primary Survey, 2011*

a. Drainage & Sewerage facility

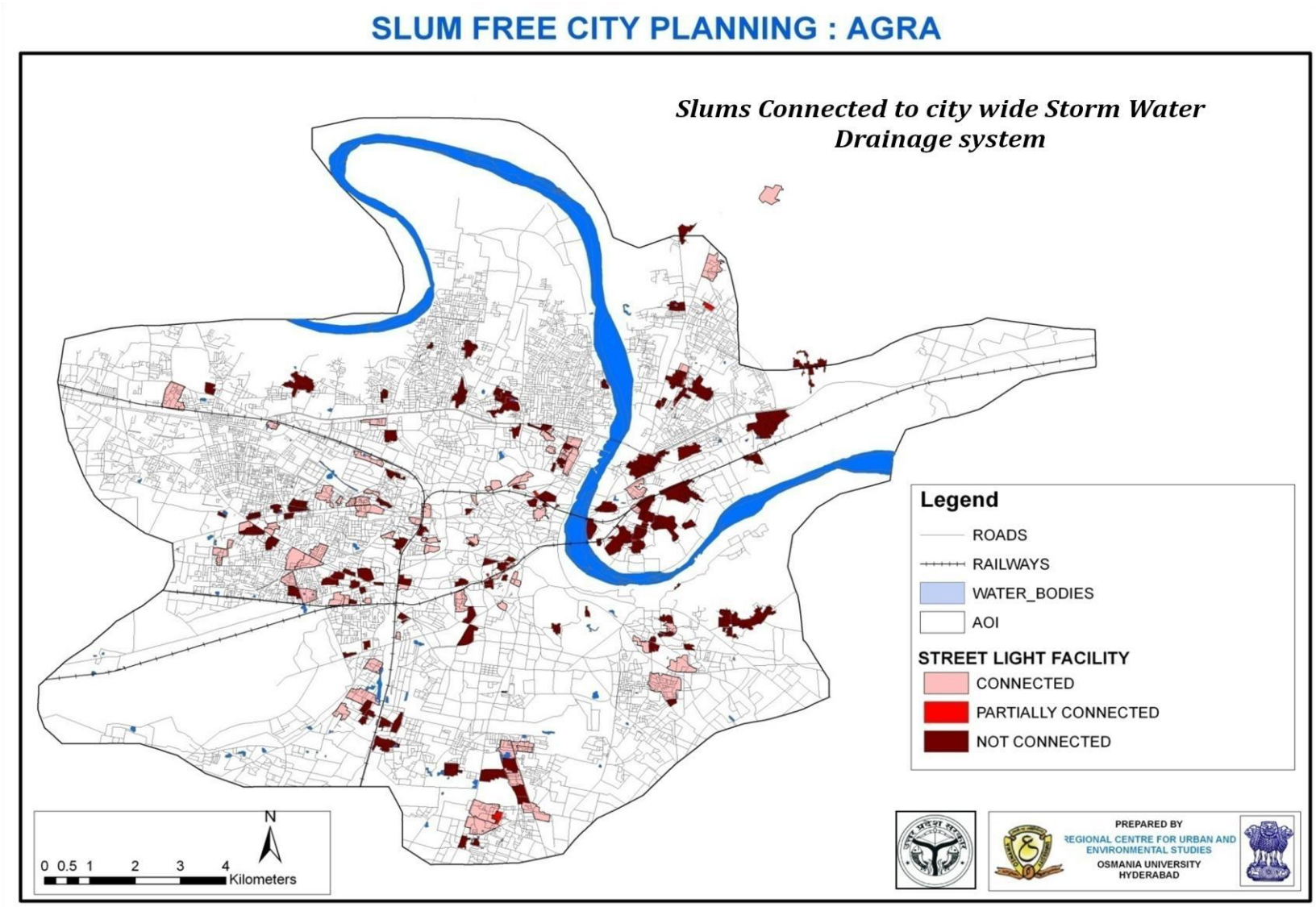
As per Annexure-I survey, it was found that 37% of 123846 households have access to storm water drainage while 42% has access to underground sewer lines. Even though 79% of the households in the slums have some form of drainage and sewerage facility, still 21% of the households are not connected to a sewerage system. Due to absence of a system, the gray water and waste water from houses are directly dumped into the open nallah or nearby open drains along with solid waste, makes it overloaded and choked. Due to this discarding, water logging in the slums areas is prevalent and in turn has direct consequences on the health of households.

b. Connectivity to City wide Storm water drainage

As shown in *Table 3-7*, 40% of the slums are fully connected to the storm water drainage system, but 60% of the slums are not covered by the city wide system. Given the situation, it is necessary to improve the system as well as provide newer connections before it infiltrates into the environment. *The Map3-6* shows condition of storm water drainage system.

Picture 3- 9 : Open drain- Shekh Gulakhi

Picture 3-10 : Bad sanitary condition-Shidh Shahani nagar



Map 3-6 : Slums Connected to City-Wide Storm Water Drainage System

c. Connectivity to City wide trunk Sewerage System

In respect to connectivity of slum with the city wide sewerage system, only 39% of the slums are fully connected to city wide sewerage system. There is shortage of the system where 61% slums are not connected.

The following *map 3-7* presents the status of the slums that connected to city wide sewerage system.

d. 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.

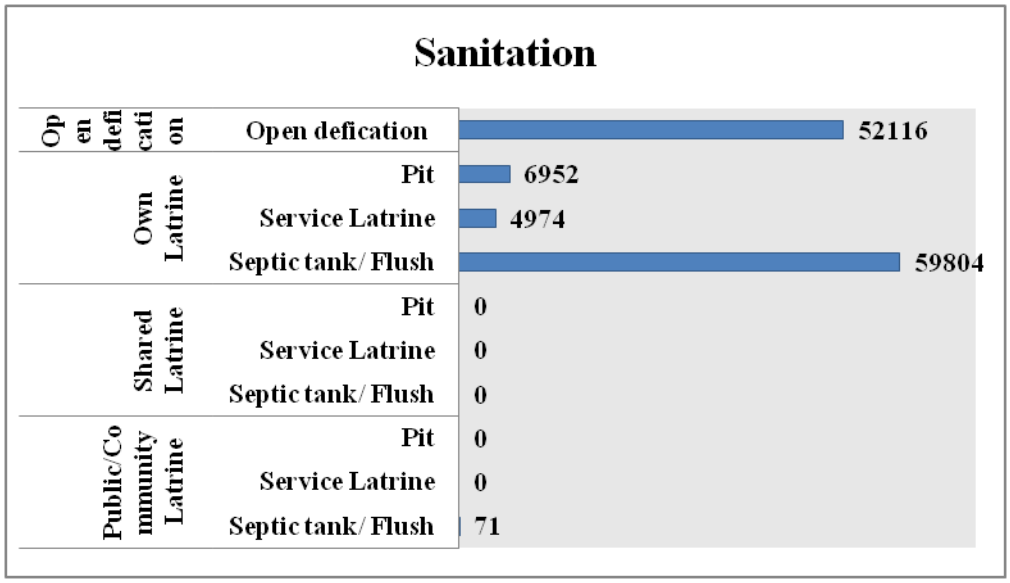
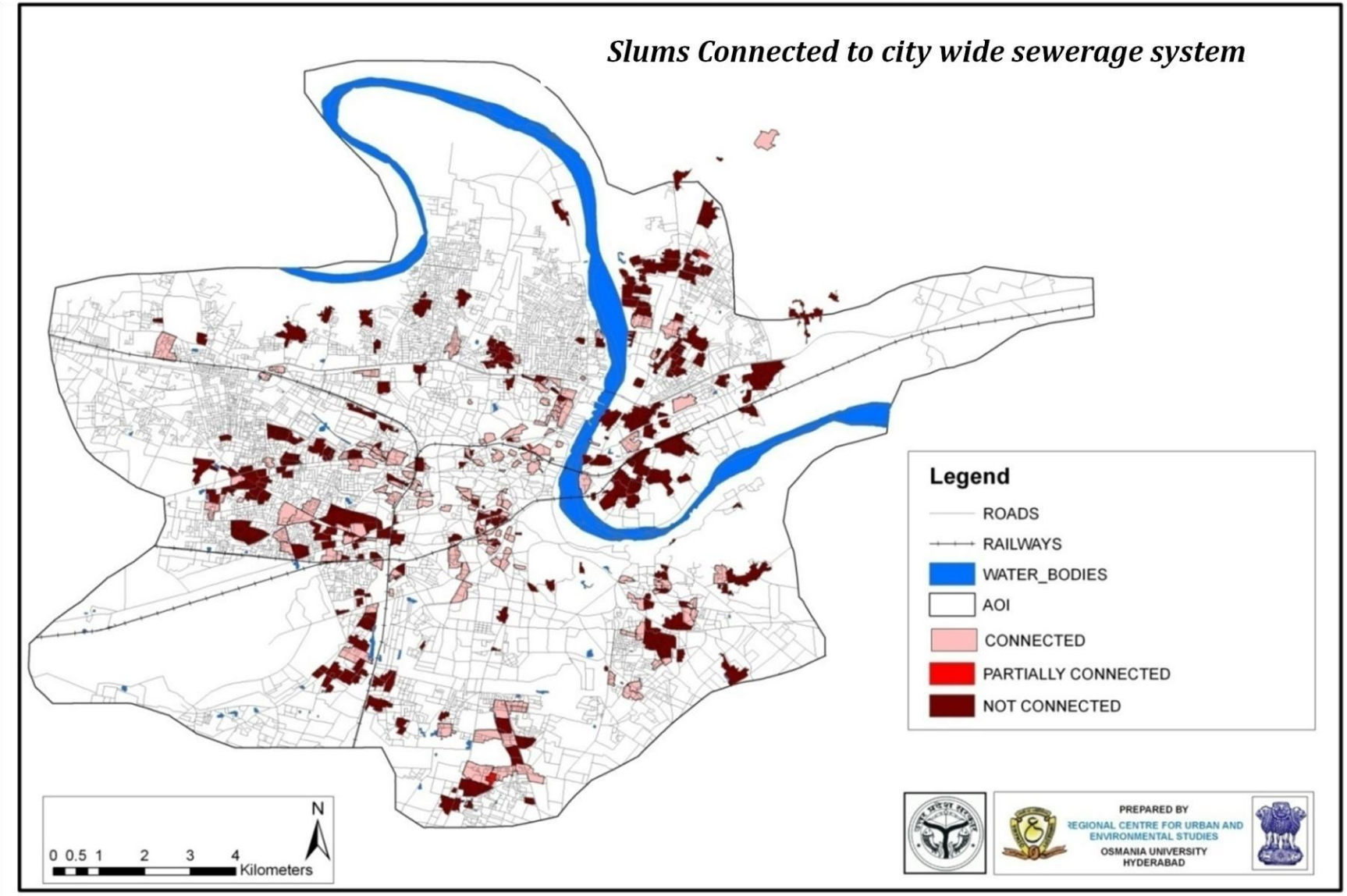


Figure 3- 9: Distribution of Households w.r.to type of toilet use

As evident in *Figure 3-9*, about 58% of the slum households have access to own latrine with septic tank/flush type of latrine. About 42% of the households do not have any kind of toilet facility, hence opt for open defecation on river banks, thus polluting surface water. 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 3-7 : Slums Connected to 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.

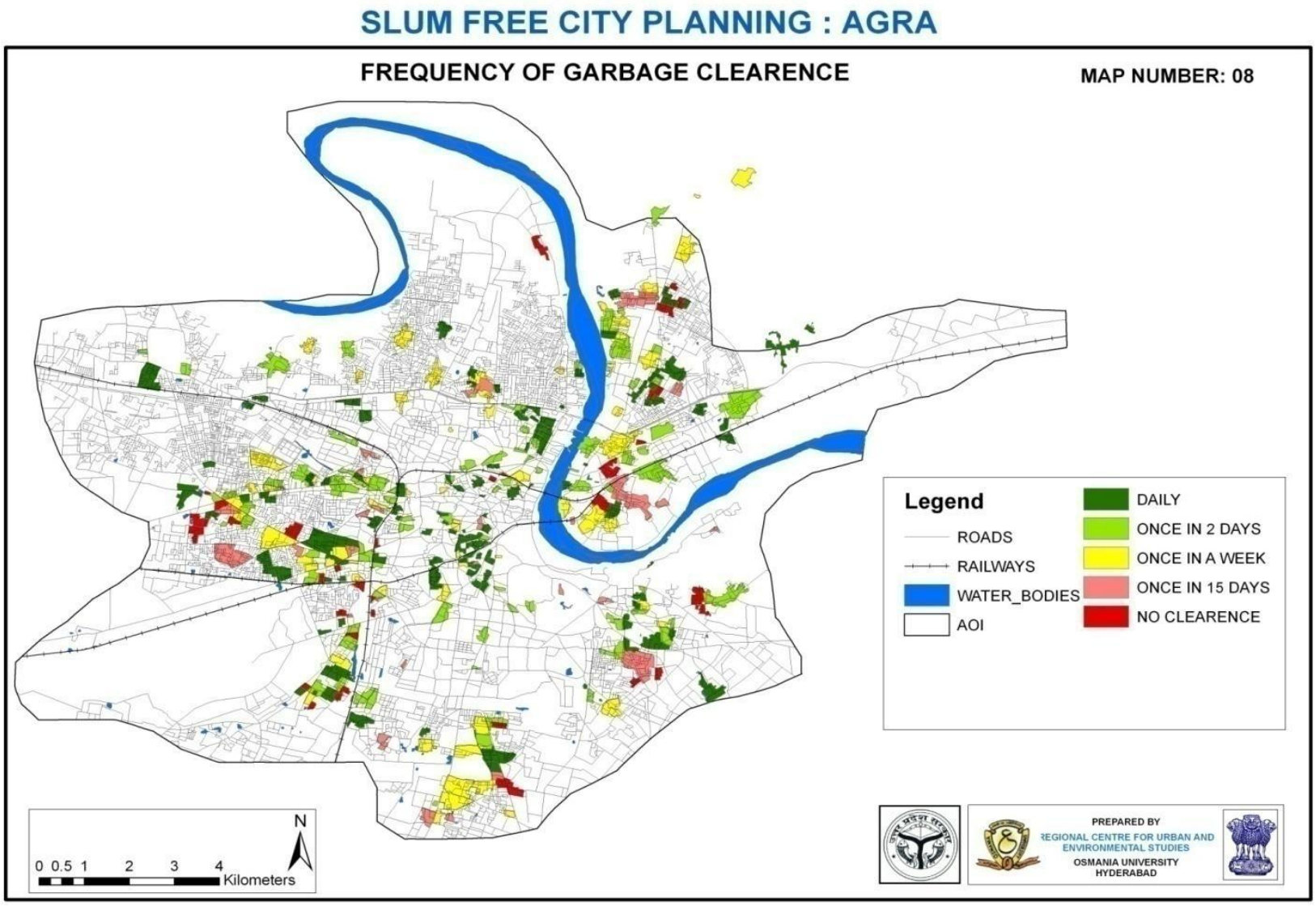
Table 3-8 : Status of Municipal Solid waste management in slums

Activity	No. of slums
Frequency of Garbage Disposal	
Daily	188
Once in 2 days	102
Once in a week	61
Once in 15 days	30
No collection	36
Arrangement of Garbage Disposal	
Municipal staff	179
Municipal Contractor	16
Residents themselves	150
Others	48
No arrangement	24
Frequency of Clearance of Open Drains	
Daily	149
Once in 2 days	102
Once in a week	88
Once in 15 days	35
No clearance	43

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 45% of slums have daily clearance of garbage and 24% of slums have collected once in 2 days, in 22% of slums the waste is collected once in a week or even more. In about 9% 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 3-8 : Frequency of Garbage Clearance

b. Arrangement of Garbage Disposal

As seen in the *table 3-8*, it is found that 43% of the solid waste disposal is handled by the municipal staff and 4% of the disposal arrangement is through respective municipal contractors. In areas where there is lack of solid waste disposal or collection, the arrangement is taken care by the residents/dwellers of those slums and in other ways, constituting 36%. Around (6%) of slums has inadequate and untimely collection of solid waste, which reflects the necessity for increased staff and regular clearance to avoid any further unsanitary conditions.

According to Agra CDP 2006, the city has 561 storage depots for solid waste where 225 are open to air, thus polluting the surrounding areas. In Agra, the distribution and collection of solid waste is at random with no organized system for door to door collection services. Currently the entire waste that is collected is taken to dumping site and due to lack enough landfill sites, the disposed waste is carried out following the method of crude dumping where the waste is neither spread nor covered. Sometimes it is burnt in open yards on main highway causing unsanitary conditions in some areas.

Picture 3-11 : Clearance of Drains in slums

c. Frequency of Clearance of Open drains

It is found from the survey results that 36% of the slums have daily clearance of the open drain, 24% of slums have it cleared once in 2 days and 21% once in a week and 2 weeks. It is analyzed that 10% of the slums are not sufficiently covered with clearance of the open drains, further deteriorating environmental conditions and contaminating the ground water. Please find the list of slums that not covered in annexure-1E. For slum wise details, please refer ***Annexure-1E*** on Physical Infrastructure Profile.

3.6.4 Roads – Condition & Connectivity

The road network within Agra is not developed enough to cater the requirements of tourism and already existing population. In fact the road network of the city offers poor level of service affecting safety, efficiency and economy of traffic operation within the city. Per the CDP report, the total road length of 1724 km in Agra Nagar Nigam area (including pucca road, semi pucca road, and kutcha road) hasn't increased in since 2003.

The lack of connecting roads with other parts in the city and within the slums poses a grave issue and affects the transport connectivity. This is one of the fundamental issues that is generally neglected in slum developments and needs thorough planning and execution. The following table as extracted from CGG's MIS interface presents the existing condition of road network.

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

	No. of Slums
Approach Road/Lane/Constructed Path of the Slum	
Motorable Pucca	370
Motorable Kutcha	29
Non-Motorable Pucca	18
Non-Motorable Kutcha	0
Distance From the Nearest Motorable Road	
Less than 0.5 Km	409
0.5 to 1.0 km.	7
1.0 km to 2.0 km.	1
2.0 km to 5.0 km.	0
more than 5.0 km	0
Condition of Internal Roads	
Motorable pucca	86
Motorable kutcha	22
Non-Motorable pucca	293
Non-Motorable kutcha	16

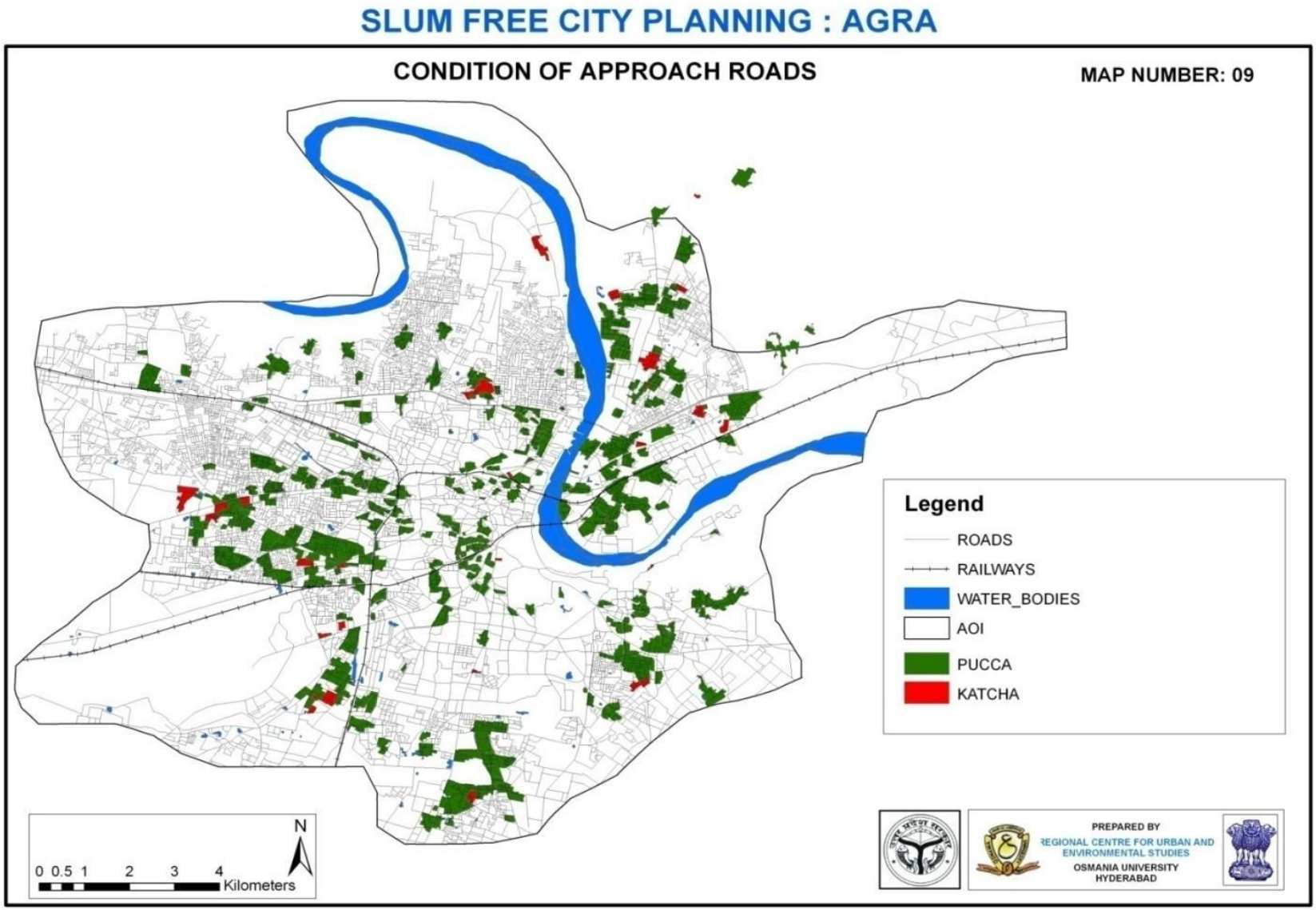
Source: *RAY Primary SURVEY, 2011*

a. Nature of Approach Roads

By and large, 89% of slums are provided with Motorable pucca roads and 7% actually are kutcha in nature. On the other side, 4% of the slums have non Motorable Pucca road, not useful for any kind of transportation access difficult, there is need to upgrade this roads need to make it more efficiently.

b. Distance from nearest Motorable road

As seen in the *table 3-9*, around 98% of the slums have access to the nearest Motorable road within 0.5 Km and 2% between 0.5 Km to 1 Km.



Map 3-9 : Condition of Approach Roads

c. Type of Internal road

21% of the slums have Motorable Pucca internal roads while 5% have kutcha internal roads. Around 74% of the slums lack in proper internal roads with BT surface. The *map 3-10* shows the type of internal road provided to the slums.

Picture 3-12 : kutcha road -Gyas pura

Picture 3- 13 : Pucca road-Prakash nagar

3.6.5 Street Lighting Facility

Table 3-10 : Availability of Street lighting Facility

Availability of Street Lighting Facility in Slum	
Yes	410
No	7

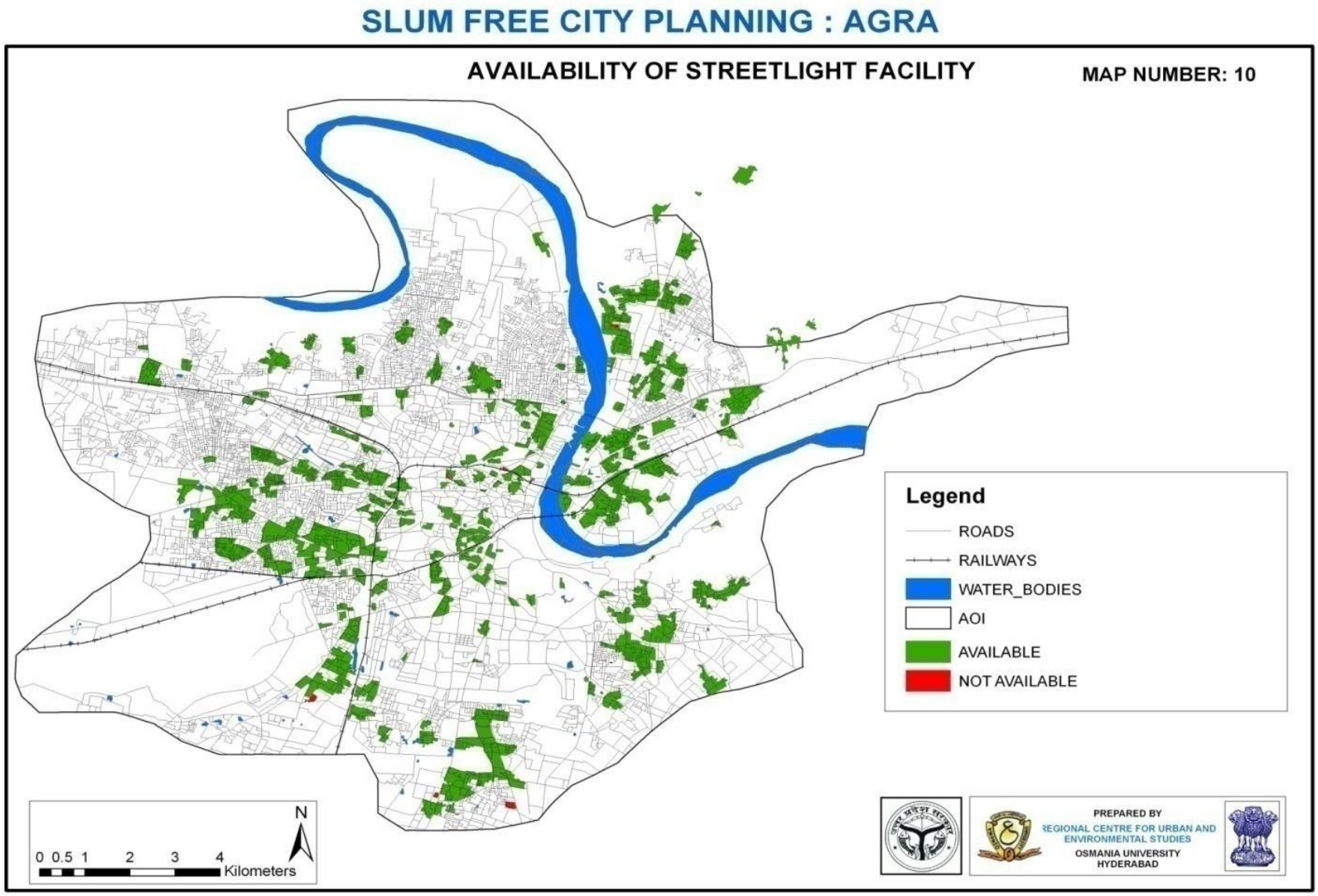
Source: *RAY primary survey, 2011*

According to Annexure -1 survey, 98% of the slums have street lighting facilities, not all of which are in working condition and found to be insufficient. For the 2% of the slums do not have street lighting facilities, hence it is essential to increase no street light to prevent accidents and other inconvenience.

Picture 3-14 : Prakash nagar slum

Picture 3-15 :Kachhpura slum

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



Map 3-10 : Availability of Street Lights

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

Distance	Within the slum	< 0.5KM	0.5 to 1.0 KM	1.0-2.0 KM	More than 2 Km
Pre- Primary Schools (Anganwadi)					
No of slums	168	126	88	12	9
Pre- Primary Schools (Municipal)					
No of slums	6	6	7	4	4
Pre- Primary Schools (Private)					
No of slums	10	15	16	8	7

Source: *RAY primary survey, 2011*

Anganwadi is a part of the Indian public health care system. The responsibility of Anganwadi workers includes basic health care activities like contraceptive counseling and supply, nutrition education and supplementation, as well as pre-school activities. The access to Anganwadi is very essential especially in places like slums where children, pregnant women suffer with lack of proper nutritional diet. As indicated in *Table 3-11*, for slum households, the nearest distance to pre-primary schools run by different agencies are located maximum within the slums and 0.5 KM away from the slums. Around 9 slums do not have access to pre-primary schools (Anganwadi) when the distance is more than 2 Km.

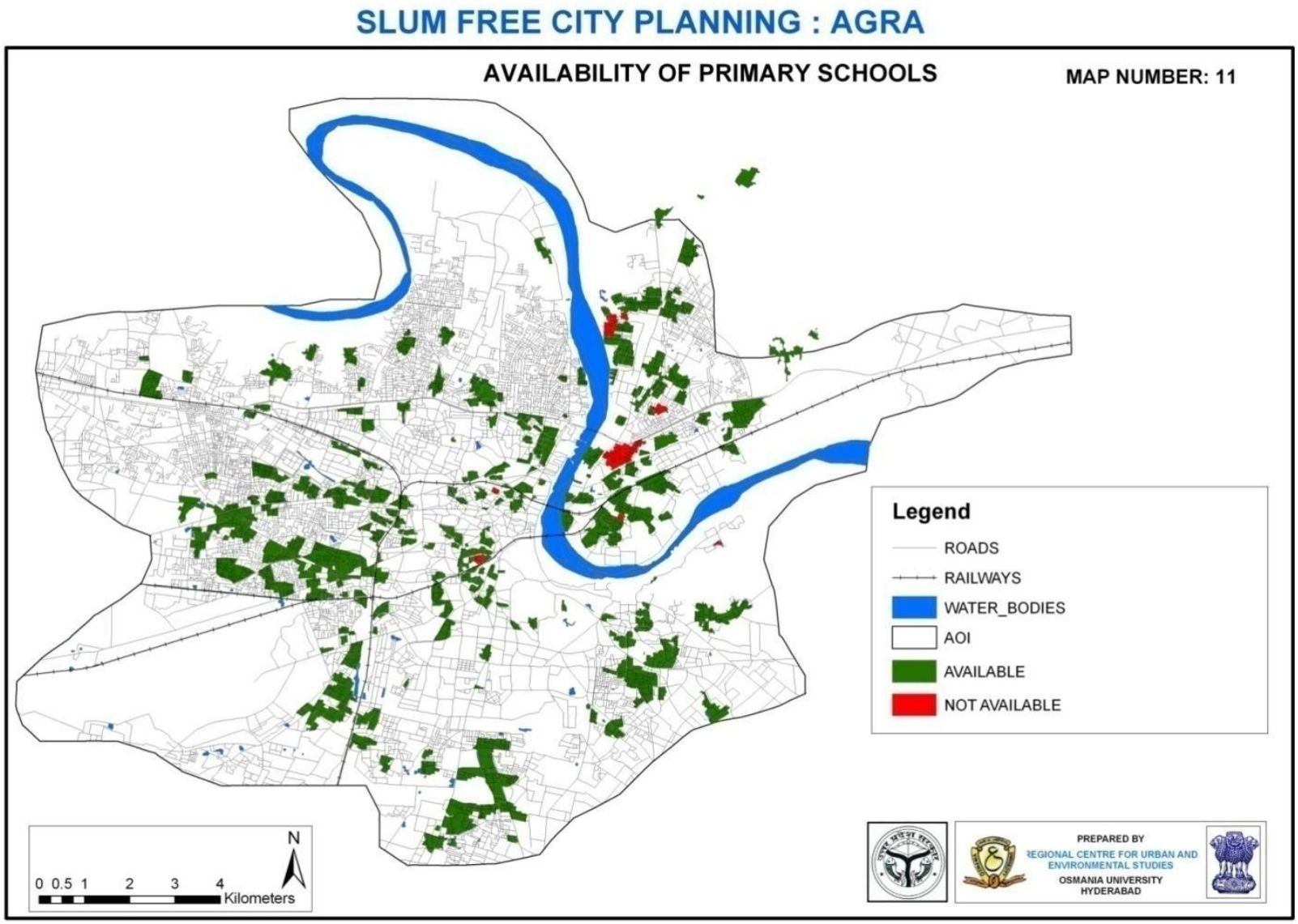
Table 3-12 : Distance of slums from the nearest Primary and High schools

Distance	Within the slum area	< 0.5KM	0.5 to 1.0 KM	1.0-2.0 KM	More than 2 Km
Primary Schools (State government)					
No of slums	20	31	47	16	6
Primary Schools (Municipal)					
No of slums	59	68	76	17	4
Primary Schools (Private)					
No of slums	152	110	61	16	7
High Schools (State government)					
No of slums	11	13	78	51	83
High Schools (Municipal)					
No of slums	6	6	35	19	8
High Schools (Private)					
No of slums	60	86	151	44	12

Source: *RAY Primary Survey, 2011*

As shown in *Table 3-12*, for slum households, the nearest distance to primary schools run by different agencies are located maximum within the slums and 0.5 KM away from the slums. About 76 slums have primary schools (Municipal) run by different agencies within a distance of 0.5 km to 1.0 km from the slums. Around 8 slums do not have access to state run High schools (Municipal) when the distance is more than 2 Km.

Picture 3-16 : Education facilities



Map 3-11 : Availability of Primary Schools

3.7.2 Health facilities

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

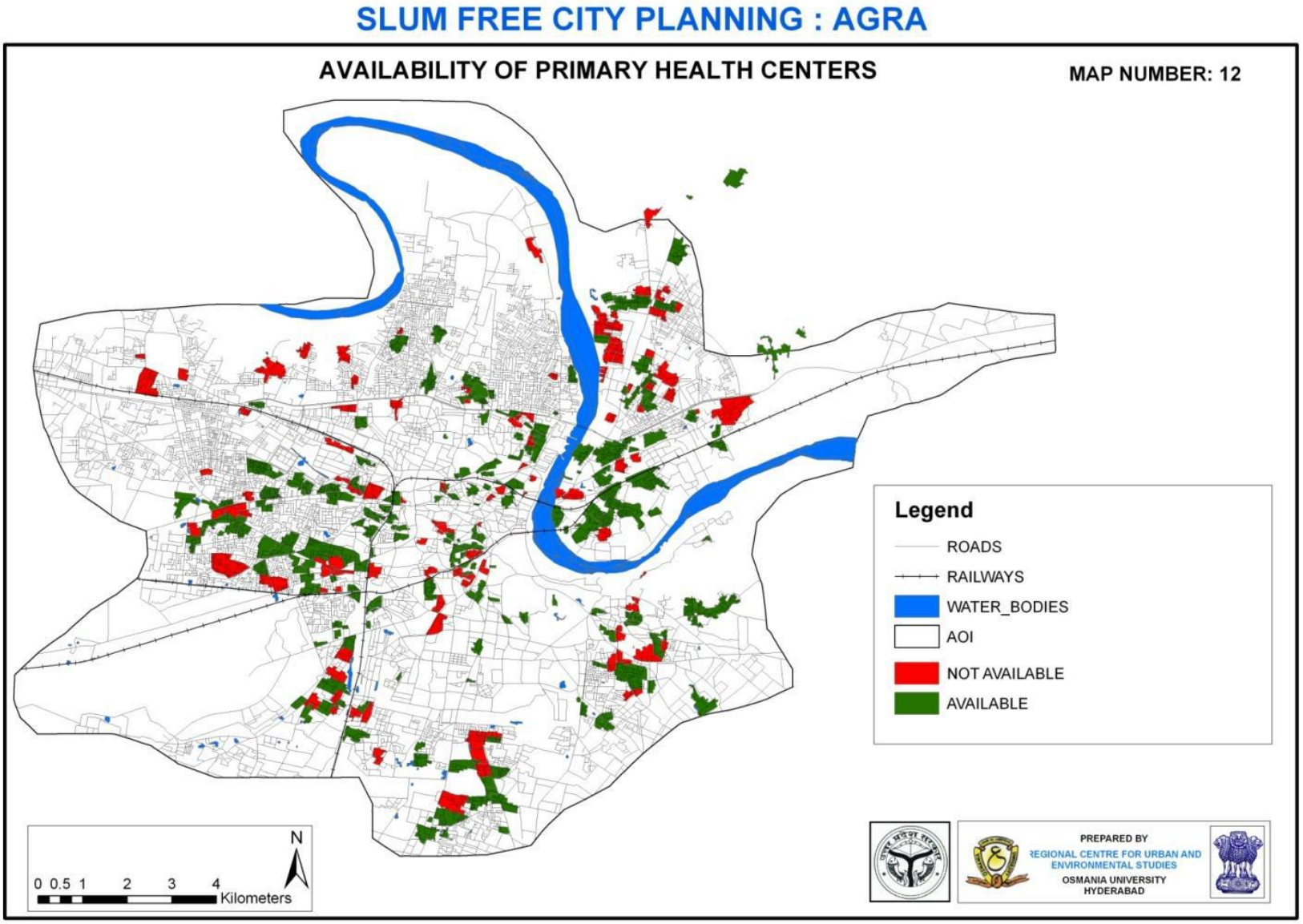
Table 3-13 : Distance of slums from the nearest health facilities

Distance	Within the slum area	< 0.5KM	0.5 to 1.0 KM	1.0-2.0 KM	More than > 2.0 Km
Urban Health post					
No. of Slums	2	28	89	73	47
Primary Health Centre					
No. of Slums	3	29	88	84	66
Government Hospital					
No. of Slums	3	19	56	77	178
Maternity Centre					
No. of Slums	0	12	56	67	124
Private Clinic					
No. of Slums	41	92	170	46	20
Registered Medical Practitioner (RMP)					
No. of Slums	99	83	18	6	6
Ayurvedic Doctor/Vaidhya					
No. of Slums	14	17	18	8	11

Source: *RAY primary survey, 2011*

As per Annexure –I data, as indicated in *table 3-13*, for slum households, the nearest distance to primary health care centers is located maximum within the slums and 0.5 KM away from the slums. While for Government Hospitals, approximately 77 slums have access to the hospital within 1.0-2.0 KM.


Picture 3-17 : Health facilities



Map 3-12 : Availability of Primary Health Centers

3.7.3 Social welfare facilities

Similar to the above sections in social infrastructure, the following *Table 3-14* presents availability of social welfare facilities in 417 slums:

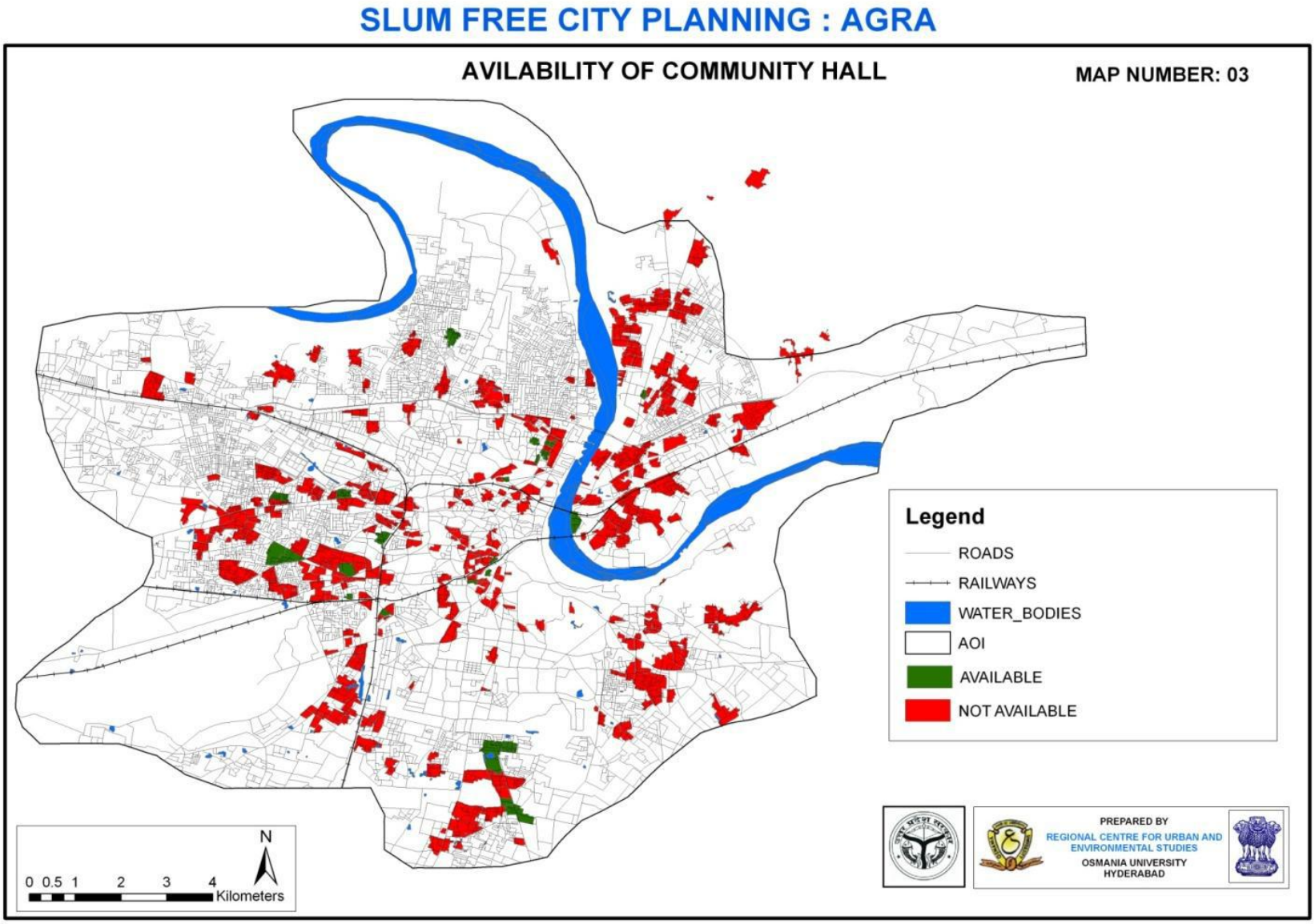
Table 3-14 : Availability of Social Welfare facilities in slums

Availability of Facilities within Slum	No. of Slums
Community Hall	125
Livelihood/Production Centre	0
Vocational training/Training-cum-production Centre	1
Street Children Rehabilitation Centre	0
Night Shelter	1
Old Age Home	10
Social Welfare Facilities	**No. of Holders**
Old Age Pensions (No. of Holders)	1147
Widow Pensions (No. of Holders)	1383
Disabled Pensions (No. of Holders)	674
General Insurance (No. covered)	5138
Health Insurance (No. covered)	1348
Self Help Groups/DWCUA Groups in Slum	2
Thrift and Credit Societies in Slum	5
Slum-dwellers Association	**No. of Slums**
Yes	34
No	383
Youth Associations	0
Women's Associations/ Mahila Samithis	34

Source: *RAY primary survey, 2011*

125 slums out of 417 have facility of community halls; 92% of the slums do not have slum dwellers association however 8% of the slums have women's associations to empower women with home based employment. In addition, the slums do have self groups as well as credit societies.

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



Map 3-13 : Availability of Community halls

CHAPTER 4 – SLUM REHABILITATION STRATEGY

4.1 Rehabilitation Strategy

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

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

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

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

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

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

The rehabilitation strategy comprises of several components such as:

- Physical targets – relocation, in-situ and up gradation
- Law and legislation for slum dwellers
- Stakeholder/ community participation
- Financial framework
- Institutional mechanism

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

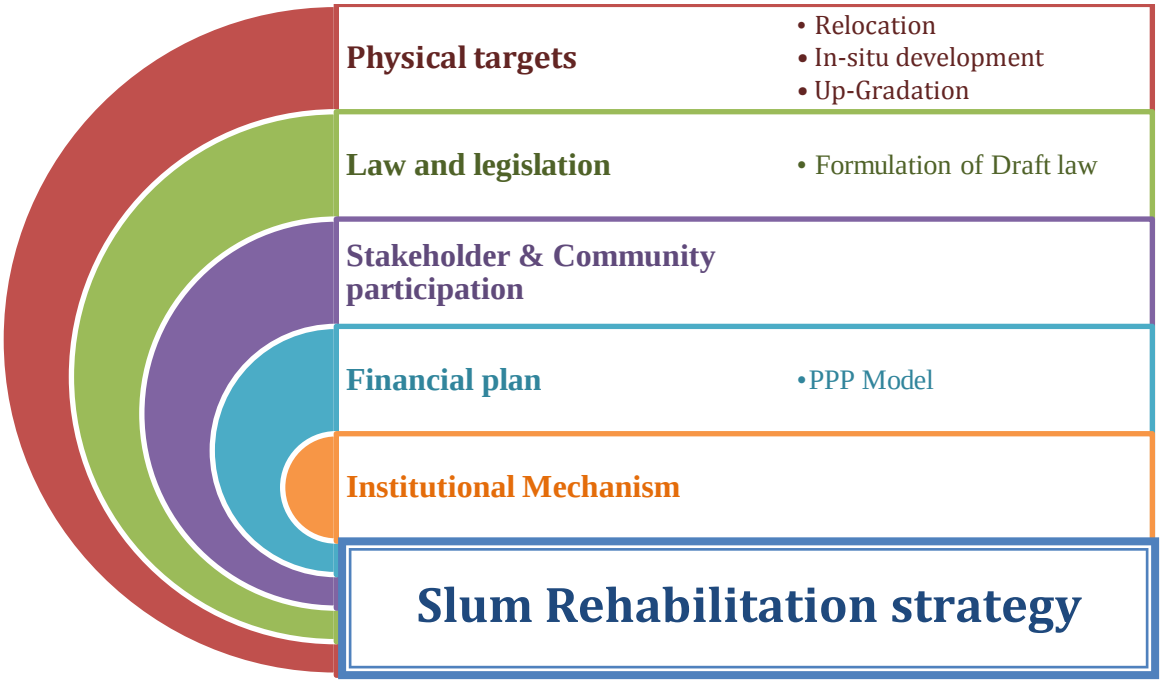


Chart 4-1 : Components of Slum Rehabilitation strategy

4.1.1 Physical Targets

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

a. Relocation mode

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

b. In situ mode

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

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

c. Slum Up-gradation

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

4.1.2 Law and Legislation

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

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 Agra. 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 Agra 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.

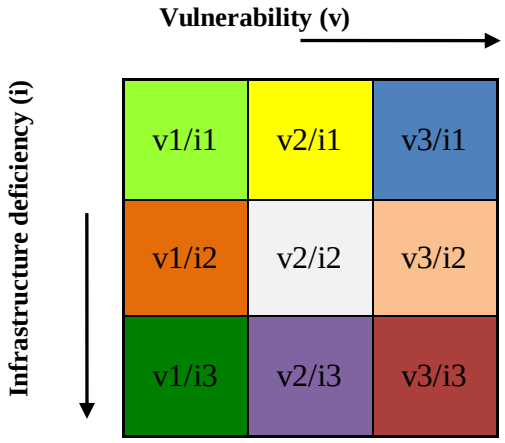


Figure 4-1 : Model Infrastructure deficiency and vulnerability matrix

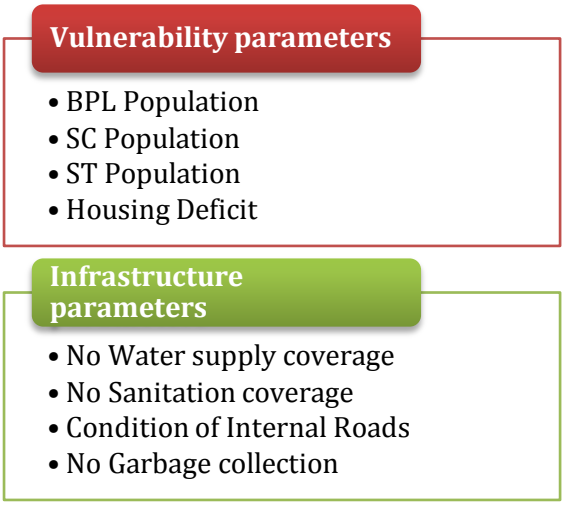
For evaluating infrastructure deficiency and vulnerability the following parameters are considered:

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

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

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

4.2 Slum Categorization

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

4.2.1 Tenability

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

Table 4-1 : Categorization of slums based on tenability

Status	Tenable	Semi - Tenable	Un- Tenable
No of Slums	405	4	8

Of 417 slums in the city, 405 slums are tenable and 4 slums are semi – tenable due to surrounding non – residential land uses and any other land, 8 slums are un-tenable. 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.

4.2.2 Abutting Land use

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

Notification Status / Land use	Notified		Non - Notified		Total		Slums in category as % of Total Number of Slums	Households category in % terms of Total Number of slum HHs
	No of slums	No of HHs	No of slums	No of HHs	No of slums	No of HHs		
Residential	209	53491	204	53491	413	121066	99%	99%
Commercial	0	0	0	0	0	0	0%	0%
Institutional	0	0	0	0	0	0	0%	0%
Industrial	0	0	0	0	0	0	0%	0%
Others	4	780	0	0	4	780	1%	1%
Total	213	70265	204	53491	417	123846		

From the above *table 4-2*, it is established that 99% of the households are surrounded by the residential use, followed by 1% under others. 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 within the zones.

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.

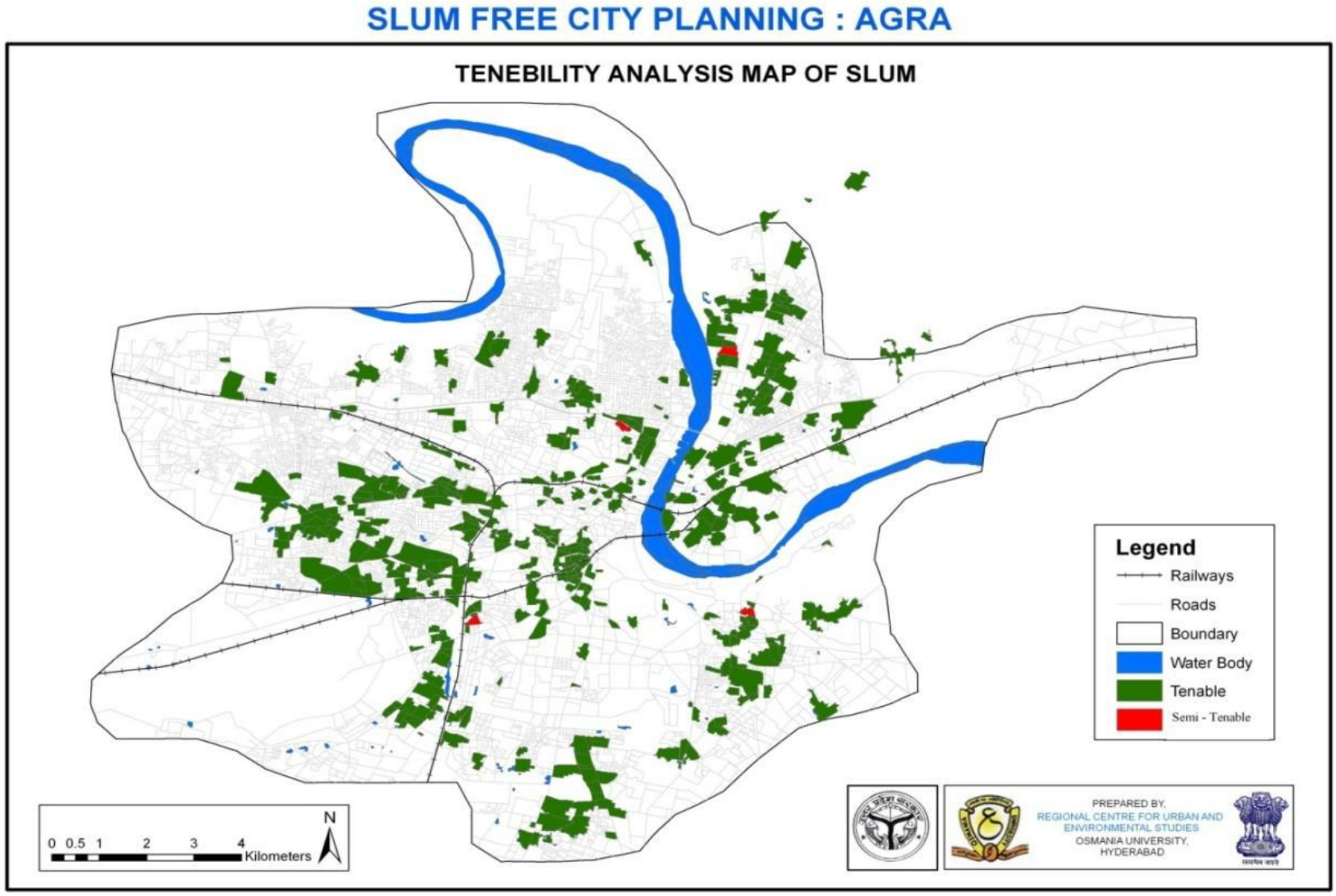
Table 4-3 : Categorization of dwelling units in slums based on Land tenure status

Land tenure Status	Patta	Possession certificate	Encroached public land	Encroached private land	On Rent	Others
No. of dwelling units	3601	104462	6842	8941	12061*[6]	0

*On rent dwelling units mentioned here are including all the categories (patta, possessions, Encroached etc.)

As shown in the *table 4-3*, 84% of the slum households have registered with possession certificates while 3% are registered and have Patta for their respective lands. On the contrary, 13% of the households are not registered and hence live on encroached lands of private as well as public owned.

6 On rent dwelling units are excluded from the total. Hence other categories mentioned in the same table are equal to total number of dwelling units.



Map 4-1 : Tenability Analysis of Slums

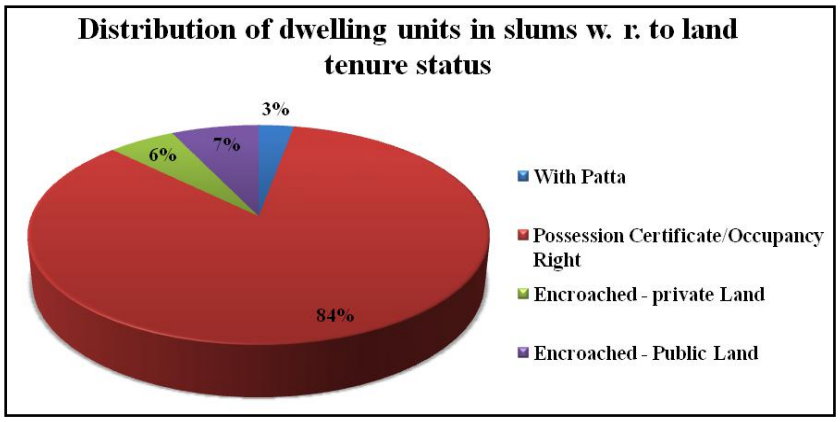


Figure 4-2 : Distribution of dwelling units in slums w.r.to land tenure status

4.2.4 Ownership of Land

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

Category	Ownership of Land/ Land tenure (No of HH's)	ULB	State government	Railways	Private
Secure	Pattas	0	3601	0	0
	Possession certificate	1182	102682	0	598
In-secure	Encroached	0	13748	167	1868
	On Rent	226	11271	50	514
	Others	0	0	0	0

The above table indicates that, 87 % of 123846 households are secured and the remaining 13% are In-secure with any agency. Under the ownership of ULB, 1% households are registered with possession certificates. Similarly 0.2% households are unregistered; 0.6% households are registered and 2% are un-registered belongs to the private ownership of the land. Whereas the State Government comprises of 86% of registered and 20% unregistered. Still 3% of the households need a secured status in order to avail higher order services.

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

Ownership of Land / notification Status	ULB	State Government	Railways	Private
Notified Slums	1	206	1	5
Non - Notified Slums	3	200	0	1

As seen in the *table 4-5*, 97% built on lands owned by State Government, 1% of the notified slums are under the ownership of private. Among the non notified slums, 98% are owned by the State Government.

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

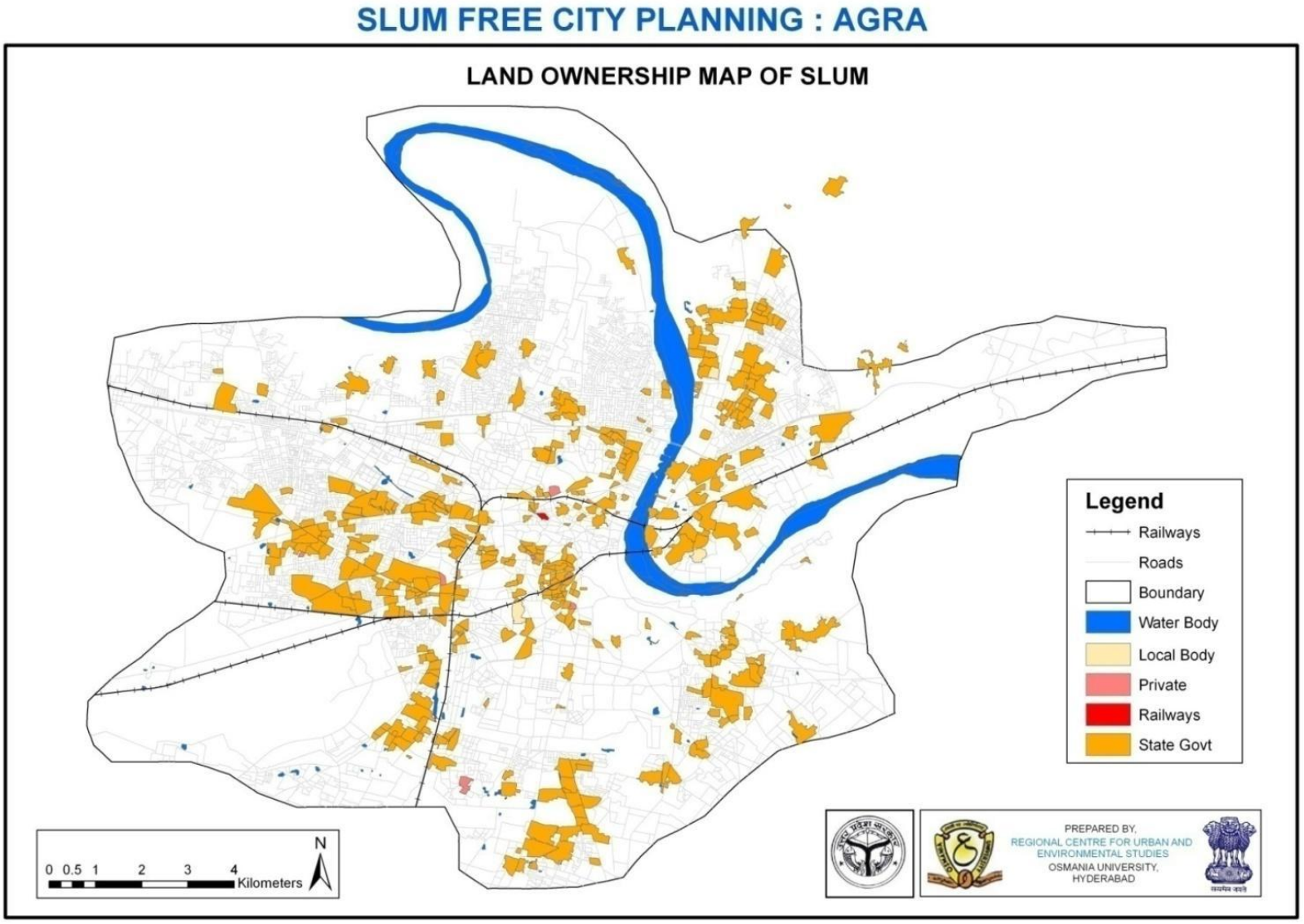
Mode of Development (No. of Slums)	Low Density	Medium Density	High Density	Total
Relocation	8	0	0	**8**
In - Situ development	10	1	0	**11**
Up gradation	381	11	6	**398**
Total No. of Slums	**399**	**12**	**6**	**417**

As per the analysis, it is found that 399 slums have low density while 12 slums are medium density and the remaining pretty low. Out of 417 slums in the city, 398 were proposed for up gradation mode of development and remaining 11 slums for In-situ development. Under the category of low density, 10 slums have been chosen for In-situ and 381 slums for up-gradation. At the same time, 12 slums which are moderately dense have selected for up-gradation mode with 11 slums and only one for In-situ development. In High dwelling unit density slums, 6 slums are proposed r up gradation.

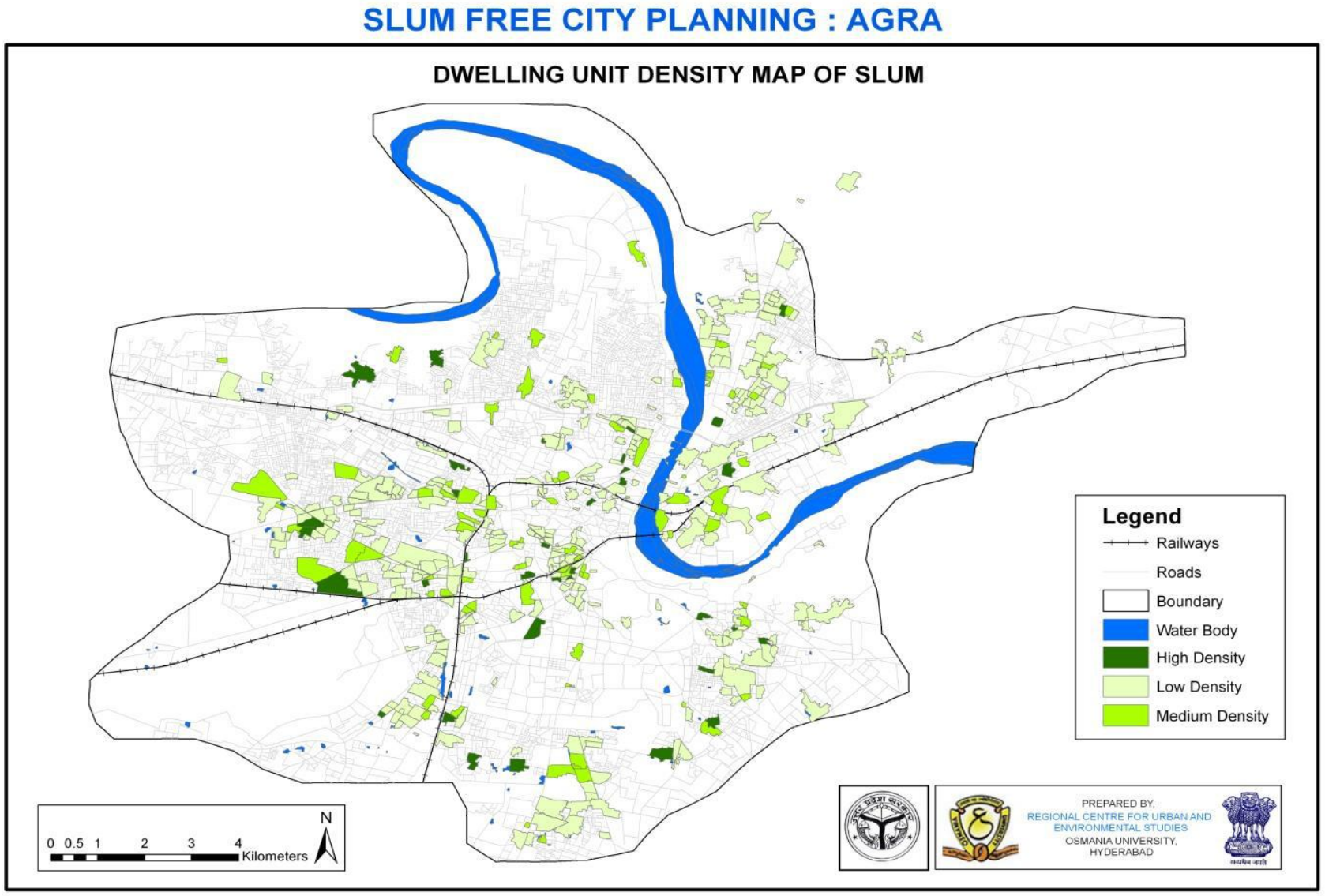
For slum wise details please refer *Annexure -2D*

4.2.6 Land value

For Agra 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 prices.



Map 4-2 : Land Ownership of Slums



Map 4-3 : Density of Dwelling Unit in Slums

4.3 Slum Rehabilitation Framework

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

4.3.1 Observations / Findings of Analysis of Existing Situation

a. Housing

- 98% of the slums have been into existence for more than 20 years in the city with outdated infrastructure
- 75 slums found to be located along Open and storm water drains and 148 slums are located on hazardous sites are more vulnerable to disasters/ flooding.
- Around 144 slums to be flood prone with rain water remnant for 15-30 days. Moreover, the duration of water logging is found to be more than a month in 2 slums. indicating lack of safety to the slum dwellers
- Even though 94% of the total houses are Pucca in nature, but most of them are found to be in dilapidated condition. 6% of the houses are found to be semi –pucca & Kutcha in nature indicating poor housing condition in Agra slums.

b. Demography & Employment

- Nearly 1% of the total slum population is living under below poverty line (BPL) accounting 1385 households.
- About 87% of the slum population belongs to back ward classification of social communities (OBC & SC).
- The average literacy among slum residents is only 75% where the female literacy rate is observed to be very less.
- It is found that 93% of the households are earning an average income of More than Rs.3000 per month.

4.3.2 Infrastructure

a. Water Supply

Table 4-7 : Water Supply Details

Type	Notified Slums		Non-Notified Slums		Total Slums		% of HH's to 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	157	52470	131	35337	288	87807	71%
Partially	3	1400	5	1973	8	3373	3%
Not Connected	53	16395	68	16271	121	32666	26%
Total	213	70265	204	53581	417	123846	100%
Duration of Water Supply							
Daily Less than 1 hr	12	4455	13	2733	25	7188	6%
Daily 1-2 hrs	39	11194	36	10024	75	21218	17%
Daily more than 2 hrs	89	30327	72	20422	161	50749	41%
Once a week	5	2806	2	385	7	3191	3%
Twice a week	1	457	0	0	1	457	0%
Not regular	4	1392	1	250	5	1642	1%
No Supply	63	19634	80	19767	143	39401	32%
Total	213	70265	204	53581	417	123846	100%
Source of Drinking Water							
	Yes	No	Yes	No	**Yes**	**No**	
Individual tap	160	53	136	68	**296**	**121**	
Public tap	62	149	51	153	**115**	**302**	
Tube well/ Bore well/ Hand Pumps etc.	213	0	203	1	**416**	**1**	
Open well	1	212	0	204	**1**	**416**	
Tank/pond	0	213	0	204	**0**	**417**	
River/canal/lake/spring	0	213	0	204	**0**	**417**	
Others	210	3	201	3	**411**	**6**	
Water tanker	14	199	18	186	**32**	**385**	

- 71% of the total households are fully connected to city wide water supply system. With respect to drinking water sources 57% of the slums have individual taps as primary source & 43% of slums dependent on public water taps, tube wells, open wells, hand pump, water tanker and other sources.

- Regardless of the connectivity to city wide water supply system, the major problem is Agra slums is poor quality of water due to waste disposal into the rivers, causing further contamination and thereby which is needs to be addressed.

b. Sanitation

Table 4-8 : Sanitation Details

	Notified Slums		Non-Notified Slums		Total Slums		% HH's of total Household
	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	86	30549	76	20965	162	51514	42%
Partially	0	0	0	0	0	0	0%
Not Connected	127	39706	128	32616	255	72322	58%
Total	213	70255	204	53581	417	123836	100%
Connectivity to Storm water drainage							
Fully	88	25913	77	19771	165	45684	37%
Partially	0	0	0	0	0	0	0%
Not Connected	125	44352	127	33810	252	78162	63%
Total	213	70265	204	53581	417	123846	100%
Drainage and Sewerage Facility							
Access to storm water drainage	88	25913	77	19771	165	45684	37%
Access to underground drainage/sewer line	86	30549	76	20965	162	51514	42%
Access to digester	0	0	0	0	0	0	0%
Not connected to sewer or digester	10	2499	11	3447	21	5946	1%
Total	184	58961	164	44183	348	103144	
Latrine Facilities							
Own latrine -Septic tank/flush/	175	31166	176	28638	351	59804	48%
Own latrine- Service latrine	22	3373	19	1601	41	4974	4%
Own Latrine-Pit	33	4964	24	1988	57	6952	5%
Open Defecation	184	30809	172	21307	356	52116	42%

- Of 417 slums, 42% of slum households are connected fully and 58% 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, 37% of slum households are connected to the city wide storm water system 63% slums do not have access to city wide storm water system.
- For drainage and sewerage facility 42% of the households have access to underground drainage/sewer lines. Hence there is a deficiency of underground sewer lines for 58% of the households, which needs to be upgraded to a more complete as well as sustainable underground drainage system.
- 42% of slum households do not have proper individual toilet facility. Hence resulting open defecation.

c. Solid waste management

Table 4-9 : Solid Waste Management Details

	Notified Slums	Non-Notified Slums	Total Slums	% HH's of total Households
	No of slums	No of slums	No of slums	
Arrangement of Garbage Disposal				
Municipal Staff	100	79	179	43%
Municipal Contractor	5	11	16	4%
Residents themselves	69	81	150	36%
Others	29	19	48	12%
No Arrangements	10	14	24	6%
Total	213	204	417	
Frequency of Garbage Disposal				
Daily	103	85	188	45%
Once in 2 days	52	50	102	24%
Once in a week	25	36	61	15%
Once in 15 days	19	11	30	7%
Not Collected	14	22	36	9%
Total	213	204	417	
Frequency of clearance of open drains				
Daily	75	74	149	36%
Once in 2 days	51	51	102	24%
Once in a week	50	38	88	21%
Once in 15 days	19	16	35	8%
Not Collected	18	25	43	10%
Total	213	204	417	

- On other side, 6% 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 a significant percentage (36% of total), which needs to be addressed immediately.
- 9% of slums are not adequately covered with solid waste disposal.
- 10% of the slums lack in frequent clearance of the open drains, further deterioration of environmental conditions and contaminating the ground water quality

d. Roads and street lighting

Table 4-10 : Roads and Street lights Details

	Notified Slums	Non-Notified Slums	Total Slums	% HH's of total Households
	No of slums	No of slums	No of slums	
Approach Road/Lane/Constructed Path to the slum				
Motorable Pucca	193	177	370	89%
Motorable Kutcha	9	20	29	7%
Non Motorable Pucca	11	7	18	4%
Non Motorable Kutcha	0	0	0	0%
Total	213	204	417	
Internal Road				
Motorable Pucca	53	33	86	21%
Motorable Kutcha	9	13	22	5%
Non Motorable Pucca	147	146	293	70%
Non Motorable Kutcha	4	12	16	4%
Total	213	204	417	
Distance from Nearest Motorable Road				
Less than 0.5 Km	210	199	409	98%
0.5-1 Km	2	5	7	2%
1-2 Km	1	0	1	0%
2-5Km	0	0	0	0%
>5 Km	0	0	0	0%
Total	213	204	417	
Availability of Street Light				
Yes	211	199	410	98%
No	2	5	7	2%
Total	213	204	417	

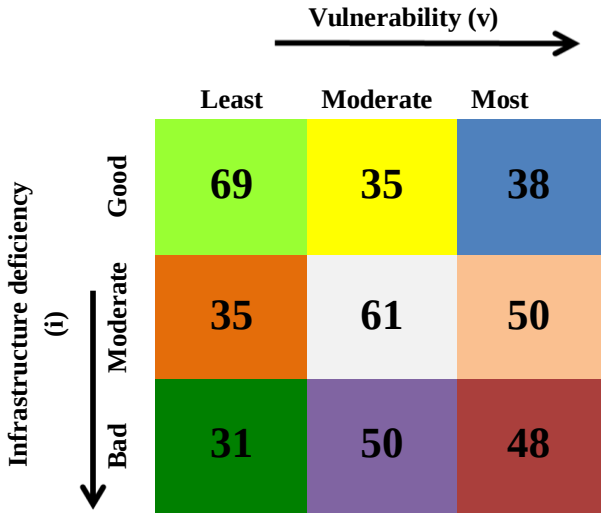
- 89% of slums are having Motorable pucca roads and 7% of slums have Motorable Kutcha roads and 4% for non Motorable Pucca approach roads, which needs to be upgraded.
- 21% of the slums are having Motorable pucca roads and 5% of slums have Motorable kutcha road; 74% of slums are lack in proper internal roads with BT surface.
- In case of street lighting, 98% of slums have street lights and 2% 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, 417 slums in Agra City have been categorized based infrastructure deficiency and vulnerability. Based on this, the existing condition of slums is assessed in the following way:

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

Table 4-11 : Slum Deficiency Matrix &Development Options



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

- Least vulnerable and Good Infrastructure – 69 slums
- Least vulnerable with moderate infrastructure – 35 slums
- Least vulnerable with bad infrastructure – 31slums
- Moderate vulnerable with Good Infrastructure – 35 slums
- Moderate vulnerable with Moderate Infrastructure – 61 slums
- Moderate vulnerable with Bad Infrastructure – 50 slums
- Most vulnerable with Good Infrastructure – 38 slums
- Most vulnerable with Moderate Infrastructure – 50 slums
- Most vulnerable with Bad Infrastructure – 48 slums

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

CHAPTER 5 – REQUIREMENT & INVESTMENT

5.1 Physical requirements

5.1.1 Housing

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

Relocation of slums

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

In-situ

- Semi Pucca and katcha houses greater than 75%

Up-gradation of slums

- Semi Pucca and katcha houses less than 75%

Table 5-1 : Housing Requirements

Mode of development	Hazardous	Non-Hazardous	
		Semi-Pucca + Katcha houses More than 75%	Semi-Pucca + Katcha houses Less than 75%
	Relocation	**In–Situ**	**Up-Gradation**
No. of Slums	8	11	398
No. of Households	2206	1178	120462
Hosing Deficit	2206	1178	5684
Housing Deficit	**9068**		

Viewed in *table 5-1*, it was identified that there is a housing deficit of **9068** households in 417 slums. From development point of view, 8 slums are consider for relocation with respect their location on hazardous sites, 11 slums are found to be having semi pucca and kutcha houses greater than 75%, hence considered for In-Situ development while 398 slums with semi pucca and kutcha houses less than 75% for slum up gradation.

5.1.2 Infrastructure

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

Water supply

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

Sanitation

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

Solid waste management

- For every 30 households = 1 garbage bin

Street lighting

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

Roads

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

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

Table 5-2 : Physical Infrastructure Requirements

S. No	Sector	Services - Unit	Requirement for existing slums
1	Water supply	Running length of sub line (Km)	1116.48
		Raising Main (Km)	166.72
		Individual taps (No)	54183
		Overhead water tanks (No)	160
2	Sanitation	Length of Underground Drainage/Sewer Lines (Km)	1087.77
		Length of storm water Drainage Lines (Km)	1092.55
		Individual toilets (No)	50009
3	Solid Waste management	Garbage dumping Bins (No)	4052
4	Roads	Total length of Approach roads (Km)	2.67
		Total length of Internal roads (Km)	886.21
5	Street Lighting	Street lights (No)	22406

Table 5-3 : Social Infrastructure Requirements

S. No	Sector	Unit	Requirement for existing slums
1	Education facilities	Anganwadi (No)	45
		Primary school (No)	10
		High school (No)	4
2	Health Facilities	Primary Health Centre (No)	0
3	Social development	Community Room (No)	13
4	Recreation & Open spaces (Ha)		40.64

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 13 community rooms have been proposed In addition to this open space of area 40.64 Ha (406383.07 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 holder consultative workshop. The mode of development for the pilot DPR slums/first year slums have also been double checked and clarified by project officer and other associated stake holders.

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

Year of Development	Period	No of the Slums	Mode of Development
I	**2013-14**	2	Relocation
		11	In - Situ Development
		40	Up gradation
Total Slums		**53**	
II	**2014-15**	1	Relocation
		0	In - Situ Development
		90	Up gradation
Total Slums		**91**	
III	**2015-16**	2	Relocation
		0	In - Situ Development
		131	Up gradation
Total Slums		**133**	
IV	**2016-17**	1	Relocation
		0	In - Situ Development
		100	Up gradation
Total Slums		**101**	
V	**2017-18**	2	Relocation
		0	In - Situ Development
		37	Up gradation
Total Slums		**39**	
Total targeted Slums for 5 Years		**417**	

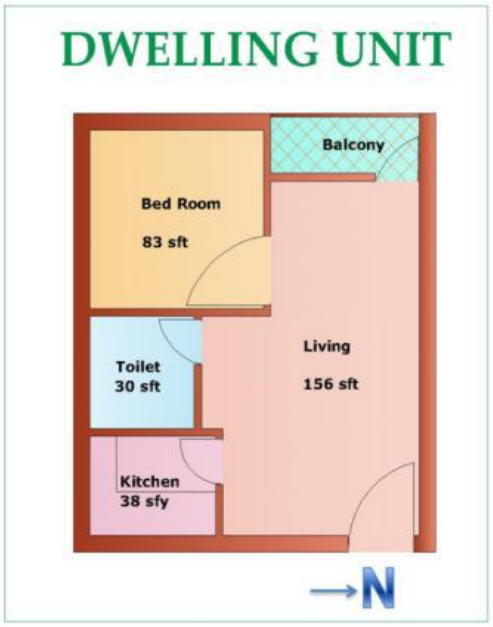
5.2.2 Proposed Model Layout

a. Housing

To make Agra a slum free city, there is a need to redevelop housing for **9068** 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:



Specifications of Single DU's

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**

Specifications of Single Block

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

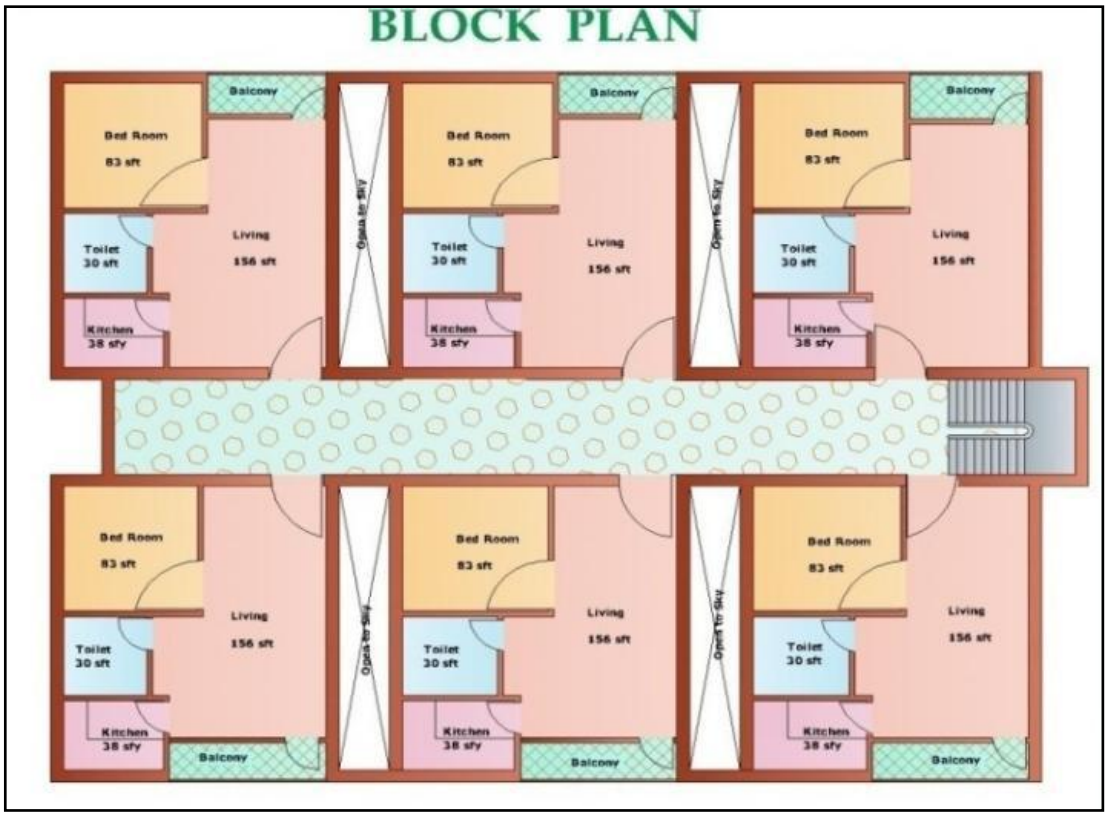
b. Infrastructure

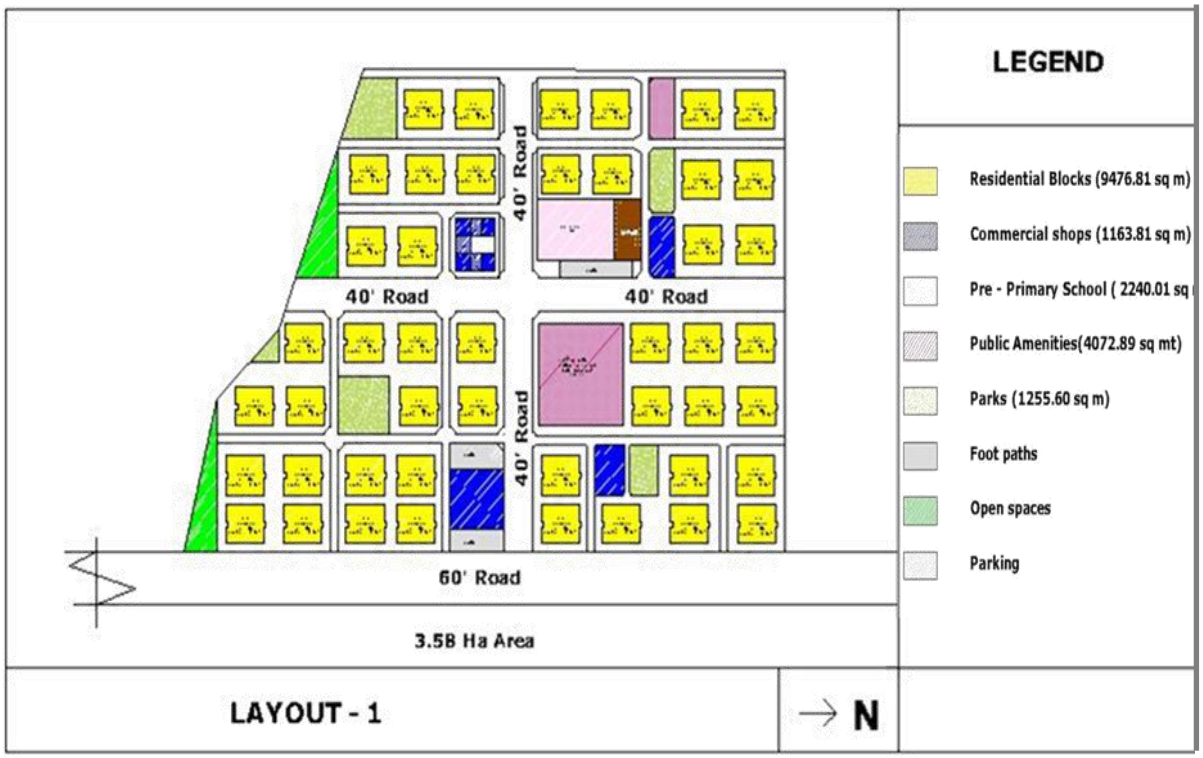
Provision for individual sump tank, over head LDPE tanks and pumps with all utilities will be made available to each of the building blocks for water supply arrangement.

Construction

The type of construction will vary with several factors like soil conditions, local requirements and cost of the land. Generally in the smaller towns, which basically have rural culture, multistoried buildings are not acceptable but with circumstances, G+3 has been proposed for slums where ever required. The type of of housing would generally be small but independent houses/ combined houses with some free space around the houses. Given the occupation status of the slum households, some of them might have push carts or some of them may use this space for cottage industries or vegetable gardening.

Structure wise, a permanent housing unit with a plinth area of 330.60 Square feet will be constructed. The walls shall be built with solid concrete blocks and slabs shall be RCC. Ready mixed concrete shall be used in all RCC elements of the building for quality assurance and providing a smooth finish to the surface requiring less finishing.





Map 5-1 : Model Layout

5.3 Modalities / Approaches

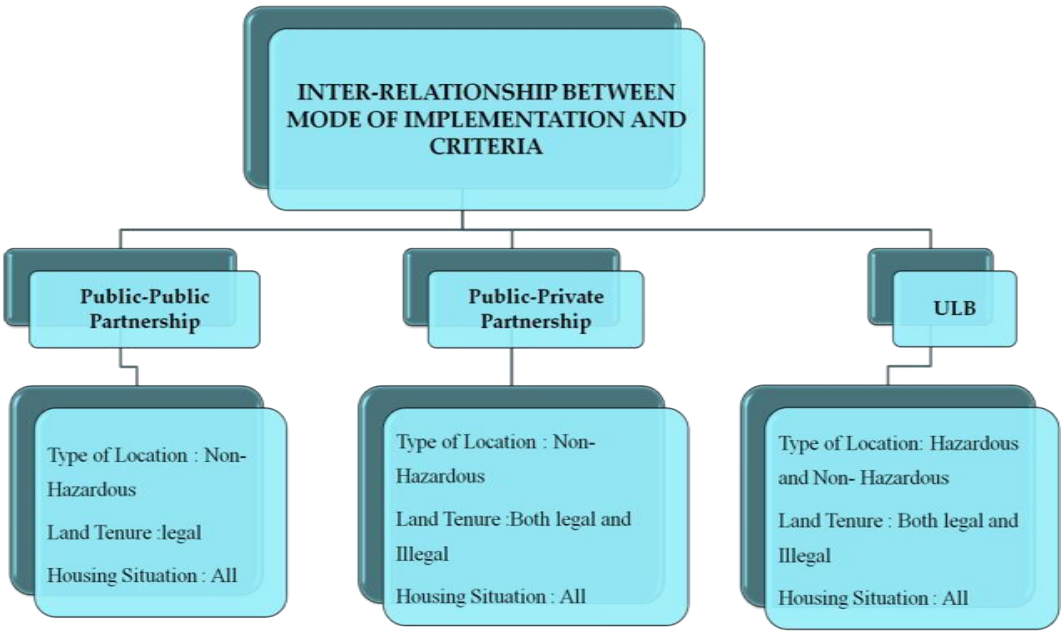


Chart 5-1 : Modalities & Approach

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 required achieving a particular outcome.

5.3.1 Slum Up-gradation/Redevelopment Options

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

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.

5.3.2 Potential for Private Sector Participation

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

a. Outputs of the Slum Redevelopment Plans

- Development options and cost of each option for different categories of slums, which are to be proposed and vetted by community.
- Identification of options for development model proposed for each slum.
- Selection of development model for the slums to be followed by project development in consultation with the communities
- Identification of resettlement pockets and Identification of slums to be densified
- Creation of vacant land and 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 centers

c. Outputs

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

5.4 Investment Requirements

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

5.4.1 Housing

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

Table 5-5 : Housing Investment Requirements

Mode of development	Hazardous	Non-Hazardous	
		Semi-Pucca + Katcha houses More than 75%	Semi-Pucca + Katcha houses Less than 75%
	Relocation	In – Situ	Up-Gradation
No. of HHs	2206	1178	120462
Deficit	2206	1178	5684
Housing Deficit	9068		
Costing (Lakhs)	7614.74	3766.36	11570.76
Total Cost (Lakhs)	22951.86		
Total Cost (Crores)	229.52		

As illustrated in *table 5-5*, 33% of the total estimated cost is allocated for Relocation mode of development 16% for slum In-situ development and remaining 50% of the slums developed under up-gradation in Agra City. For calculation purpose i.e. 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 Requirement for Infrastructure

S. No	Sector	Sector - Unit	Proposed Cost for 2013-18 (in Lakhs)
Physical Infrastructure			
1	**Water Supply**	Running length of sub line (Km)	4611.83
		Raising Main (Km)	326.26
		Individual taps (No)	---
		Overhead water tanks (No)	2764.26
		Sub Total	**7702.36**
2	**Sanitation**	Length of Underground Sewer Line (Km)	17992.07
		Length of storm water Drainage Lines (Km)	18081.80
		Individual toilets (No)	6211.74
		Sub Total	**42285.61**
3	**Solid waste management**	Garbage dumping Bins (No)	374.78
		Sub Total	**374.78**
4	**Roads**	Length of Approach roads (Km)	133.53
		Length of Internal roads (Km)	24246.58
		Sub Total	**24380.12**
5	**Street Lighting**	Street lights (No)	2846.41
		Sub Total	**2846.41**
Total Physical Infrastructure			**77589.28**
Social Infrastructure			
6	**Education facilities**	Anganwadi (No)	151.17
		Primary school (No)	27.74
		High school (No)	32.07
		Sub Total	**210.98**
7	**Health Facilities**	Primary Health Centre (No)	0.00
		Sub Total	**0.00**
8	**Social development**	Community Room (No)	71.05
		Recreation park (sq.mts)	1222.25
		Sub Total	**1293.31**
Total Social Infrastructure			**1504.28**
Grand Total Cost (Physical + Social) for Infrastructure			**79093.56**

The total cost estimates for infrastructure up gradation and provision is **790.94** Crores, where physical infrastructure is estimated for **775.89** Crores and social infrastructure is around **15.04** Crores.

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

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

Sector	Estimated Cost for 2012-13	Estimated Cost for 2013-14	Estimated Cost for 2014-15	Estimated Cost for 2015-16	Estimated Cost for 2016-17	Total Project Cost for 5 years
Housing	6347.00	5868.55	5450.27	1651.45	3634.59	**22951.86**
Water Supply	909.08	2011.79	2414.81	2004.10	362.58	**7702.36**
Sanitation	4951.50	11762.65	13526.88	9968.17	2076.41	**42285.61**
Solid waste management	33.77	91.55	119.65	99.38	30.43	**374.78**
Roads	3367.38	5698.09	7345.87	6746.14	1222.64	**24380.12**
Street Lighting	277.08	672.83	954.66	711.31	230.52	**2846.41**
Education	27.80	49.92	65.80	60.00	7.45	**210.98**
Health	0.00	0.00	0.00	0.00	0.00	**0.00**
Community halls	4.99	26.18	16.50	17.32	6.06	**71.05**
Parks	138.79	255.86	395.88	308.84	122.88	**1222.25**
Others(O&M)	963.44	1586.25	1817.42	1294.00	461.61	**6122.73**
Total	**17020.83**	**28023.67**	**32107.74**	**22860.71**	**8155.17**	**108168.15**

As seen above, the total cost projected for 5 years is Rs.**1081.68** crores, as 94% of dwelling units are found to be in good condition hence only 21% of total cost is allocated for housing, 72% of total cost is estimated for Infrastructure among physical infrastructure elements, due priority is given for sanitation for the next 5 years, next covered by roads.

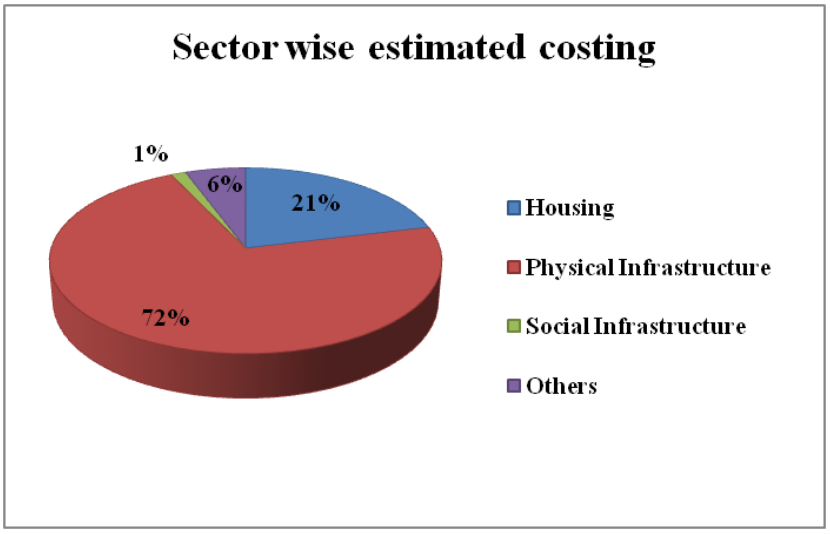


Figure 5-1 : Sector wise estimated Costing

In the first year of development, 2 slums (216 housing deficit) have been proposed for relocation with estimation cost of Rs. 657.72 crores, 11 slums (1178 housing deficit) have been tentatively proposed for in-situ development with estimated total costs of Rs. 29.51 crores and 40 slums (1035 housing deficit) proposed for Up gradation with estimated cost 19.23 crores.

Among physical infrastructure elements, due priority is given for sanitation for the next 5 years followed by Sanitation and Water Supply. About 55% of the costing in physical infrastructure is allocated for sanitation. About 31% of the cost is allocated for roads, 10% for water supply, 4% for street lighting.

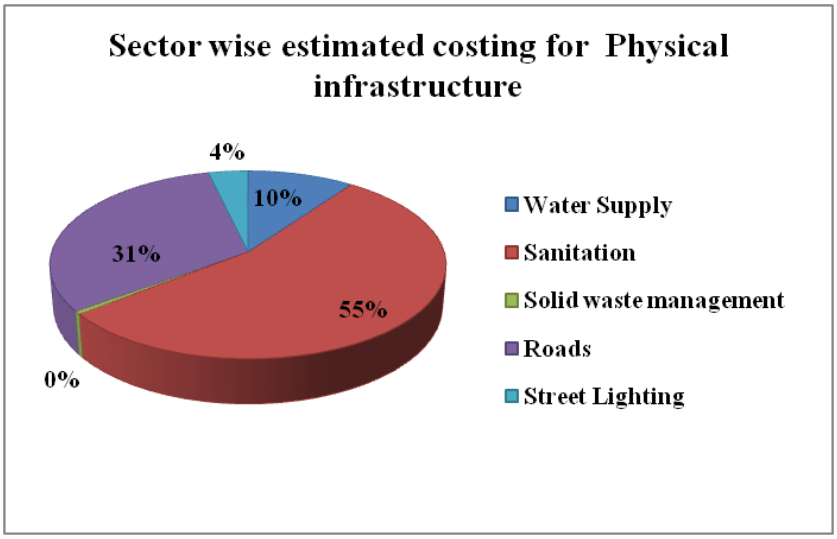


Figure 5-2 : Sector wise estimated Costing for Physical infrastructure

5.4.3 Other Costs

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

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

Table 5-8 : Others costing for 5 years

Year Wise	O & M	DPR	Project implementation	Capacity building	Off site Costing	Annual estimated other costs (in Lakhs)
Ist Year	321.15	160.57	160.57	160.57	160.57	**963.43**
IInd Year	528.75	264.37	264.37	264.37	264.37	**1586.23**
IIIrd Year	605.81	302.90	302.90	302.90	302.90	**1817.41**
IVth Year	431.33	215.67	215.67	215.67	215.67	**1294.01**
Vth Year	153.87	76.94	76.94	76.94	76.94	**461.63**
Total	**2040.91**	**1020.45**	**1020.45**	**1020.45**	**1020.45**	**6122.73**

Depending upon the mode of development, the operation and maintenance costs will vary for the slums. Seen in *table 5-8*, the O&M cost catering to the housing and infrastructure investment requirements as set out earlier includes 5 sectors where **61.23 crores** has been estimated for a period of 5 years. The initial costs such as preparation of Pilot DPR, Project implementation, capacity building and off site costing constitute 6%.

5.5 Capacity Building

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

5.5.1 Slum dwellers

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

5.5.2 Intermediaries

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

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

5.5.3 Government stakeholders

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

CHAPTER 6 - SLUM PREVENTION STRATEGY

6.1 Introduction of Slum Prevention Strategy

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

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

Land Reservation/Land pooling

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

Allocation of land to various organizations

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

New Housing

- Availability of Public 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 it 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 and 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. Agra being a district head quarters and encompasses educational institutes, livelihood opportunities, increased tourism activities and agricultural related activities, an increase of 1% per year is expected.

Table 6-1 : Projected population for 5 years

Population projection		
Year	**Increase in population**	**Projected population**
2013-2014	8858	894659
2014-2015	8947	903606
2015-2016	9036	912642
2016-2017	9126	921768
2017-2018	9218	930986
Total	45185	-------

At the end of five years, a total population of 930986 is estimated for 417 slums in **Agra.**

6.2.2 Household requirement for slums

Table 6-2 : Housing requirements for 5 years

Households Projection	
Year	**Households**
2013-14	1476
2014-15	1491
2015-16	1506
2016-17	1521
2017-18	1536
Total	**7530**

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 **7530** households has been projected for five years (seen in *table 6-2*).

6.2.3 Infrastructure requirements

Using the model layout, the cost for proposed infrastructure elements has been calculated. The proposed dwelling units are 7530 which indicate 9 model layouts are required for future demand. Hence the infrastructure requirement is indicated in the *table 6-3*:

Table 6-3 : Infrastructure requirement for 5 years

S. No	Sector	Sector - Unit	Requirement for 2013-18
Physical Infrastructure			
1	**Water Supply**	Running length of sub line (Km)	110.61
		Raising Main (Km)	18
		Individual taps (No)	7530
		Overhead water tanks (No)	18
2	**Sanitation**	Length of Underground Sewer Line (Km)	92.16
		Length of storm water Drainage Lines (Km)	92.16
		Individual toilets (No)	7530
3	**Solid waste management**	Garbage dumping Bins (No)	251
4	**Roads**	Length of Approach roads (Km)	2.25
		Length of internal roads (Km)	112.86
5	**Street Lighting**	Street lights (No)	2558
Social Infrastructure			
6	**Education facilities**	Anganwadi (No)	18
		Primary school (No)	9
		High school (No)	6
7	**Health Facilities**	Primary Health Centre (No)	3
8	**Social development**	Community Room (No)	9
		Recreation park (Ha)	3.22

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.

NAI BASTI

Nai Basti is one among 325 slums located in the core area of Agra City. It has a total population of 2100 with 460 households and an area of 33771.80 Sqm. Under the ownership of Agra City Corporation, Nai Basti slum is located in the Core area and surrounded by residential use. Of the 460 houses, 4% are Semi pucca and 4% are in katcha in nature. As far as water supply is concerned, 30% of the slum is not covered. Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Nai Basti 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, 450 dwelling units have been proposed with each unit of area 331.50 Sq. ft and comprises of living room, single bedroom, a kitchen and toilet .The following gives a description of a single housing unit:

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

Specifications for Doors & Windows in a single Dwelling unit:

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

Housing plan:

Per block 18 dwelling units (DU) has been proposed with a total area of 2636.10 sq. ft. A total of 25 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''x6'5''
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 Nai Basti Slum:

Description	Area (Sq.ft)
Slum Area	8.34 Acres
Proposed Slum Area	133624.00
Residential Area	68070.00
Commercial use	70138.00
Parking	10955.00
Park and recreation	36933.00
Roads	42694.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 68070.00 Sq.ft of regular residential, 70138.00 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 Nai Basti 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 Nai Basti slum:

Map 6-1 : Proposed layout for Nai Basti

Raksha Nagar

Raksha Nagar is one among 325 slums located in the core area of Agra City. It has a total population of 1600 with 200 households and an area of 20091.16 Sq.m. Under the ownership of Agra City Corporation, Raksha Nagar slum is located in the Core area and surrounded by residential use. Of the 200 houses, 100% are katcha in nature. As far as water supply is concerned, 100% of the slum is not covered. Due to lack of well built housing structures and inadequate physical infrastructure, there is a need to improve the living conditions in Raksha Nagarslum.

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, 204 dwelling units have been proposed with each unit of area 331.50 Sq.ft and comprises of living room, single bedroom, a kitchen and toilet .The following gives a description of a single housing unit:

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

Specifications for Doors & Windows in a single Dwelling unit:

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

Housing plan

Per block 12 dwelling units (DU) has been proposed with a total area of 2636.10 sq. ft. A total of 17 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''x6'5''
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

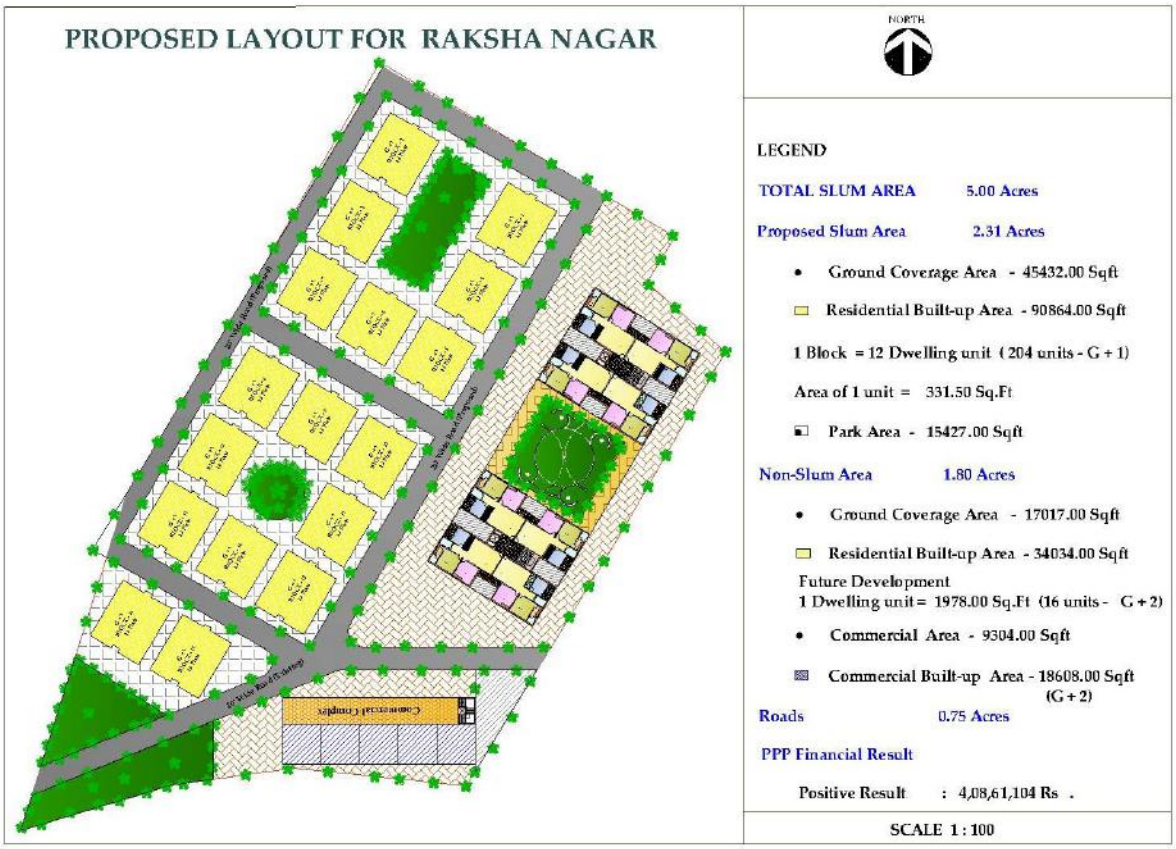
The following table presents the proposed land use Raksha Nagar Slum:

Description	Area (Sq.ft)
Slum Area	5.0 Acres
Proposed Slum Area	90864.00
Residential Area	34034.00
Commercial use	18608.00
parking	2310.00
Park and recreation	15427.00
Roads	32681.00

To encourage future development in the slum, a Public-Private partnership has been chosen for mixed land use where 34034.00 Sq.ft of regular residential, 18608.00 Sq.ft of land is allocated for commercial space and 15% for roads has been reserved .Under this model, potential business opportunities can be created as well as better access to improved infrastructure, thus fostering Raksha 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.



Map 6-2 : Proposed Layout for Raksha Nagar

Rental Housing development options

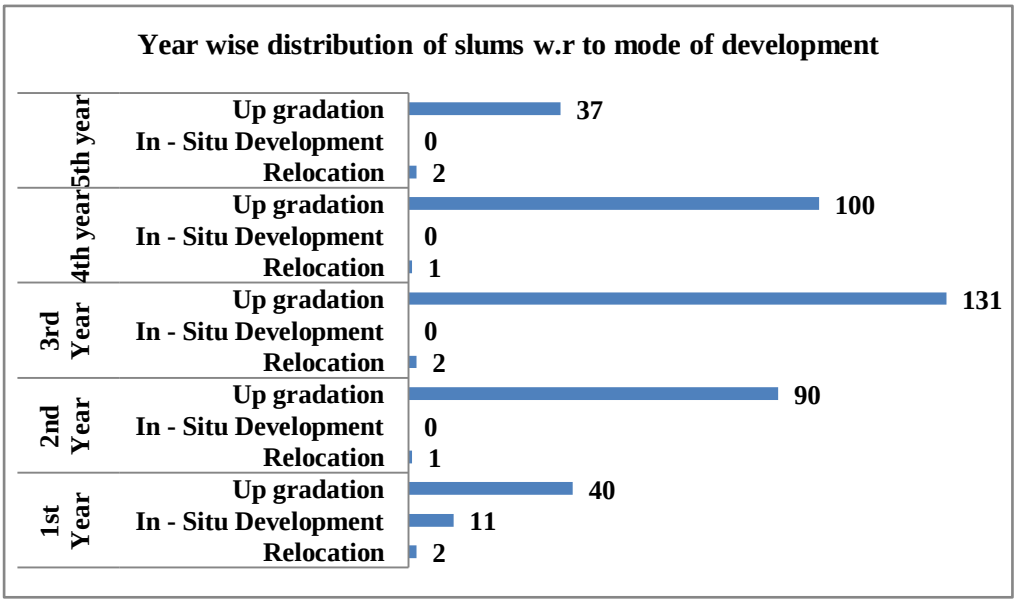
Rental housing shall be developed in partnership with the private sector and ULBs may determine rents to be paid by the households. Families may also contribute to a maintenance fund. Both amounts shall be based on an assessment of affordability by the ULB.

Developers, where applicable, may be permitted to collect rentals to recover the cost of construction in BOT arrangements, as appropriate. Maintenance charges may be collected by the cooperative/Resident Welfare Association/land trust, as the case may be. The following are the list of options available under rental housing:

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

6.3.2 Targets & Timelines

Figure 6- 1: Mode of Development



As seen in the *Figure 6-1*, for 417 slums in Agra city, 8 slums are relocation, 11 slums are proposed in-situ mode of development and 398 for up-gradation based on assessment of the living conditions in those areas. Given the magnitude of problems faced, the slums have been prioritized and to be implemented year wise respectively.

Once the redevelopment process is initiated, it is imperative that slum wise targets should be set and adhered in order for the rehabilitation process to be accomplished within the set time frame. For this to happen, it is necessary that there needs to be high level coordinating mechanism between wide group of stakeholders such as Govt. officials, professionals from different disciplines, NGOs/CBOs, and slum dwellers.

6.4 Investment requirements

6.4.1 Housing

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

Table 6-4 : Costing for projected Households

Costing for projected households		
Year	**Households**	**Estimated cost (in Lakhs)**
2013-14	1476	4280.40
2014-15	1491	4547.55
2015-16	1506	4819.20
2016-17	1521	5110.56
2017-18	1536	5406.72
Total	**7530**	**24164.43**

As seen in the above Table, an increase of 7530 households is expected, for which the estimated costs for 5 years is **24164.43** lakhs with an increase of **5%** (construction inflation cost) per year.

6.4.2 Infrastructure

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

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

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

Table 6-5 : Costing for projected Infrastructure

S. No	Sector	Sector - Unit	Cost for 2013-18 (in lakhs)
Physical Infrastructure			
1	**Water Supply**	Running length of sub line (Km)	418.11
		Raising Main (Km)	32.89
		Individual taps (No)	0.00
		Overhead water tanks (No)	283.50
		Sub Total	**734.49**
2	**Sanitation**	Length of Underground Sewer Line (Km)	1393.46
		Length of storm water Drainage Lines (Km)	1393.46
		Individual toilets (No)	0.00
		Sub Total	**2786.92**
3	**Solid waste management**	Garbage dumping Bins (No)	21.08
		Sub Total	**21.08**
4	**Roads**	Length of main roads (Km)	25.99
		Length of internal roads (Km)	948.02
		Sub Total	**974.01**
5	**Street Lighting**	Street lights (No)	295.45
		Sub Total	**295.45**
Total Physical Infrastructure			**4811.95**
Social Infrastructure			
6	**Education facilities**	Anganwadi (No)	55.19
		Primary school (No)	23.06
		High school (No)	44.10
		Sub Total	**122.35**
7	**Health Facilities**	Primary Health Centre (No)	11.34
		Sub Total	**11.34**
8	**Social development**	Community Room (No)	44.89
		Recreation park (sq.mts)	87.96
		Sub Total	**132.85**
Total Social Infrastructure			**266.53**
Grand Total Cost (Physical + Social) for Infrastructure			**5078.49**

6.4.3 Other costs

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

Table 6-6 : Proposed Others Cost

Proposed Other cost (in lakhs)						
Year	**O & M**	**DPR**	**Project implementation**	**Capacity building**	**Offsite costing**	**Total Other costs**
2013-14	116.97	58.49	58.49	58.49	58.49	**350.92**
2014-15	116.97	58.49	58.49	58.49	58.49	**350.92**
2015-16	116.97	58.49	58.49	58.49	58.49	**350.92**
2016-17	116.97	58.49	58.49	58.49	58.49	**350.92**
2017-18	116.97	58.49	58.49	58.49	58.49	**350.92**
Total	**584.86**	**292.43**	**292.43**	**292.43**	**292.43**	**1754.58**

A total of **1754.58** 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 = 24164.43 + 5078.49+ 1754.58

= 30997.49 Lakh

The total of **30997.49** lakhs has been estimated tentatively for the proposed development.

6.5 Slum Prevention Reforms

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

a. Assignment of property rights

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

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

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

b. Formation of Slum Redevelopment Authorities

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

c. Land Acquisition

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

d. Land pooling

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

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

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

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

f. Building & Layout Plans of Regulated areas

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

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

g. Transferable Development Rights (TDR) /Incentive Zoning

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

h. Microfinance for shelter up-gradation

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

i. Other legislations

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

j. ULB's role

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

6.6 Capacity Building

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

At State level,

The state needs to prepare state specific capacity building strategy should map existing arrangements/requirements/gap analysis/identify specific measures for strengthening existing facilities

and expertise. This framework should incentivize knowledge and skill development and provide an environment for the use of skills acquired.

At ULB level,

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

At NGO's level,

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

Slum dwellers

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

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

CHAPTER 7 - FINANCING STRATEGY

7.1 Touchstone Principles

7.1.1 Institutional Framework

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

The following institutional methodology has been adopted for the state.

The institutional responsibility for slum improvement vests with the State Urban Development Agency (SUDA), the apex policy making and monitoring agency for urban areas in the state. It executes various government schemes for urban renewal like – Balmiki Ambedkar Awas Yojana, Integrated Urban Slum Sewerage Plan, National Slum Development Program, and Golden Jubilee Urban Employment Scheme etc. SUDA executes all its programs using beneficiaries for prioritization of needs and execution of schemes. In case of Rajiv Awas Yojana, SUDA is the nodal agency at state level to implement surveys for the scheme. As per the directions of Government of India, Slum Survey started in Uttar Pradesh from the year 2009. Initially the survey was taken up under USHA programme, which had similar survey format of RAY. Various meetings were conducted by calling different para-statal agencies to discuss the required methodology for conducting surveys and initiate the steps for survey. Several discussions were held at length and depth about the conduction of surveys and to finalize a methodology.

SUDA as State level authority and DUDA as city level authority have been the Nodal agencies to monitor the quantity and quality of surveys performed by individual cities. DUDA is headed by Project Officer (PO) who is in charge for one city, a nodal officer for a ULB and number of supervisors for quality and quantity check upon the enumerators who have completed the surveys.

Member of Community Development Societies (CDS), Self Help Groups constituted under SJSRY and other schemes have been involved in conducting surveys and a minimum qualification of SSC was taken as eligibility for selecting Enumerators to collect information and to fill up the survey forms. 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 Agra 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.

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

7.3 Financing Plan

7.3.1 Summary of Investments

Table 7-1 : Summary Investments

Sector	Estimated costing for existing slums	Estimated costing for prevention of new slums	Total Project Cost
Housing	**22951.86**	**24164.43**	**47116.29**
Water Supply	**7702.36**	**734.49**	**8436.85**
Sanitation	**42285.61**	**2786.92**	**45072.53**
Solid waste management	**374.78**	**21.08**	**395.86**
Roads	**24380.12**	**974.01**	**25354.13**
Street Lighting	**2846.41**	**295.45**	**3141.86**
Education	**210.98**	**122.35**	**333.33**
Health	**0.00**	**11.34**	**11.34**
Community halls	**71.05**	**44.89**	**115.94**
Parks	**1222.25**	**87.96**	**1310.21**
Others(O&M)	**6122.73**	**1754.58**	**7877.31**
Total	**108168.15**	**30997.49**	**139165.64**

The present plan of action is proposed the investment details in two options i.e. estimated existing costing **(1081.68 Crores)** and cost for prevention of new slums (**309.97 Crores).** Hence, the total Project cost is **1391.66 Crores**.

For slum wise line estimates please refer **annexure 2E**

7.3.2 Financing Structure

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

Chart 7-1 : Financing Structure

a. Central Share

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

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

b. Beneficiary Contribution

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

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

- Facilitating long-term concessional interest rate/differential interest rates to the beneficiaries
- Access to microfinance and alternate funding options

- Rajiv Awas Shelter Fund, to be used:
- To keep the slum/urban poor beneficiary from turning defaulter due to unemployment, death or other genuine distress and thereby risk forfeiture of dwelling unit and foreclosure on loan
- To share the lender's costs of servicing the loan.

7.3.3 Strategy for Sustenance

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

7.3.4 ULB Finances

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

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

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

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

7.3.5 Earmarking for Slum Rehabilitation & Prevention Strategy

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

7.3.6 Community Participation

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

7.4 Monitoring & Review

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

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

7.5 Reforms

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

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

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

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

LIST OF ANNEXURES

List of participants of Stakeholder meeting

Stakeholder Workshop on Rajiv Awas Yojana
Slum Free city Plan of Action – Agra city, Uttar Pradesh
22-05-2013 at DUDA Office, Agra

District Urban Development Authority (DUDA) – Nagar Nigham, Agra -
Regional Centre for urban and Environmental Studies (RCUES), Hyderabad.

List of Participants

S. No.	Name	Designation	Phone no.	Signature
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40	[illegible]	पार्षद	9368793377	[signature]
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42	Braj Bala Jha	पार्षद	7417962668	B.B.Jha
43	महेश चन्द जैन	पार्षद	9997438057	Mahesh [illegible]
44	[illegible]	CURE	9719419331	[signature]
45	[illegible]	पार्षद	9412456401	[signature]
46	शान्ती [illegible]	पार्षद	9528133830	
47	[illegible]	पार्षद	9412593034	[signature]
48	गीता देवी	पार्षद	9412342115	गीता देवी
49	जितेन्द्र [illegible]	(पार्षद)	7895972062	[signature]
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51	[illegible]	63 पार्षद	9358333243	[signature]
52	[illegible]	63 पार्षद	9837276234	[signature]
53	SANJEEV KAUSHAL	Com Social & Community Development officer Nagar Nigam Agra	07520962459	[signature]
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55	[illegible]	[illegible]	8938993152	[signature]

LIST OF ANNEXURES 1 & 2

SLUM PROFILE

(DATA ANALYSIS AND PROPOSALS)

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