



Ministry of Panchayati Raj

RURAL SPATIAL PLANNING STUDY

Pilot study for Villages of Uttar Pradesh
(**Bakkas - LUCKNOW**)

WORK PROGRESS

Presented By
Faculty of Architecture , AKTU Lucknow

Contents

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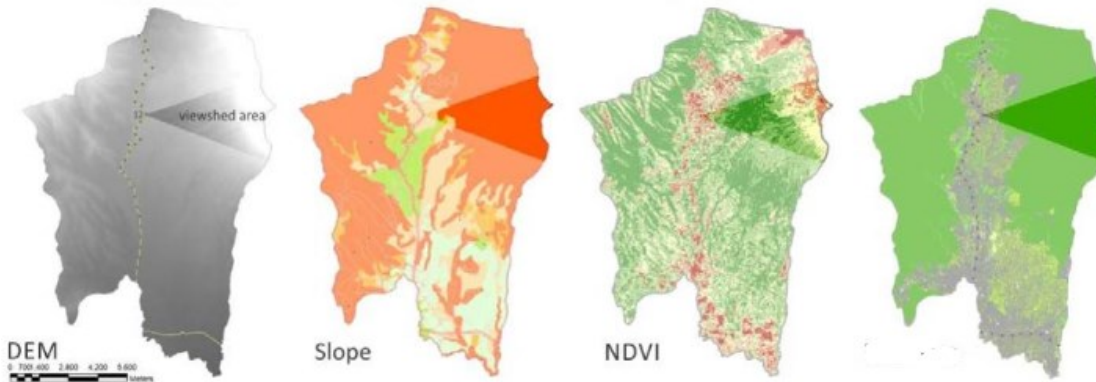
Introduction to the Study

HOW TO PROCEED

Categories of Uses

A digital elevation model (DEM) of a contour map from the area is needed.

- Through DEM you can create contours
- Through contour creation can provide you with the slope of the area.
- NDVI index [0-1] closer to 1, greater the vegetative cover
- Landuse Land cover [LULC] provides with built and non built areas
- Over the time analysis of LULC can provide you with the rate of development over the time



Spatial analysis carried out for some area in Indonesia



Thus, helps you get acknowledge with the existing spatial structure of the area

Area Profiling/ Type of Settlement

Majorly involves data collection from either secondary sources like census or primary survey

- To know about the people, occupation, Housing Condition
- To know about the number of workers, number of amenities [School, PHC etc.]
- Number of other workers except agriculture laborers [artisans, if number is high , goals to be set keeping them in consideration as well]
- Condition of Infrastructure [Roads, Schools, Hospitals etc.]



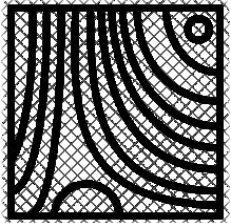
Spatial Representation of the same on Maps



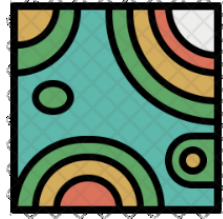
Thus, helps you describe planning goals at varying levels.

Components to be worked upon

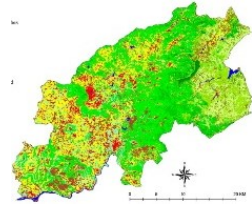
Spatial Layers



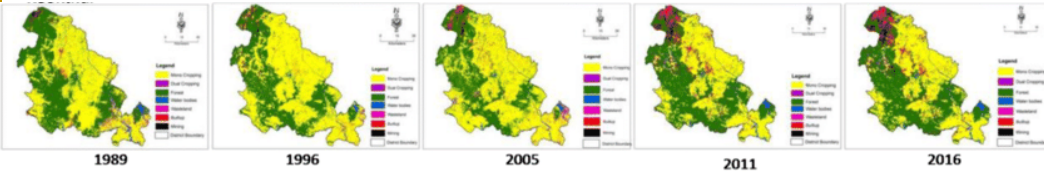
Contour Mapping



Slope Intensity



Land Cover Classification



Built Up Change Over the years

Built Environment



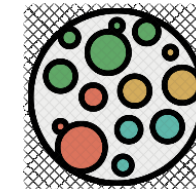
Building Typology (Kutcha/ Pucca)



Building Height



Building Use in the Abadi Area



Built Up Density



Green Cover / Spl Use Category

Physical and Social Infrastructure Components

24/7 Piped Water Supply



Inter Village Road Connectivity



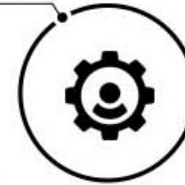
Health



Sanitation



Skill Development Training



Agri services & Processing



Education



Tourism Promotion



Environment



Employment & SHG Formation



Rural Housing



Social Infrastructure



Sports Infrastructure



Social Welfare



Village Streets Lights



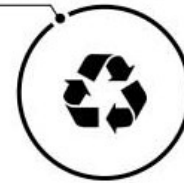
Public Transport



LPG Connection



Solid & Liquid Waste Management



Drain Facility



Digital Literacy



Citizen Service Center



METHODOLOGY

Component Wise Survey Required

Component	Data/ Survey Required	Type of Survey
Literature Review	Based upon Secondary Data, Reports Available	Secondary (Self)
Area and Demographic Profile	Census 2011 and Projections made (Self or Governing body)	Secondary (Self)
Physical Feature and Land Cover	Based on LANDSAT image available from Bhuvan/ ESRI online or DEM provided by NRSC	Secondary (Self)/ NRSC
Land Ownership and Land Holdings	Land Revenue Records, SECC Data	Secondary (Govt., Land Revenue Deptt - Tehsildar)
Land Use Abadi Area	Primary Survey	Primary (Self)
Built Environment Study	Primary Survey	Primary (Self)
Physical Infrastructure Mapping	Primary Survey	Primary (Self)
Social Infrastructure Mapping	Primary Survey	Primary (Self)
Socio Economic Condition	Primary, HH Surveys, Interactions	Primary (Self)
Analysis	Accessibility, Infrastructure based comments	Based upon Data Collection (Self)
Issues and Potentials	SWOT Analysis	Primary (Self), FGDs
Projections	Future Population Forecast	Primary (Self), Panchayat Office (Updated)
Proposals	Stakeholder Consultation, On going/ Projects	Primary + Secondary

Methodology

Aim: To Carry out the Gram Panchayat Spatial Development Plan

To assess the importance of Spatial Development Study and Method to carry out.

To review existing data available, Define components and carry out spatial Analysis.

To assess the area profile, mapping based upon primary surveys carried out within the study area

To recommend proposals for carrying out phase wise development

Literature Review

Various Guidelines [RADPFI], Research Paper, Past Studies etc.

Sort information for the study area from available sources [Census, SECC]

Prepare Base Map for the defined area

Study the temporal changes observed over a period of time

Prepare land cover map for the study area

Prepare map for topographic features [Slope and Contours]

Household Survey and Built Environment Study

Physical Infrastructure Mapping

Social Infrastructure Mapping

Focus Group Discussions and Stakeholder Consultation

Prepare spatial maps depicting locations, accessibility, walk & drive time

Identify issues and potentials based upon surveys conducted

Projection and future forecasting

Gap assessment

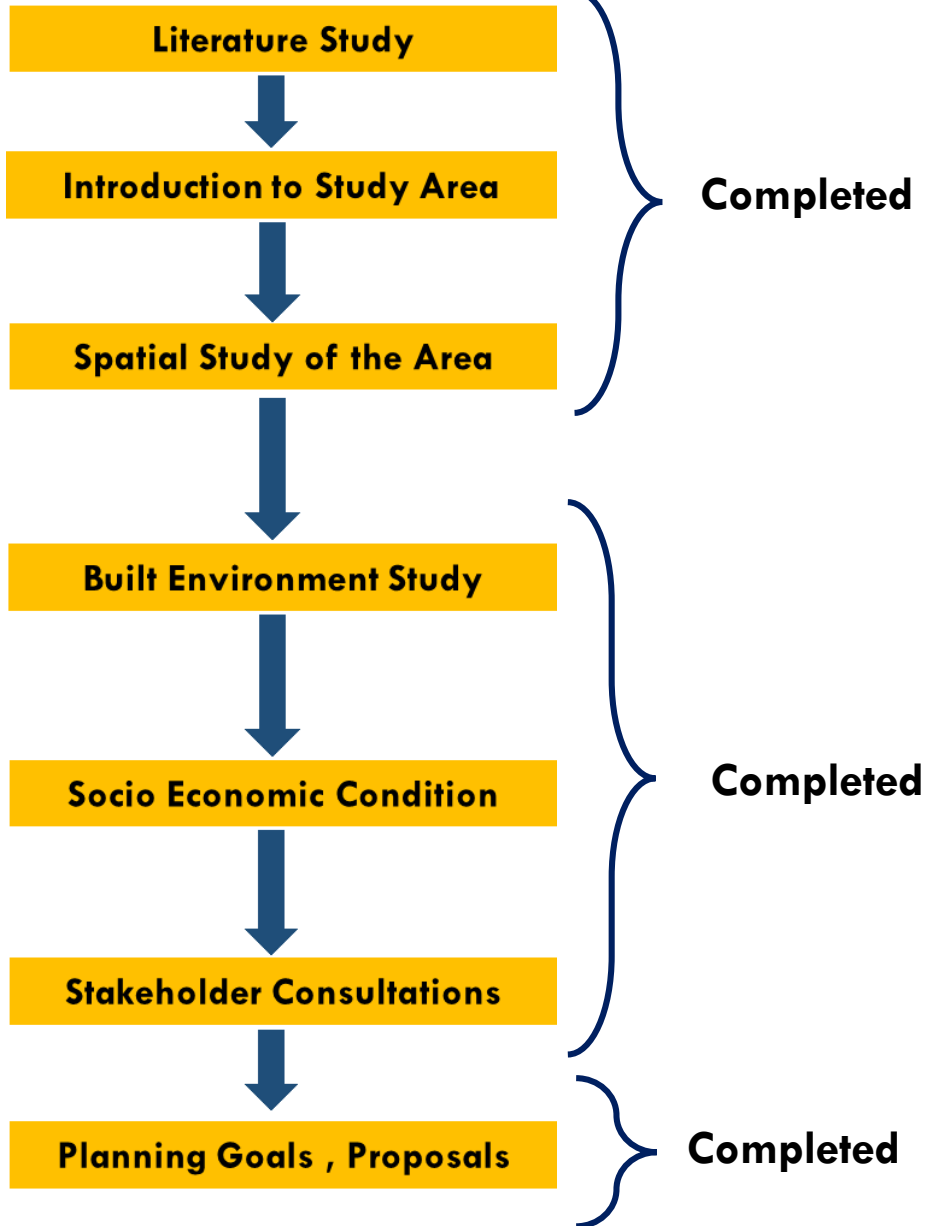
Land use Prediction in upcoming years based upon current analysis

Suggestion for phase wise planned development for the Upgradation of the area

Input/ Tools/Source for data collection: Data Shared by NRSC, GPSDP Survey App, Google Earth Imagery, My Maps, SW Maps, Primary Survey

Work Progress So Far

Approach of the Study

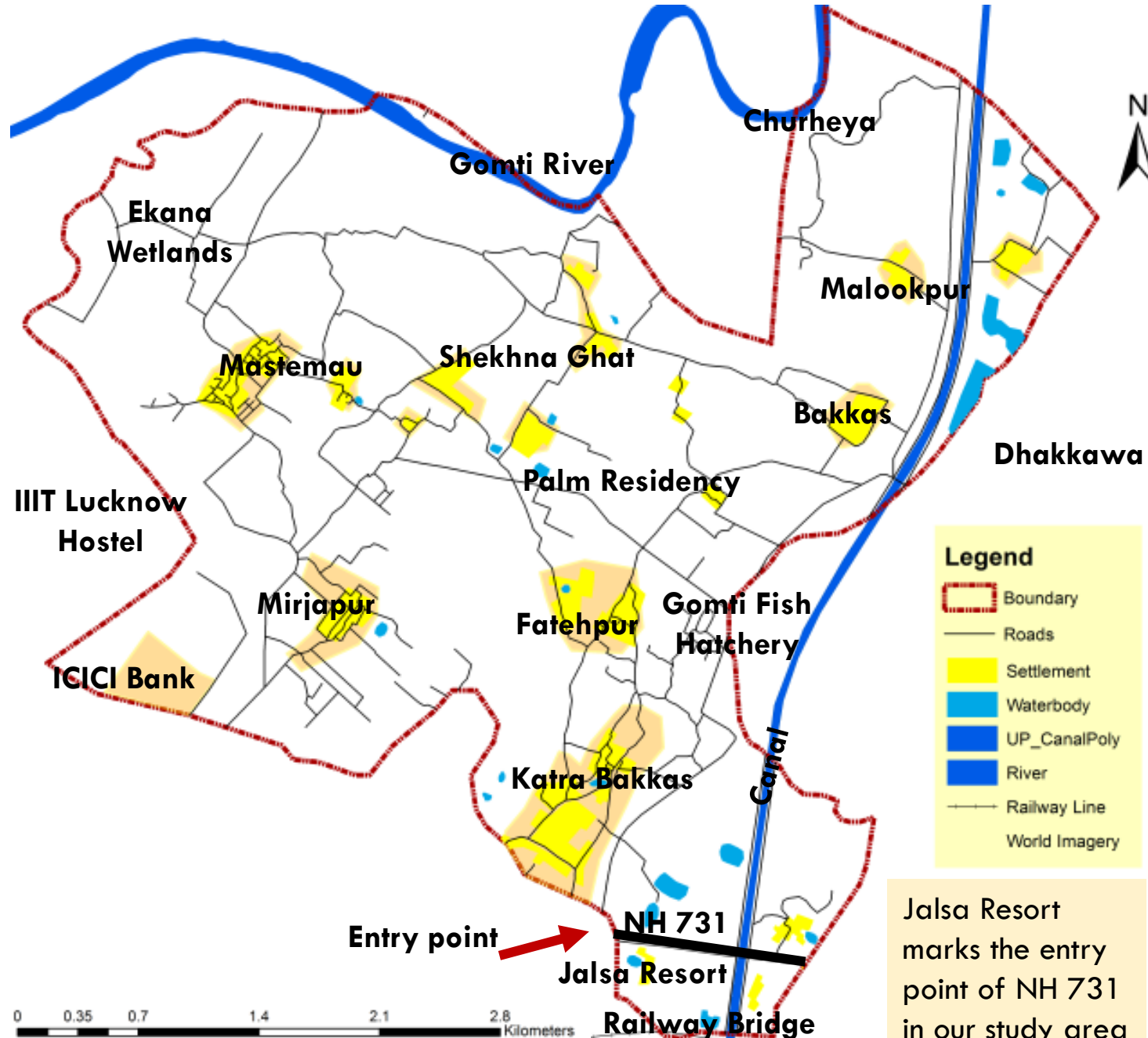


S.n	Tasks	Progress
1	Selection of Village	
2	Collect Available Data [NRSC, Census, Reports]	
3	Study Area Delineation	
4	Survey Formats Finalization	
5	Village Profiling [Area/ Demographic etc]	
6	Base Map Preparation	
7	Slope, Contour, LULC Maps through GIS	
8	Reconnaissance Survey	
9	Photographic Documentation	
10	Inception Presentation and Report Submission	
11	Field Visits and Primary Surveys	
12	Stakeholder Consultation	
13	Inception Report	
14	Data Analysis post Surveys and visits	
15	Gap Assessment and Objective Formulation	
16	Identification of Issues	
17	Projection and Future Forecasting	
18	Final Proposals	
19	Final Presentation and Report Submission	

Data Collection, Analysis, Draft Proposals have been done so far. Minor changes on the proposal part may be changed based upon the consultations etc.

Introduction to the Study Area

INTRODUCTION [STUDY AREA]



The Study area is **bounded by Gomti River in the north and NH 731 in the South.**

The **Canal marks the eastern limit** whereas the **Ekana Wetlands as the western end.**

The Study area due to **its close vicinity to National Highway** has become the **prime location for real estate developers** to bloom resulting in upcoming developments.

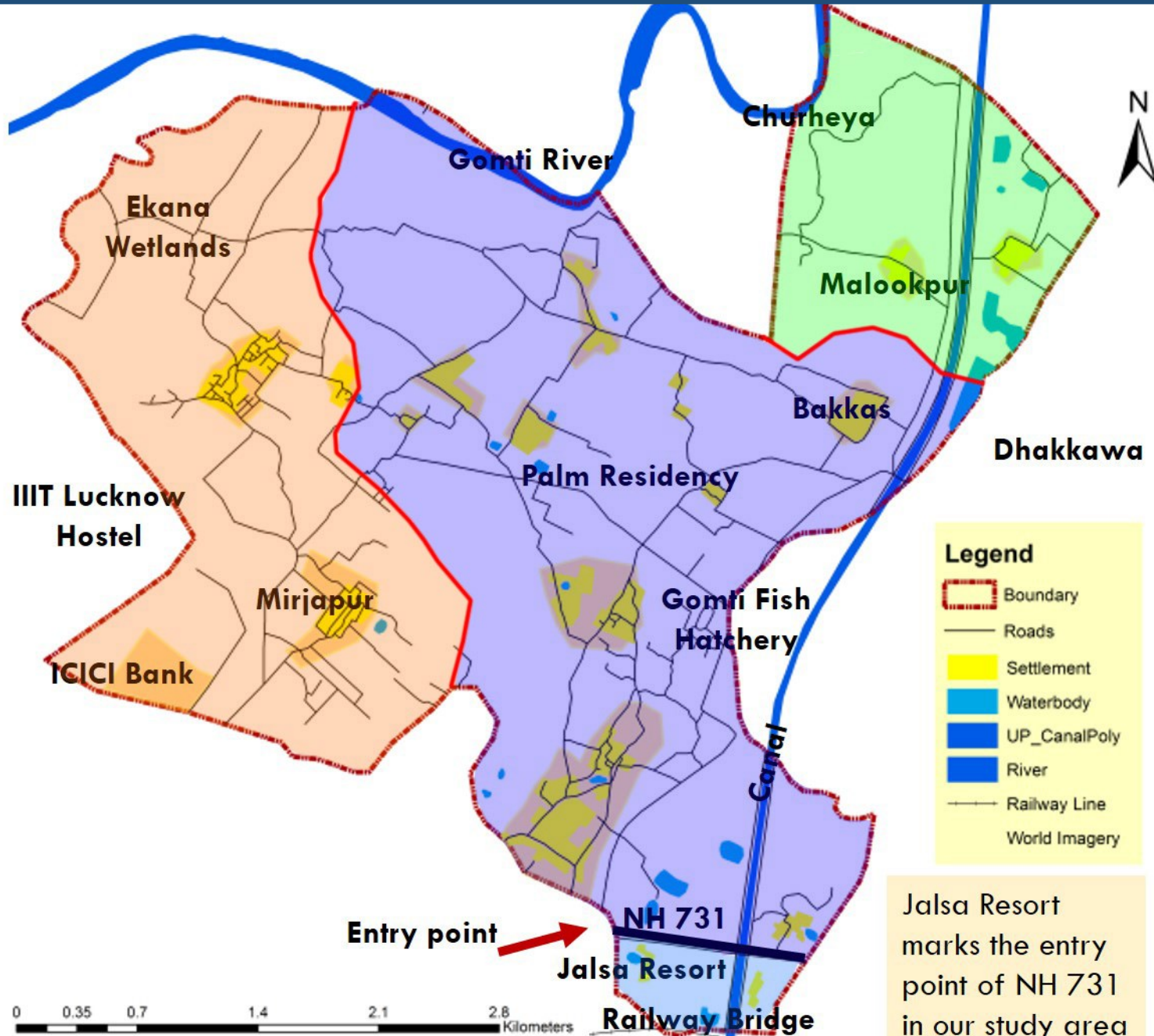
Major Settlements include:

Hamlet Name	HHs
KATRA	250
BAKKAS	150
LAKSHIMANPUR	85
SITARAMPUR	80
FATTEHPUR	120
DULLAPUR	120
SHEKHNAGHAT	150
ANANDPUR	150
SHEKHNAPUR	200
CHILAU LI	145



Jalsa Resort marks the entry point of NH 731 in our study area

INTRODUCTION [STUDY AREA]

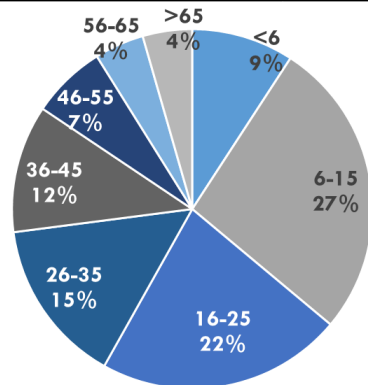


- The Study area is **not limited to Bakkas** rather includes other settlements as well or **three parts** as shown in the map besides.
- The study area has a **dispersed settlement spill over** thus, **difficult to look over as single Abadi area**. Thus, study area as a whole has been studied and taken into consideration.
- Various hamlets names found in the study area in the Bakkas area have been mentioned previously. Other includes Malookpur, Mastemau, Mirjapur. Population as per Census 2011 are as:
Bakkas Population – 6490
Malookpur – 2893
Mastemau – 2958
Total - 12341
- The Study area **is majorly a Hindu based community with a 15% deviation towards other communities** as well of which Islam is dominant.
- The major settlements with Islamic community are Katra Bakkas, Mastemau, Bakkas, Sheknapur, and few at fatehpur

INTRODUCTION [VILLAGE PROFILE]

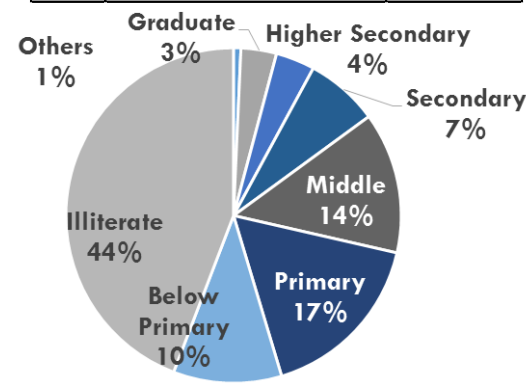
DEMOGRAPHIC PROFILE

S. N	Details	Total
1	Total Population (census-2011)	15245
2	Decadal Growth in Rural Population (%) (2001-2011)	23.3%
3	Household Size	5.7
i	No. of Households	2650
4	Sex Ratio	851
5	Age Profile* (Age bracket with the largest % of population)	15-59
		55%
6	Total Land Area (in Hectares)	730.52
i	Under Agriculture	511.36



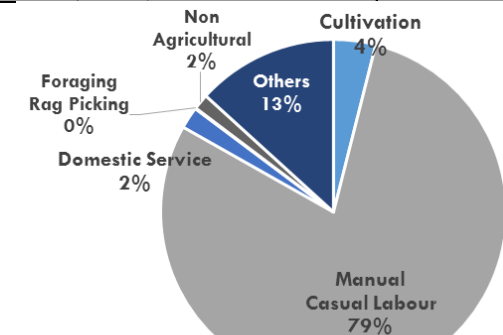
SOCIAL PROFILE

S. N	Details	Total
1	Literacy Rate	55.8
2	SC Population	3462
3	ST Population	0
4	Education Levels	-
i	% with Higher Secondary and above	7.9
ii	% with Senior Secondary and above	14.9
iii	% with primary Education and above	45.4
5	% of Population - disabled	0.5
6	% of single women	54.4



ECONOMIC PROFILE

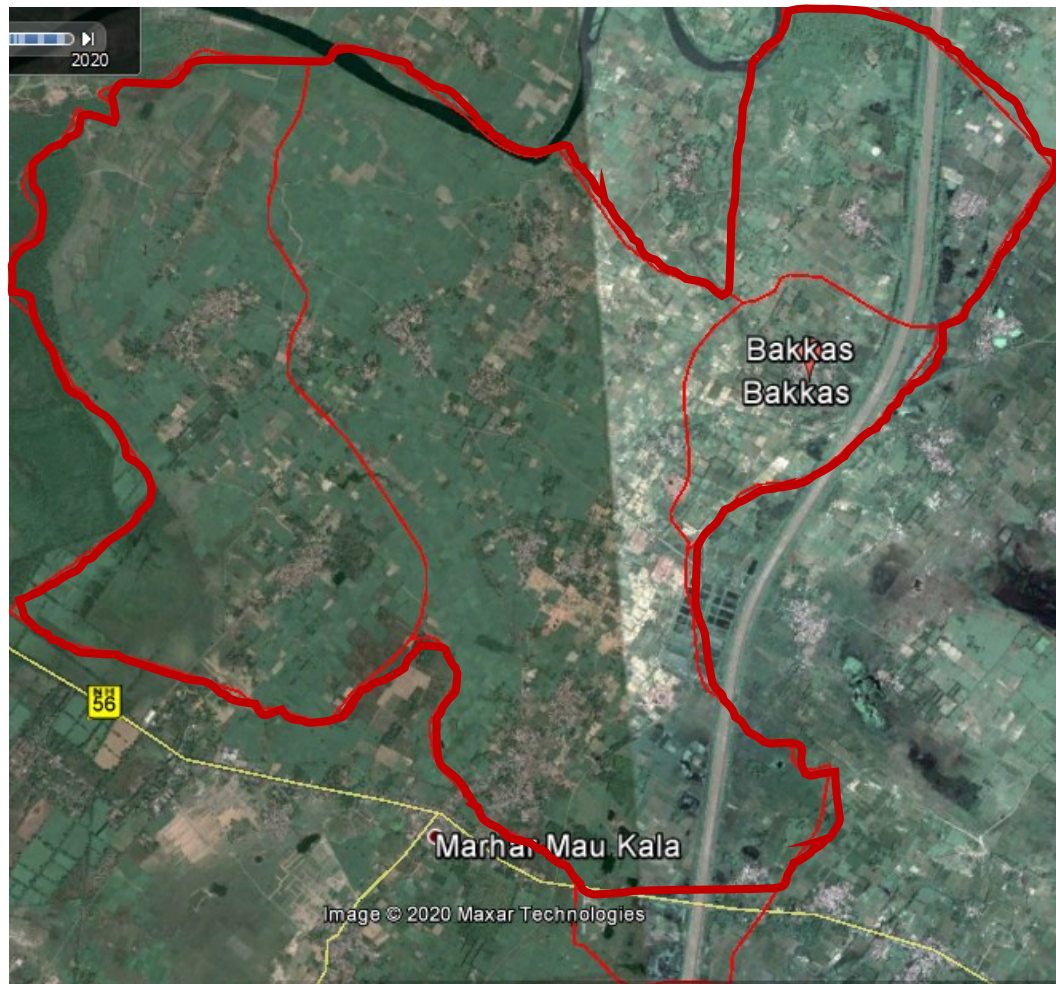
S.N.	Details	Total
1	Occupation Structure	
i	Cultivation	4%
ii	Manual Casual Labour	79%
iii	Domestic Service	2%
iv	Foraging Rag Picking	0%
v	Non Agricultural	1%
vi	Others	13%
iii	Occupation by industry	No
iv	Average distance to work place for majority of the work force (in km)	4



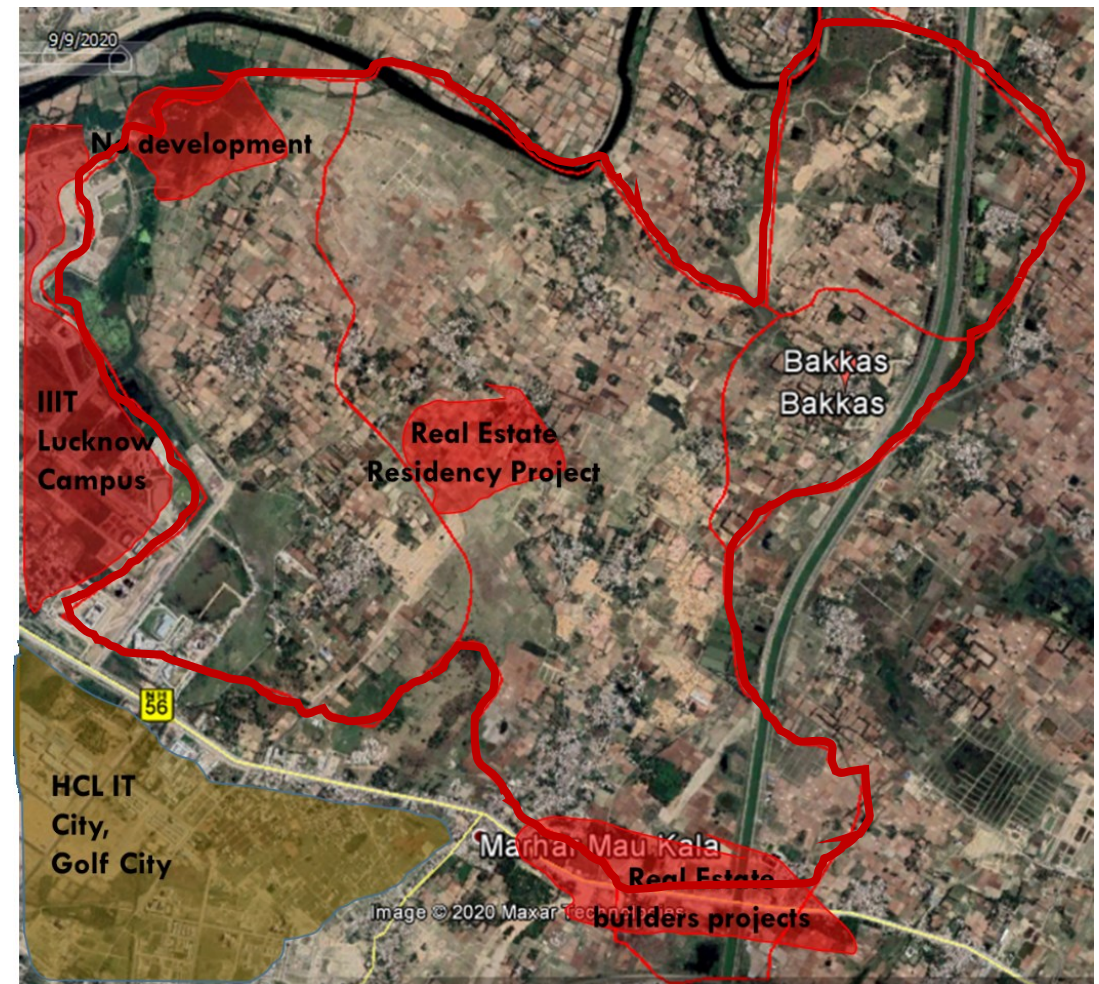
Source: Census 2011, SECC Data Bakkas

SPATIAL ANALYSIS

Spatio Temporal Development Pattern [2010-2020]



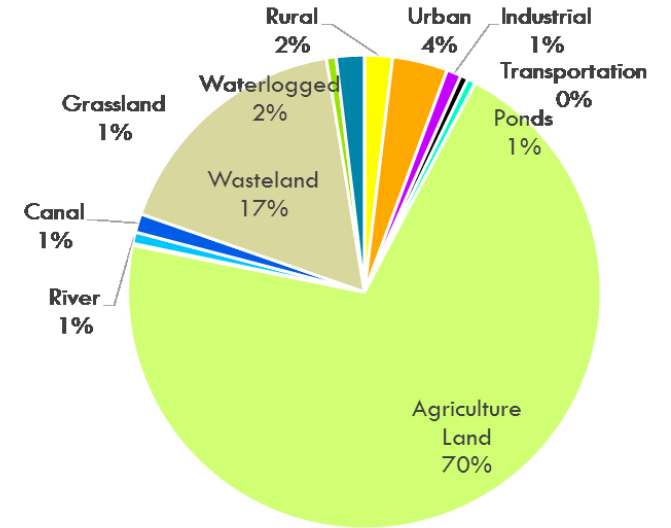
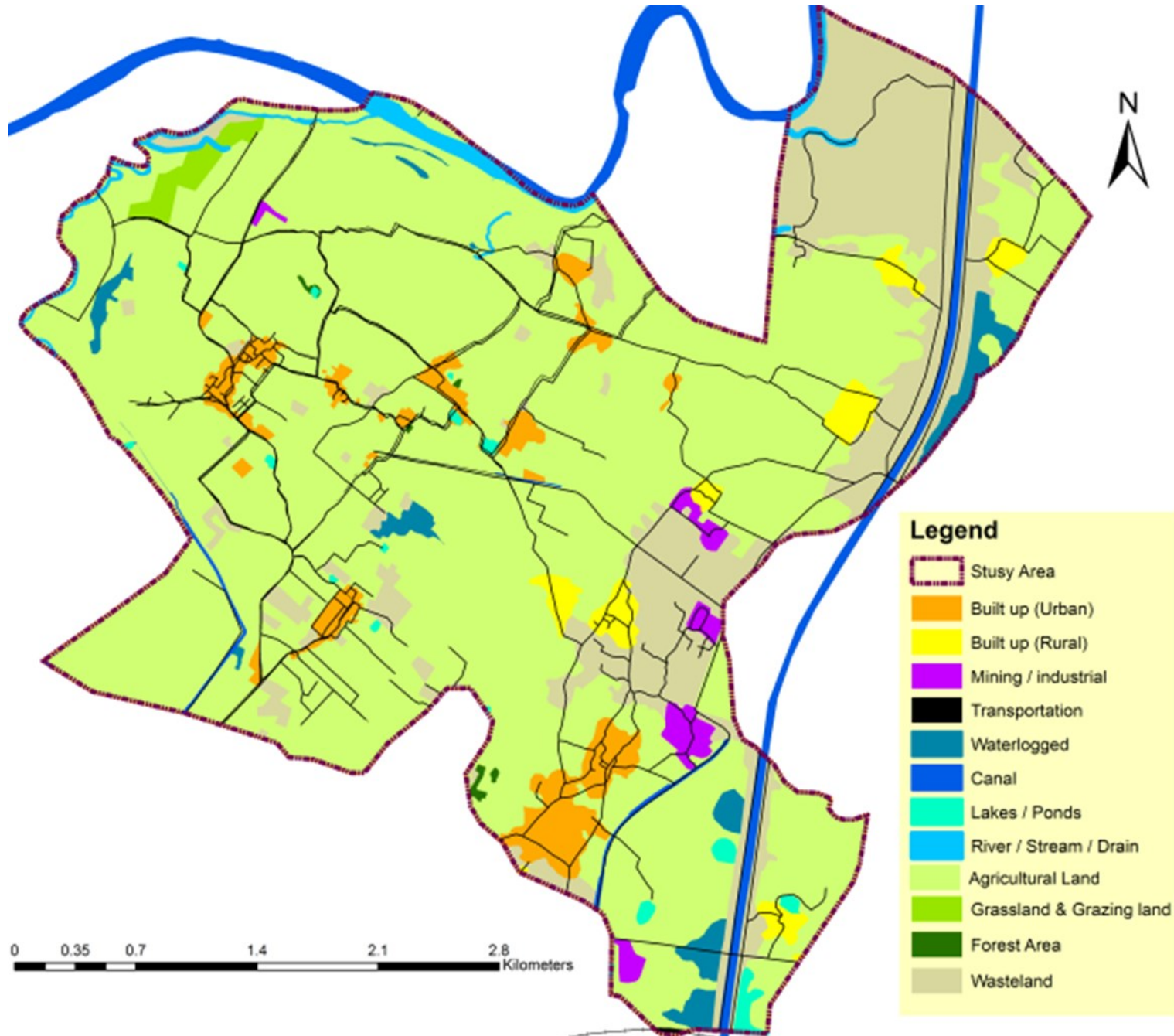
BAKKAS -2010



BAKKAS -2020

- **History of Village establishment is unknown** but based upon imagery and data available it has history of 3 decades.
- With the **advent of year 2015, plotted residential colonies of private developers, are observed at the periphery of the village boundary, in south eastern direction, which is also marked as the edge of Lucknow Planning Area.**

Land Cover Classification



70% of area comprises of 70% of total area. [Urban > Rural]
Major Area is under Agriculture Land and Wastelands

Though Imagery do conclude that major area is under agriculture but based upon site visits and discussions with the residents it was known **land conversions have been done for major agricultural land by developers for upcoming projects/**

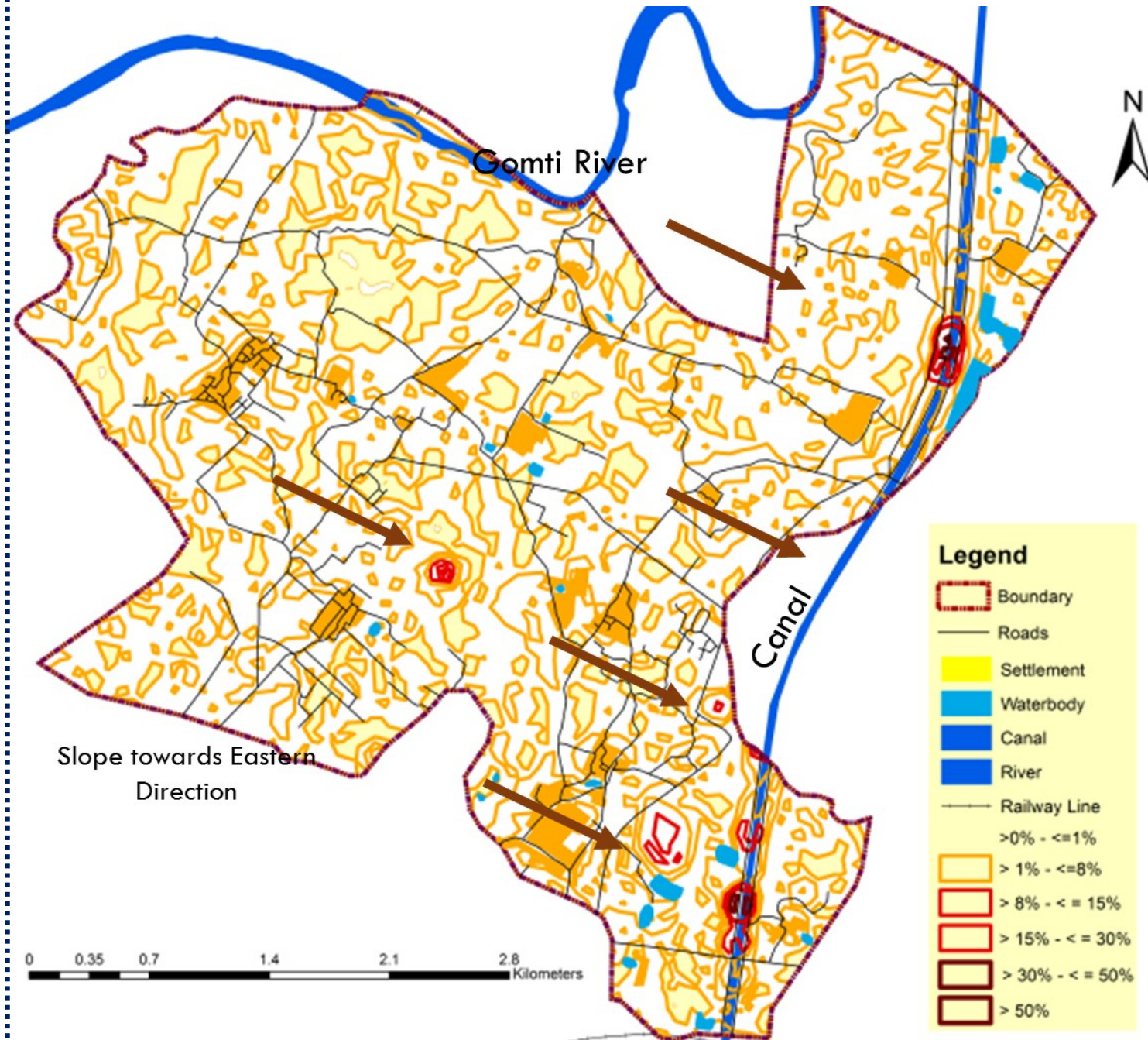
Upcoming Projects: Gomti Enterprises, Nishant City, Ansari Villas etc.

Slope Analysis

Agricultural Land Conversions



Agricultural Land converted for upcoming Real Estate Residential and Commercial Developers

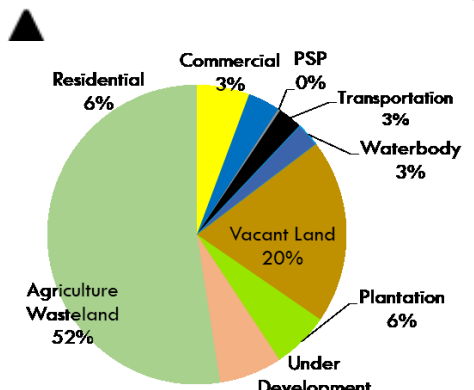
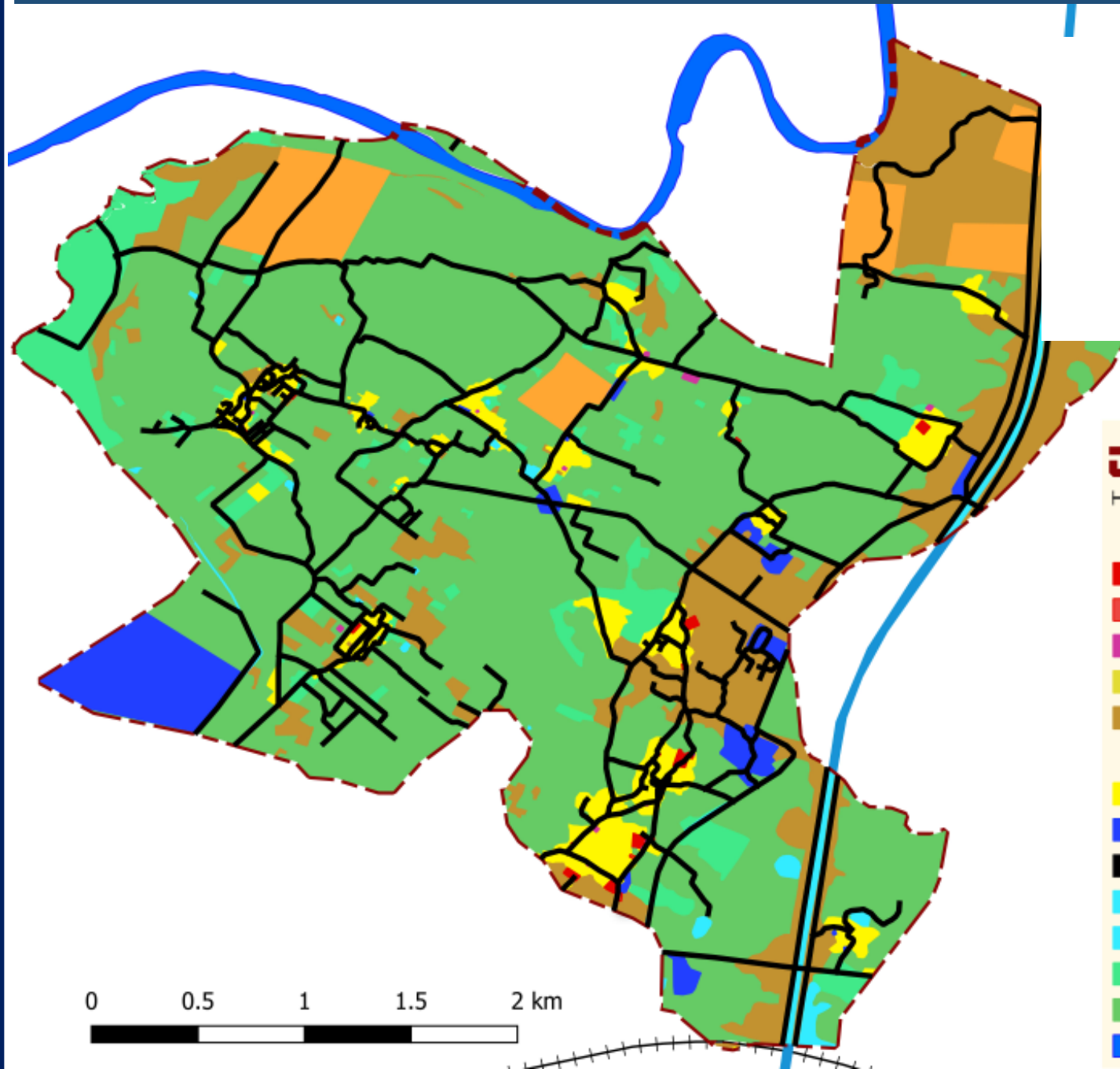


The village **majorly lies in the Gently Sloping Area** [$>1\% - <=8\%$], except a few areas beyond 15% slope [unfit for any development].

When compared with LULC, no built-up was observed in such areas. Majorly some pond/waterlogged areas were observed at such locations

The **contours indicate that the slope is towards Eastern side towards the canal.**

Land Use

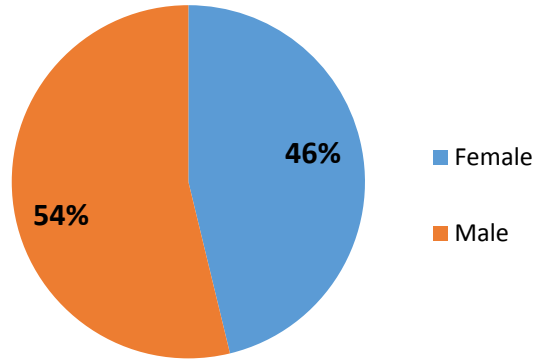


Very less development in the current scenario but seem to occur in upcoming years



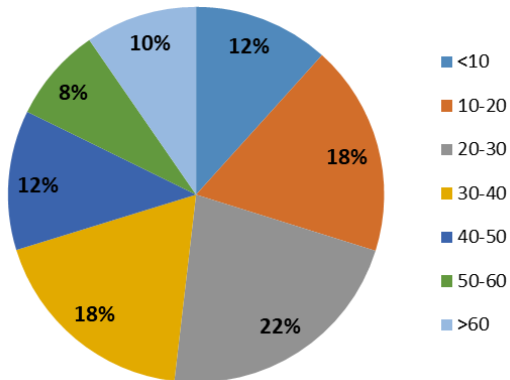
Socio Demographic Characteristics

Household Characteristics



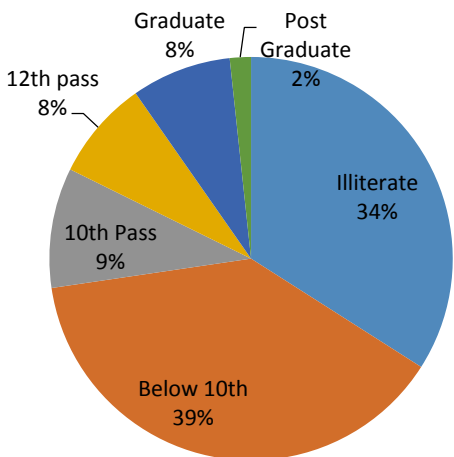
Sex Ratio

- **Sex Ratio** observed was **851**



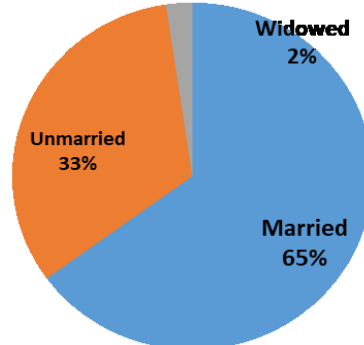
Age Profile

- **Working Age Group** constitutes major share **60%**



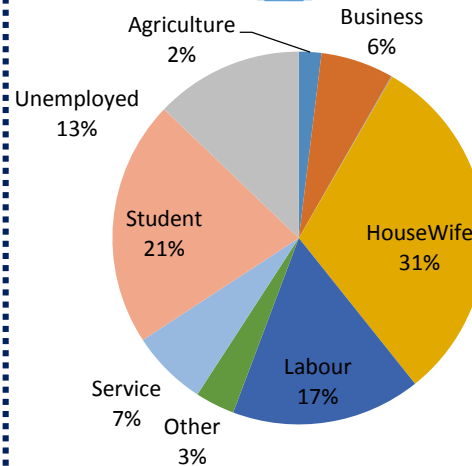
Education Levels

- **34%** of population surveyed were **illiterate**
- **10%** of population were **better educated**



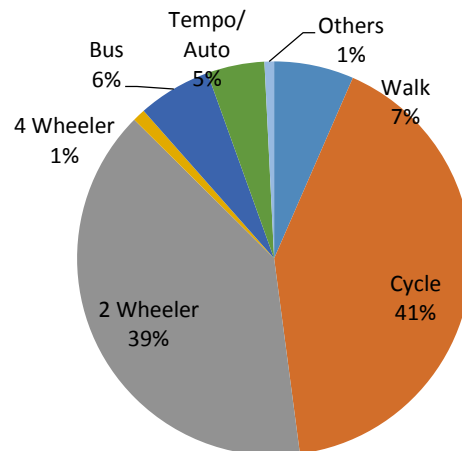
Married Status

- **65%** of the surveyed women were married



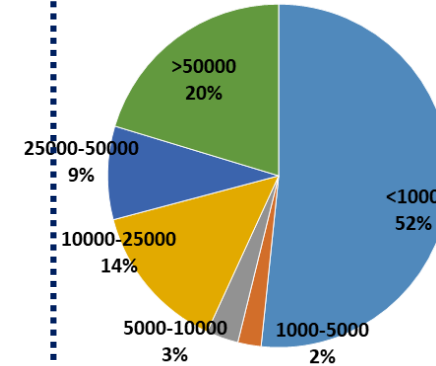
Occupation

- Major share of population are under **non earning** [Housewife, Student, Unemployed] i.e., **65%**
- **Agriculture** only **2%**



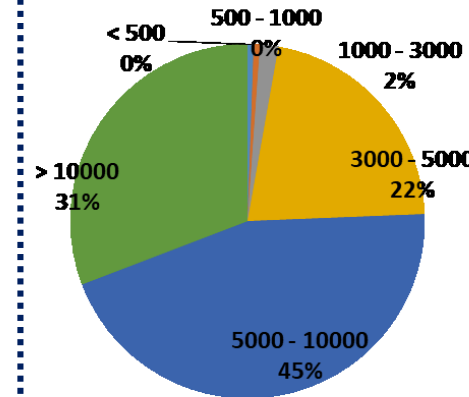
Mode of Travel

- **No proper means of Public or shared services.** Maximum persons use **81%** private vehicles for commuting



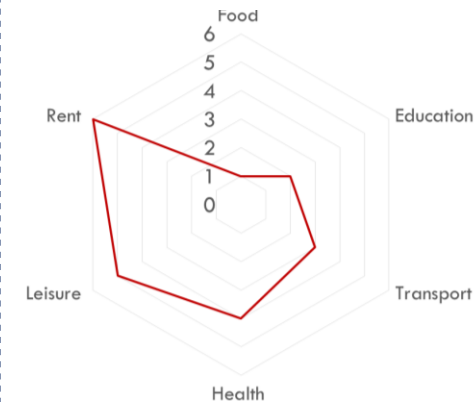
Earnings

- **52%** of the surveyed population have **earnings less than 1000** and **20%** **>50k** depicting rise towards betterment



Expenditure

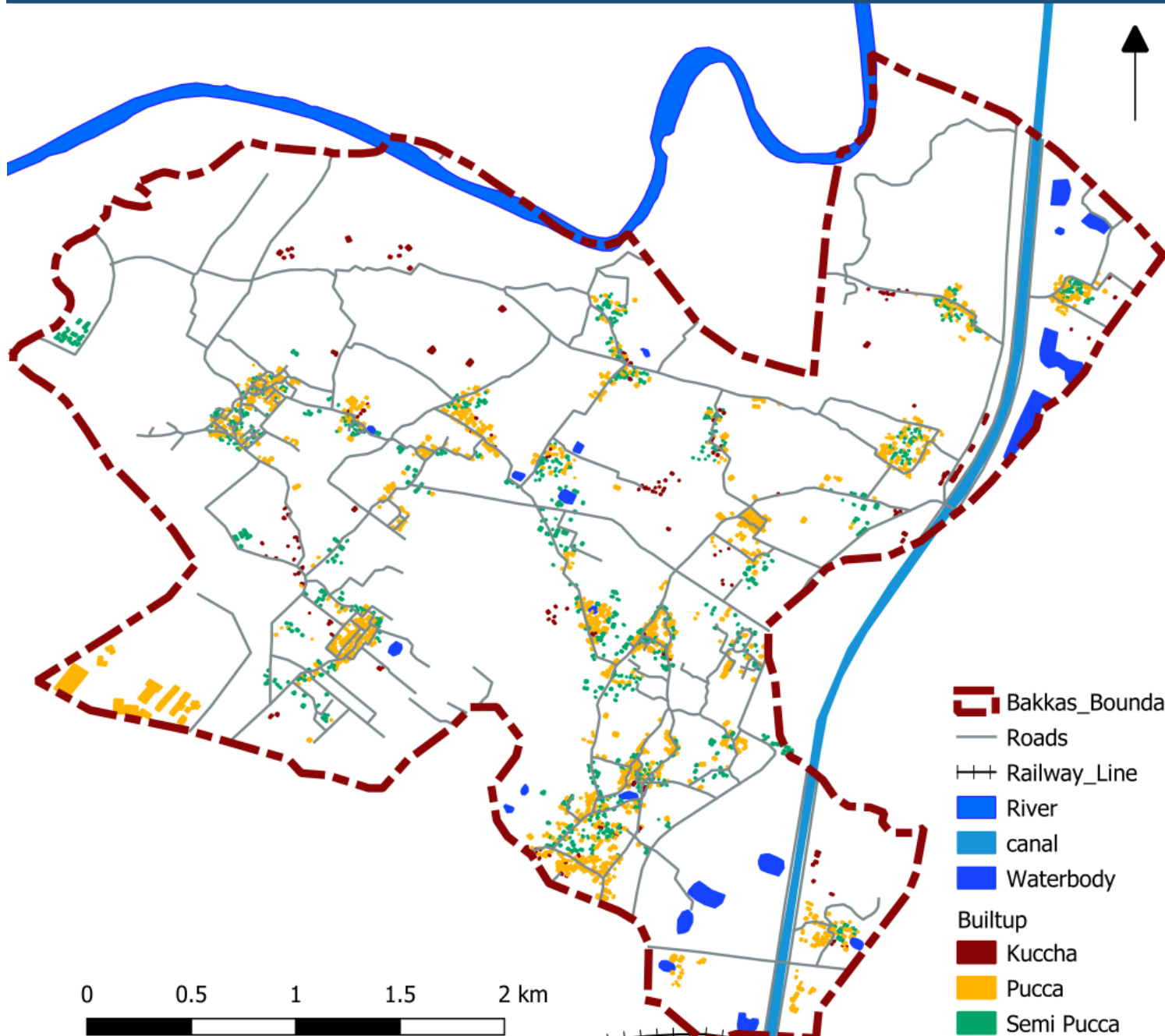
- Maximum share expend **more than 5000 i.e., 76%**



Ranking

Maximum expenditure is in order **Food**, **Education**, **Transport**, **Health**, **Leisure** and **Rent**

Housing Type in the Study Area



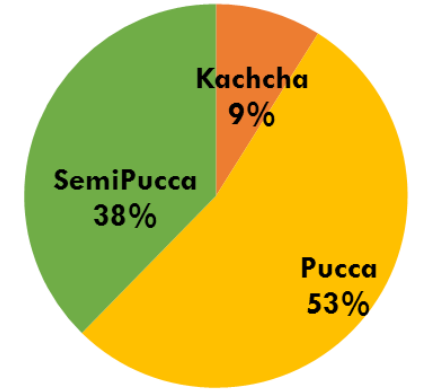
Kuccha Structure



Semi Pucca Structure



Pucca Structure



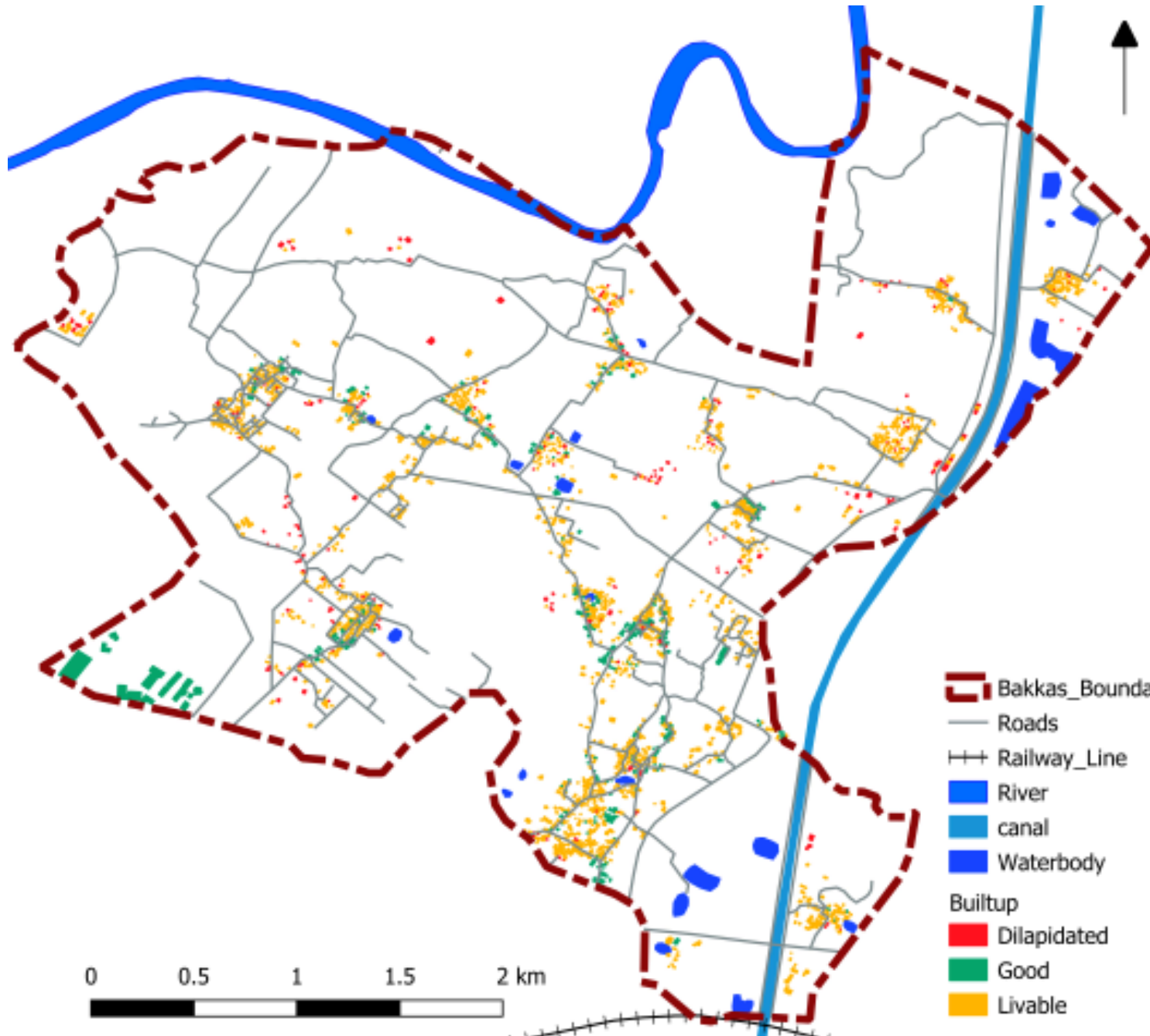
Inference:

53% of structure found to be Pucca structures depicting better living conditions.

Only 9% of HHs were Kuccha households mainly along the canal and far ends

The figure shows the housing structures in the study area.

Housing Condition in the Study Area



Dilapidated

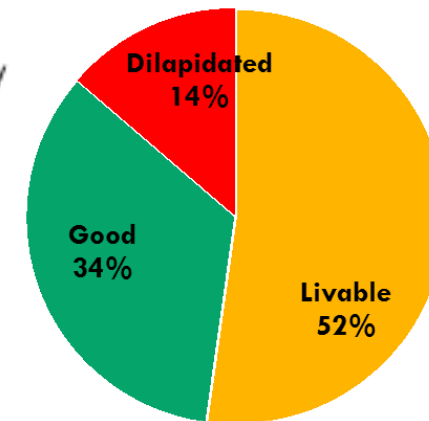


Good



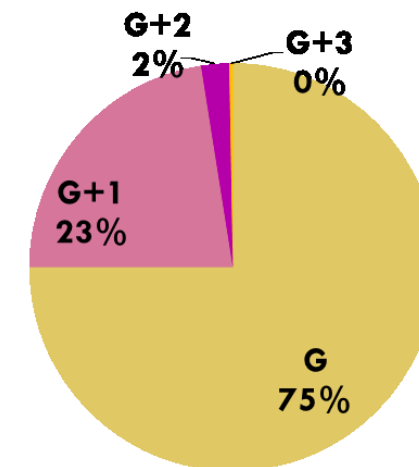
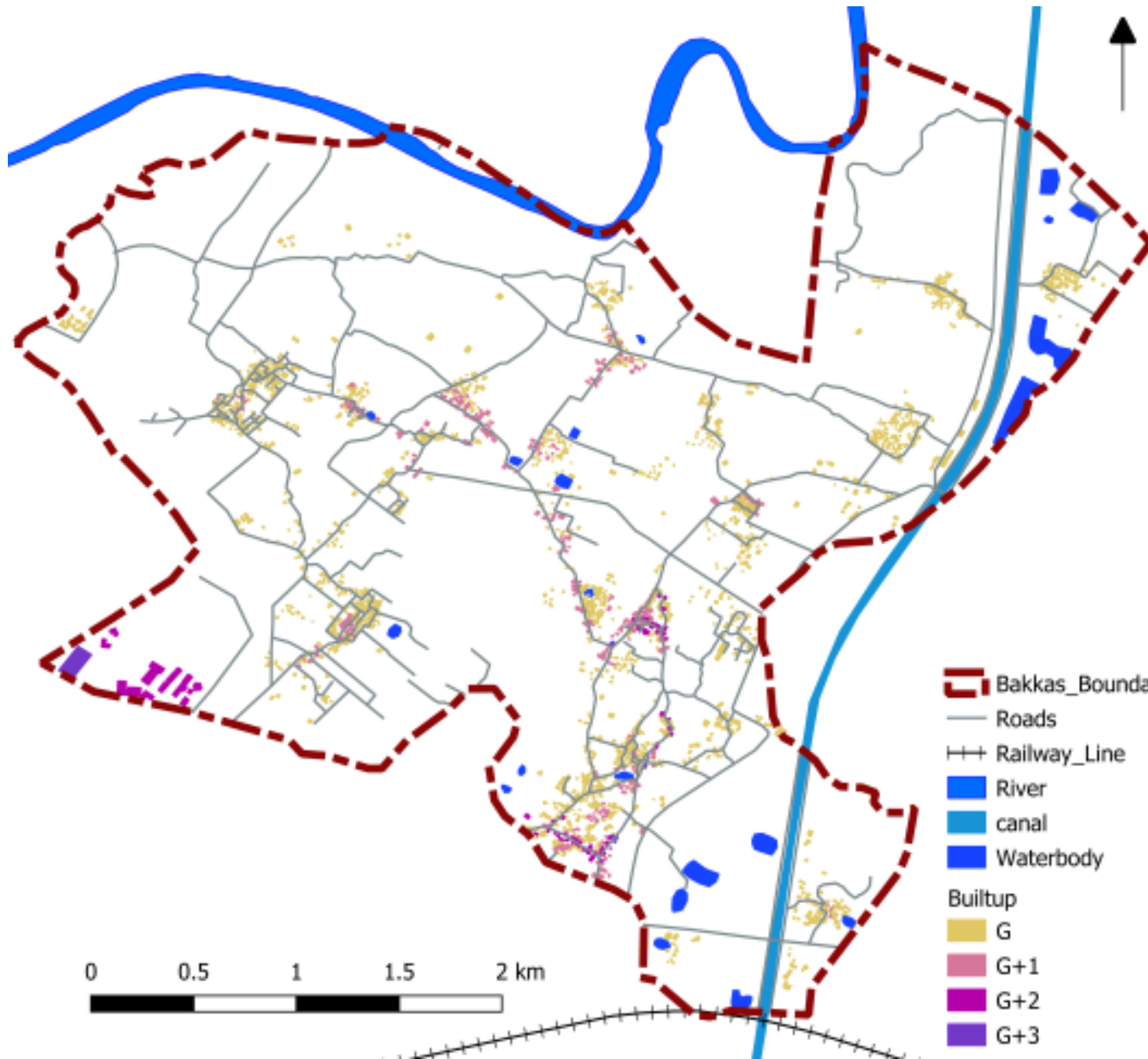
Livable

Inference:



52% of structure found to livable condition and 34% in quite a good condition newly built structures as well. Only **14% of HHs were under dilapidated conditions** lying around the river and canal areas.

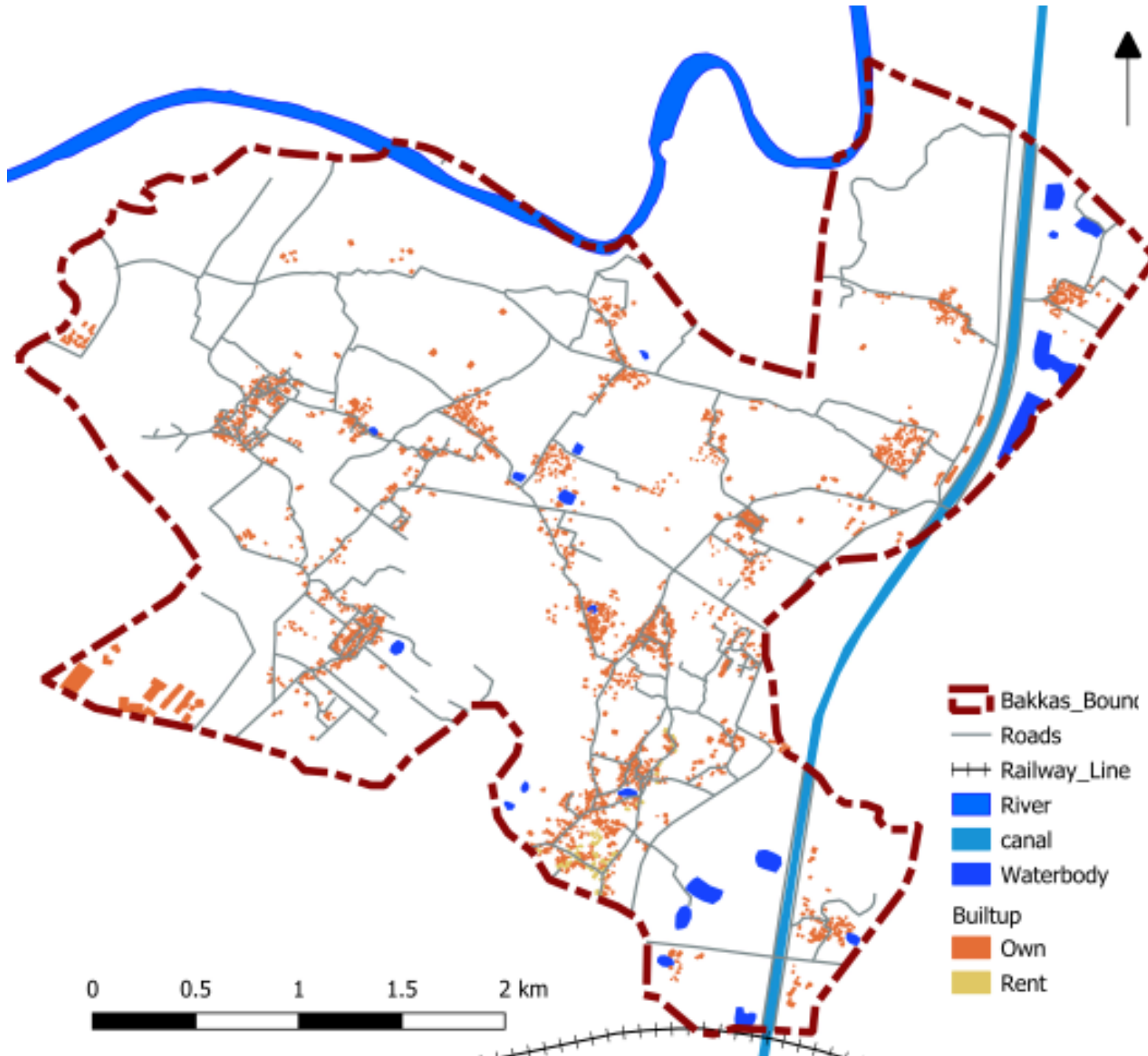
Building Height in the Study Area



Inference:

Major HHS were Ground or G+1 Structures. The newly constructed houses or buildings, commercial areas towards the highway were observed to be G+2/ G+3 structures

Building Ownership in the Study Area



HHs providing to let or rent facility

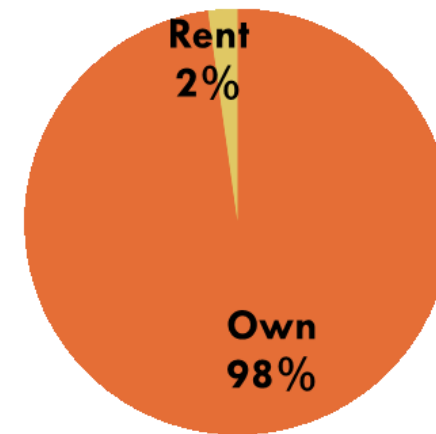


Own HHs

Inference:

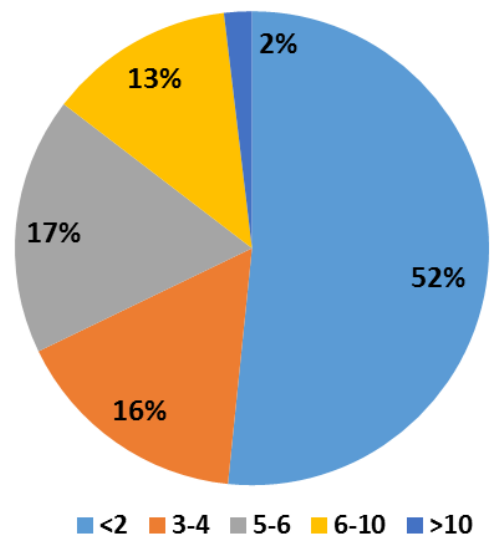
As observed previously **rent is the least ranked task under expenditure**. It shows that the majorly HHs are owned,

Due to new development few HHs have started with rent structures.



Other Socio Characteristics in the Study Area

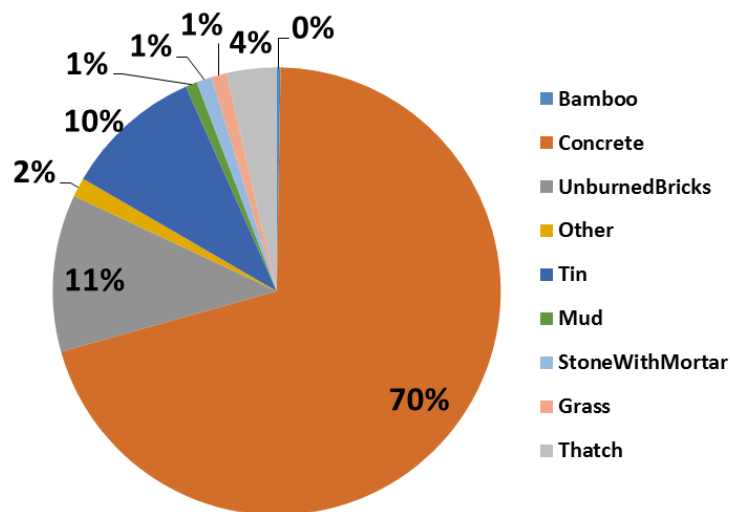
Household Size



The HHs size are 50-50 distributed b/w 2 and more people.

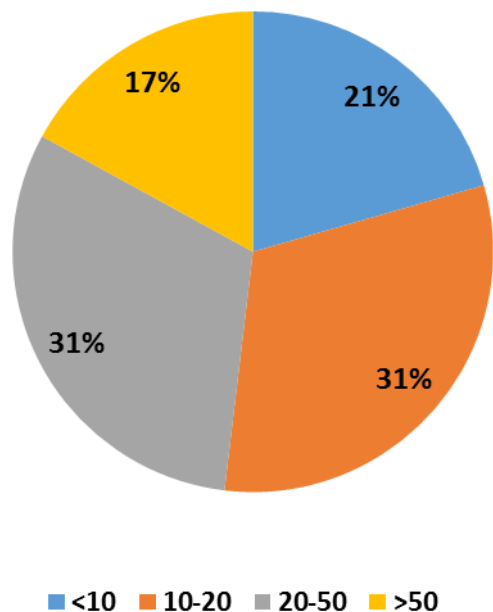
Average HH size was found to be 3.7 but based upon census 2011 it was 5.7 as stated.

Roof Material



As stated 86% of HHs were under good, livable conditions can be justified based upon their building materials as well as they are made up of concrete structures [70%]

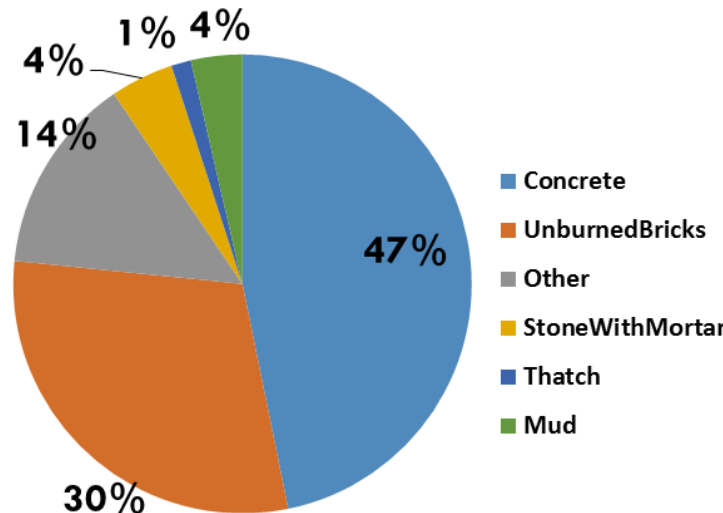
Building Age



Majorly structure are recently built i.e., 52%.

17% are more than 50 years of which few were found to be under dilapidated condition as well.

Wall Material

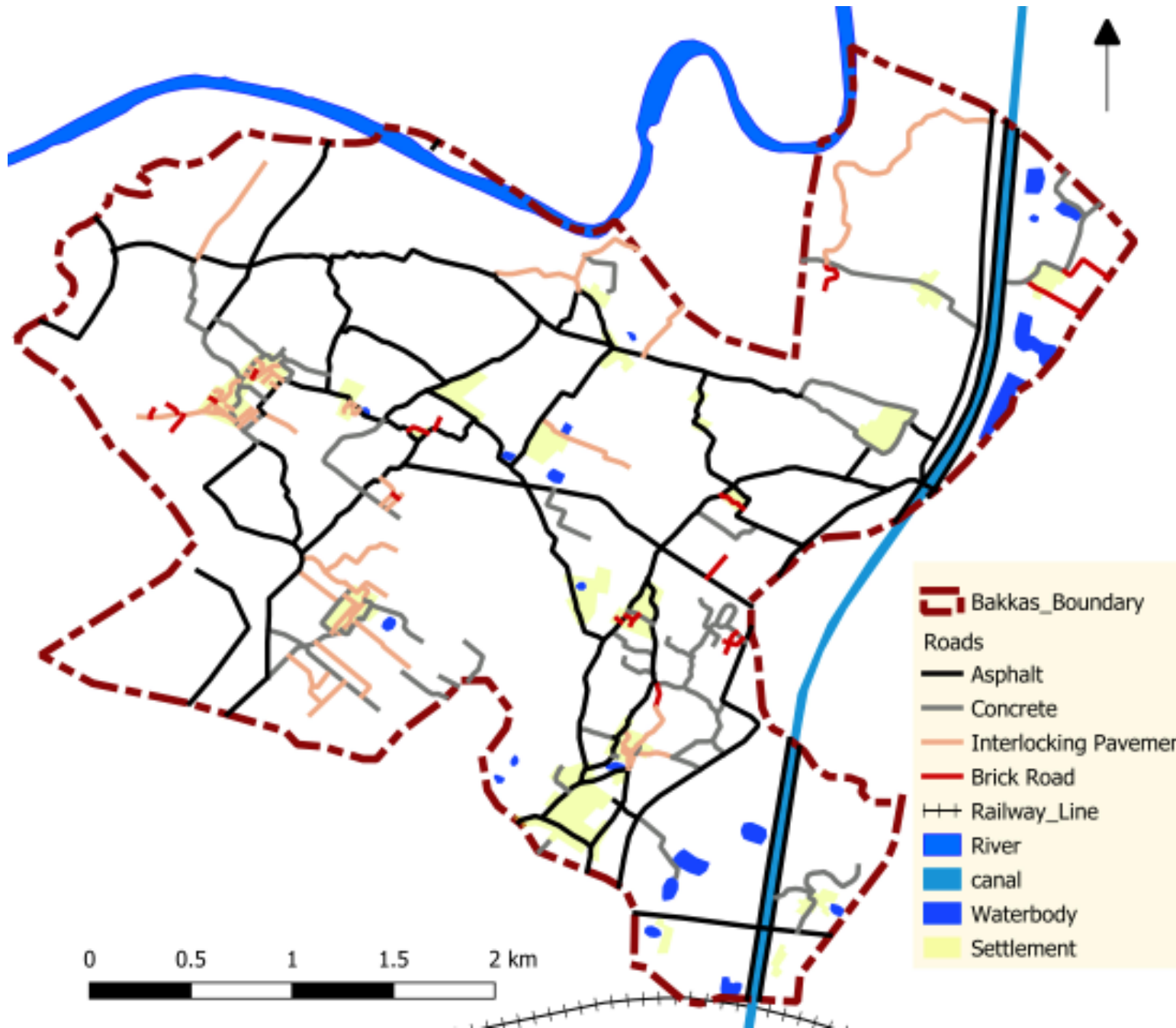


47% of HHs have concrete walls which make them more livable

Only 9% have structures with temporary shelter such as mud or thatch.

Physical Infrastructure

Road Network



Brick Roads

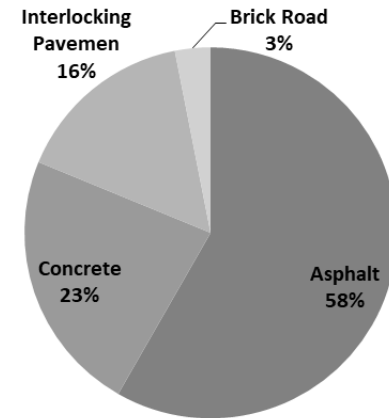


Concrete Roads



Interlocking Pavements

Total Road Network Length in the study area – 68kms

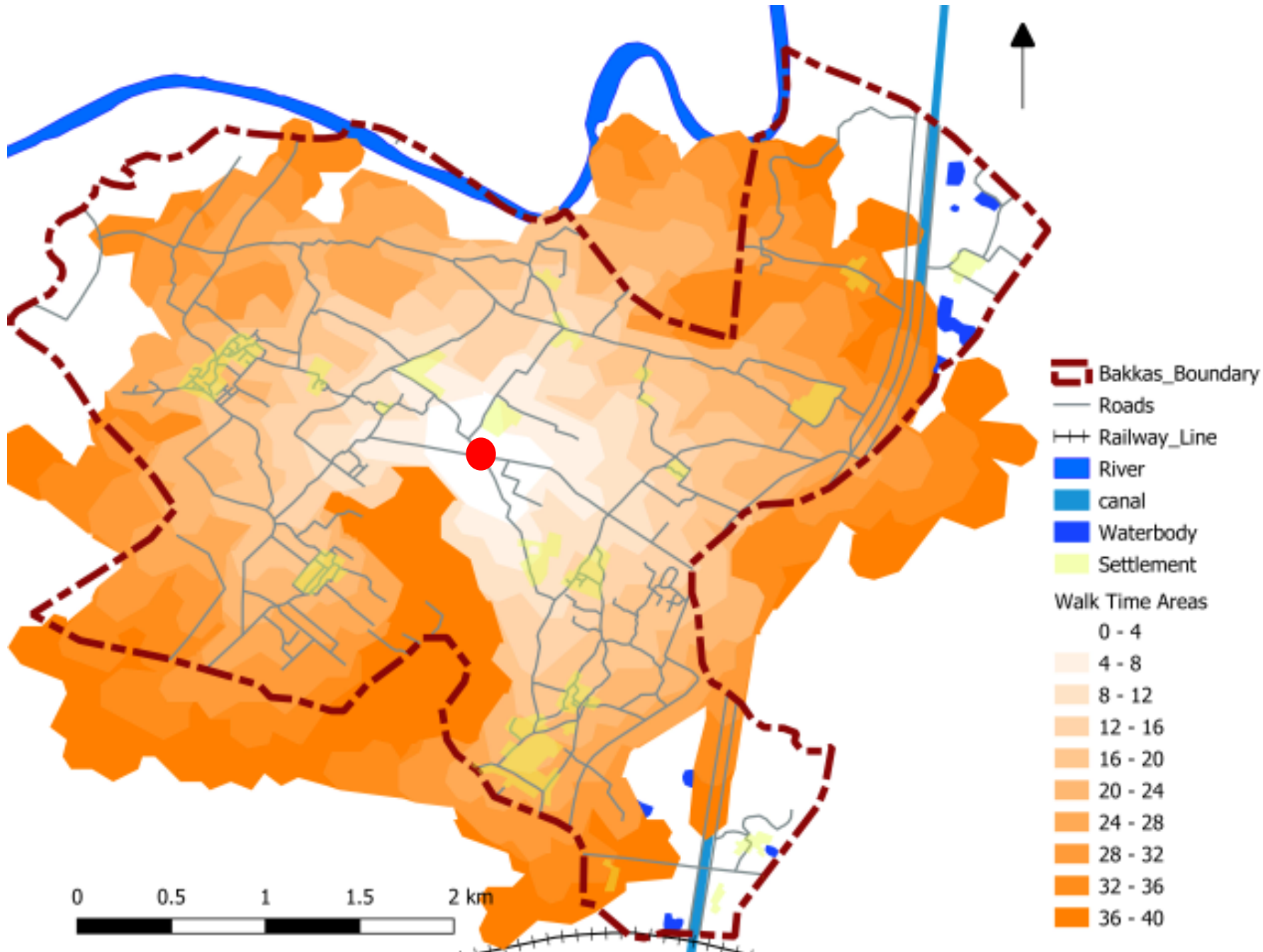


Inferences

No kuccha or mud roads were observed in the study area.

To support upcoming developments which are located along Gomti, road widening is a solution.

Walk Time Areas [Pedestrian]



Isochrones

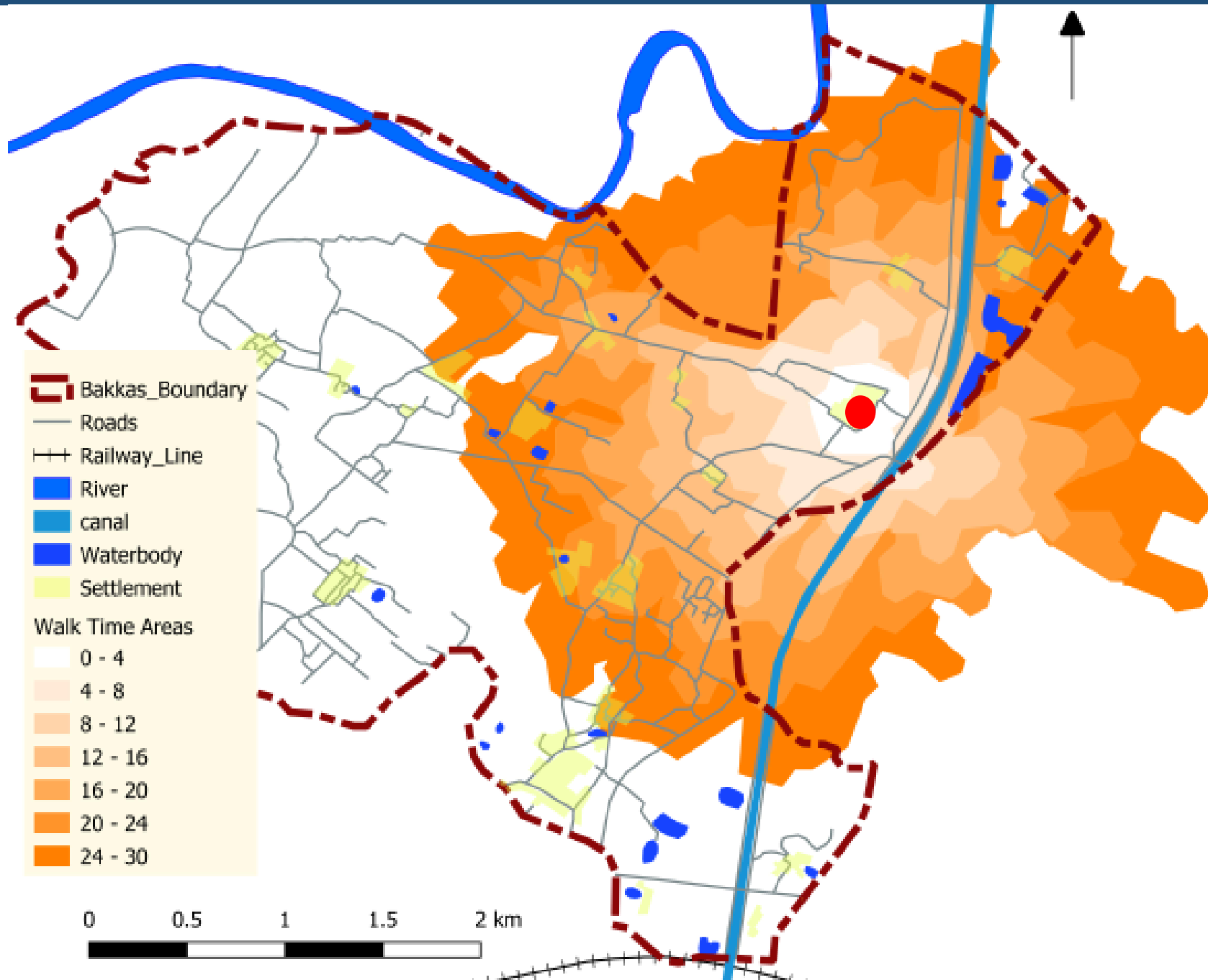
Walk Time Areas or also Stated as Isochrones helps to identify which of the areas are within the walkable distances or driving distances in a given time period from an identified point.

The Walk Time areas and Drive time areas both have been found out for the study area from two locations.

- The center of the settlement
- The Bakkas Settlement along the canal.

Walk time areas have been found on a regular Interval of 4 minutes whereas driving areas are found at a regular interval of 5 minutes

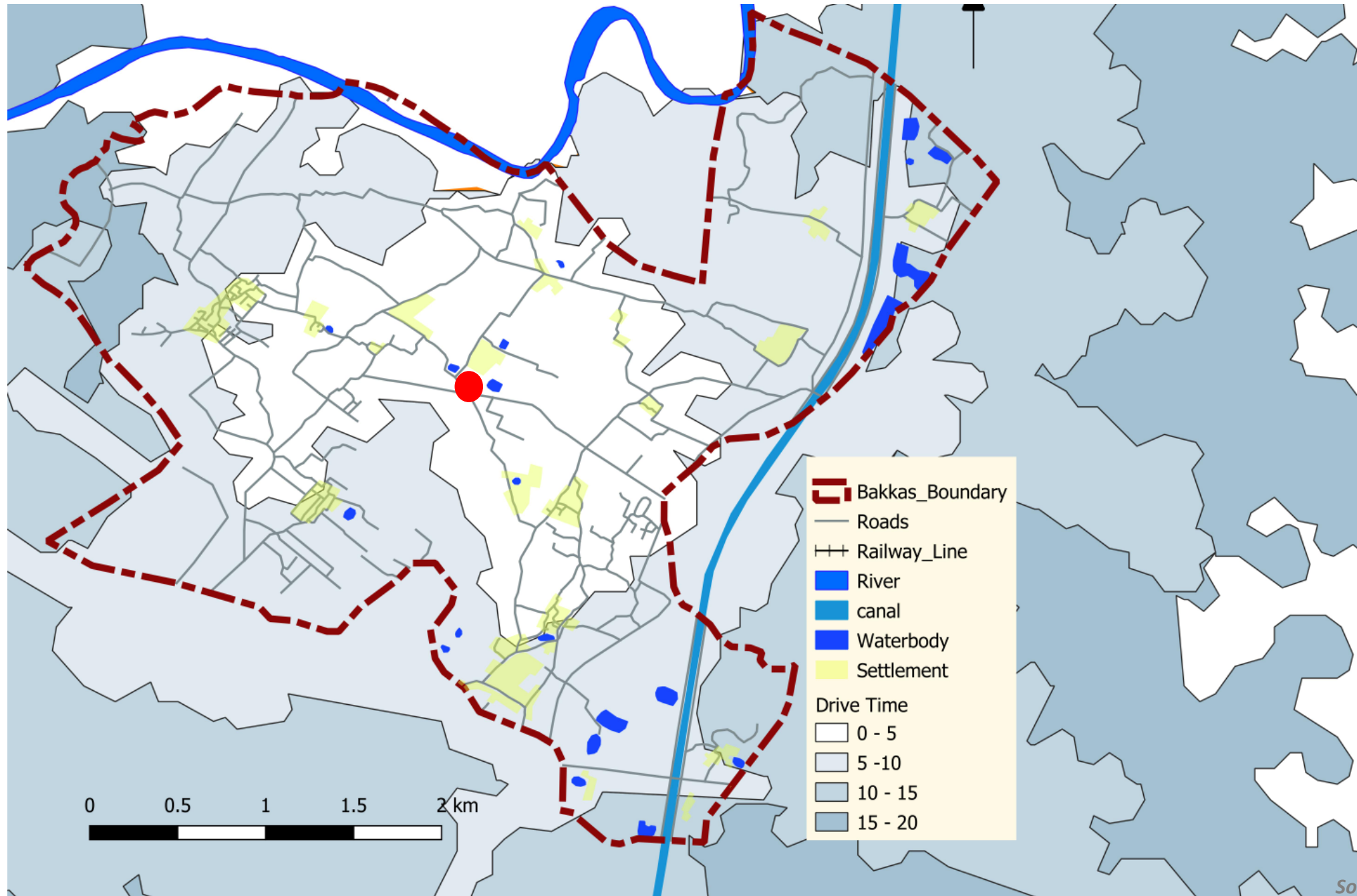
Walk Time Areas [Pedestrian]



Inference:

- It was observed that the **highway is not at all at a walkable distance and takes more than or around 40 minutes to come to a point of obtaining any mode of commuting apart from private means.**
- It signifies the reason for being the **third largest part in the expenditure ranking for transportation.**
- It **highlights the need for public transport or shared rickshaws** within the study area.

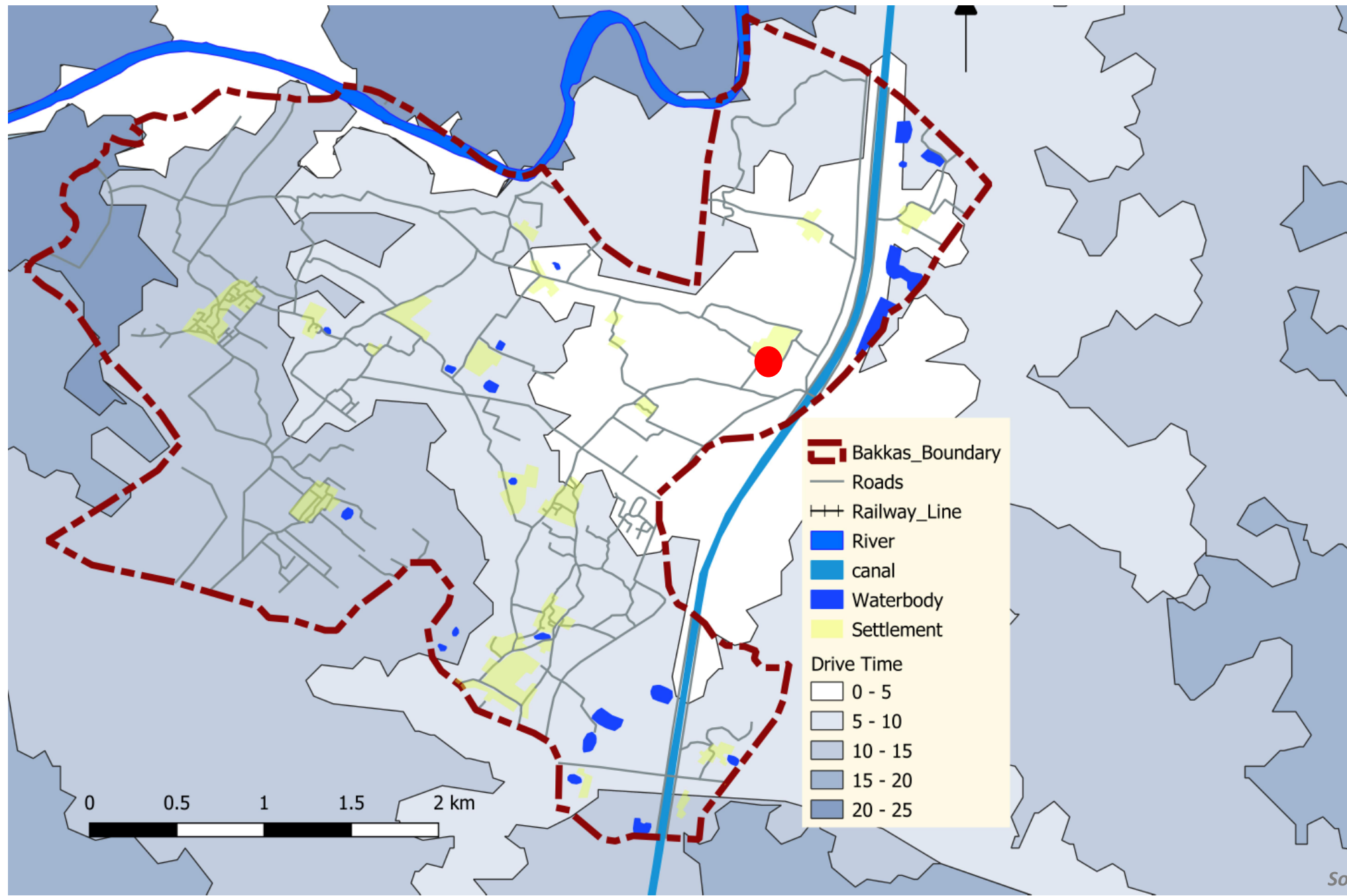
Drive Time Areas [Vehicles]



Inference:

- It was observed that even the **driving timing to reach a highway from center is >10 minutes.**
- Need for better road infrastructure is considered as a need for current scenario to support upcoming developments

Drive Time Areas [Vehicles]

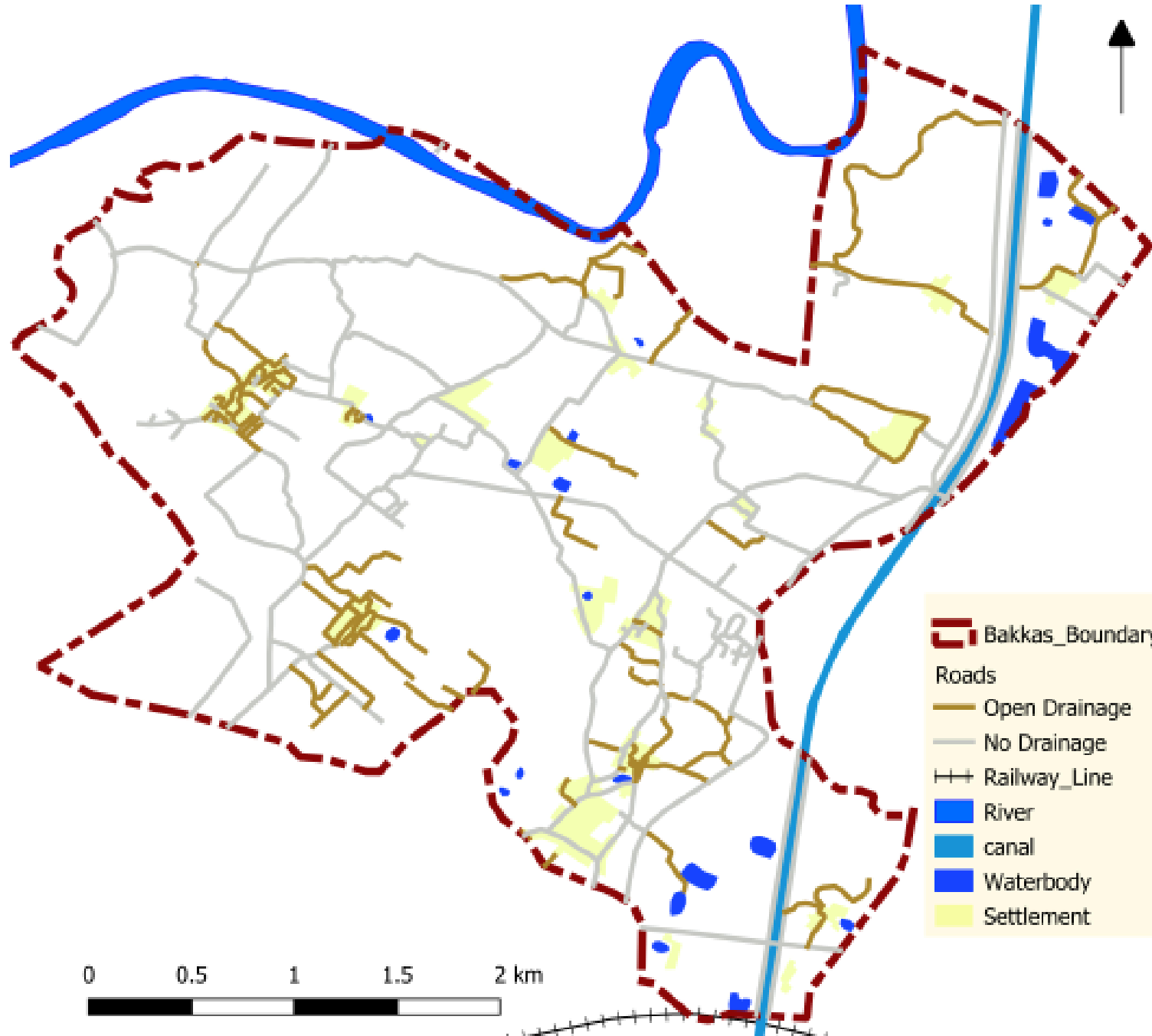


Inference:

- It was observed that from canal side area as well the **driving timing to reach a highway is >10 minutes.**
- Need for better road infrastructure is considered as a need for current scenario to support upcoming developments

Note: The drive time areas have been found taking into consideration the rural driving time i.e., single lane undivided roads with less chances of overtaking etc.

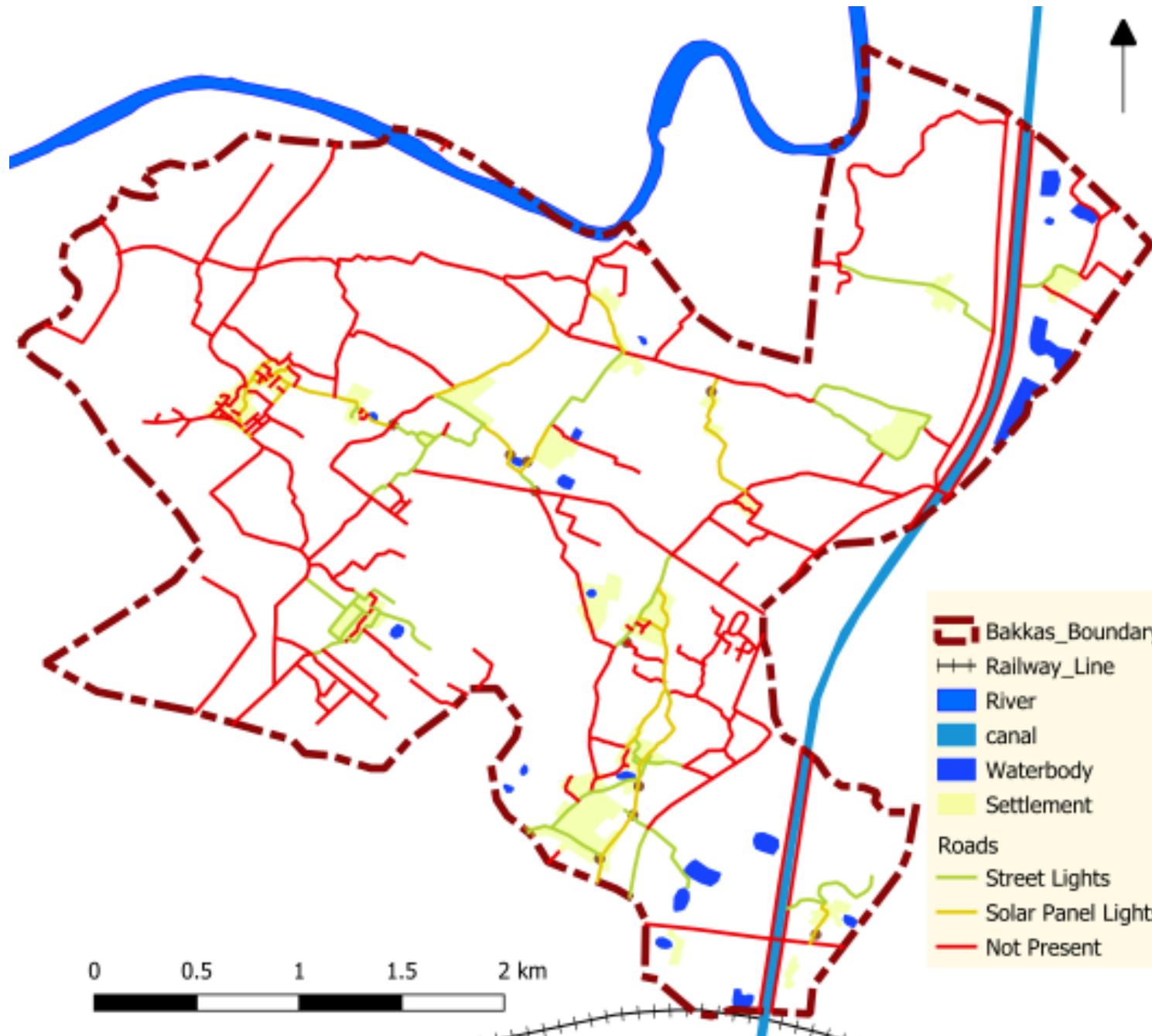
Road Network with Drainage Channels



Inferences

- **30% of the streets within the abadi area have open drainage** as shown in images above.
- **All Abadi areas [90%] had open drains** which shows a better living conditions i.e., along concrete and Interlocking pavement areas.
- **Closed drainage could not be spotted.**

Road Network with Street Lights



Street Light

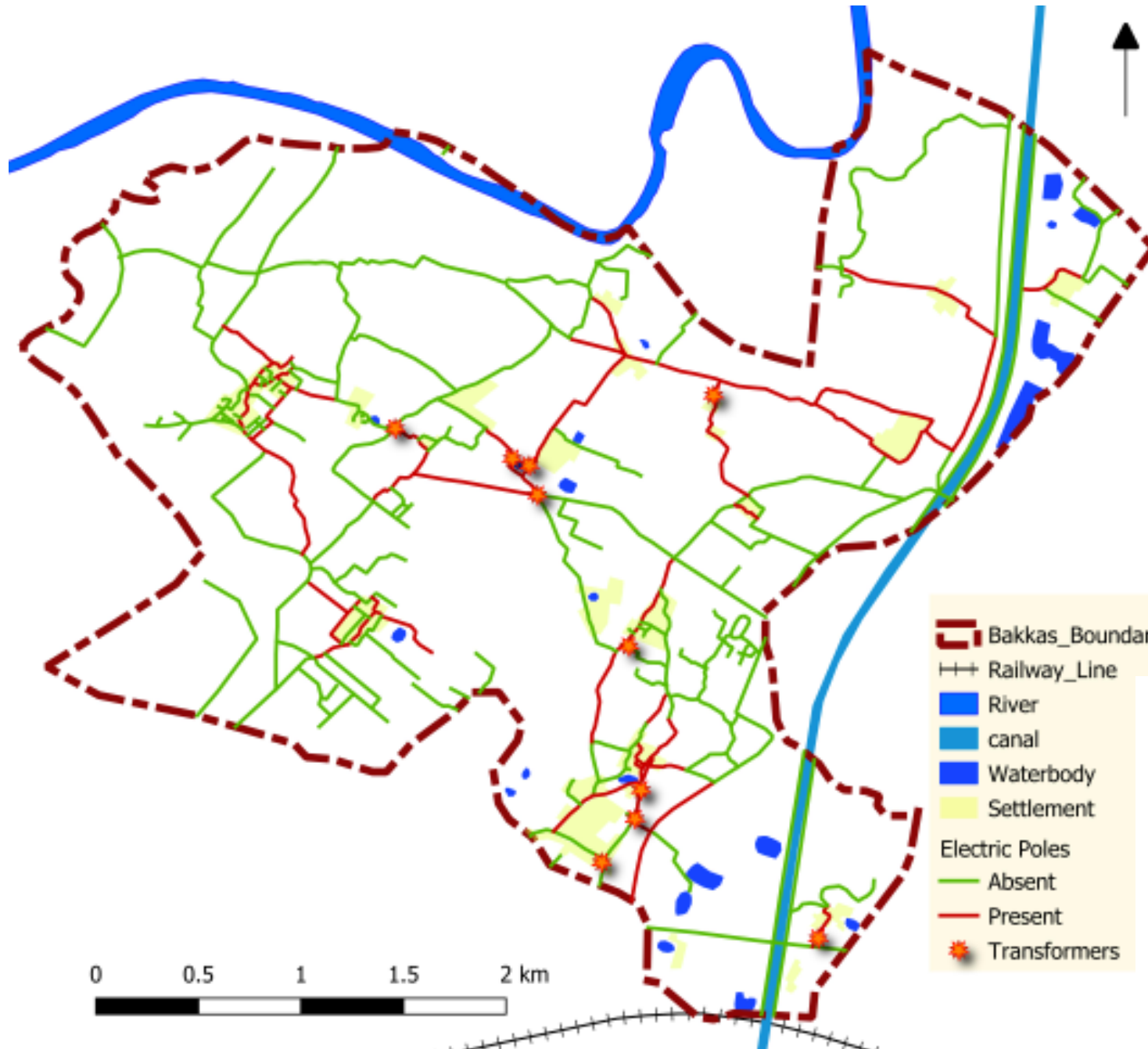


Solar Light

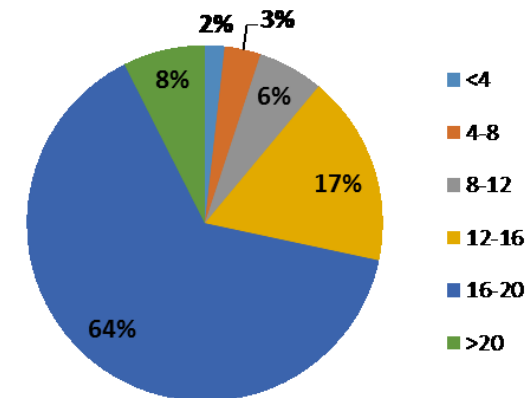
Inferences

- Under Deen Dayal Upadhyaya Gram Jyoti Yojana , majorly around **all Abadi areas street lights have been planted.**
- **42% of them were not in working conditions,** when queried with the residents.
- **Few corridors have also been observed with solar light panels** showing a move towards sustainability
- The **connecting roads between two settlements lacks any street light** leading towards unsafe streets.

Electrification

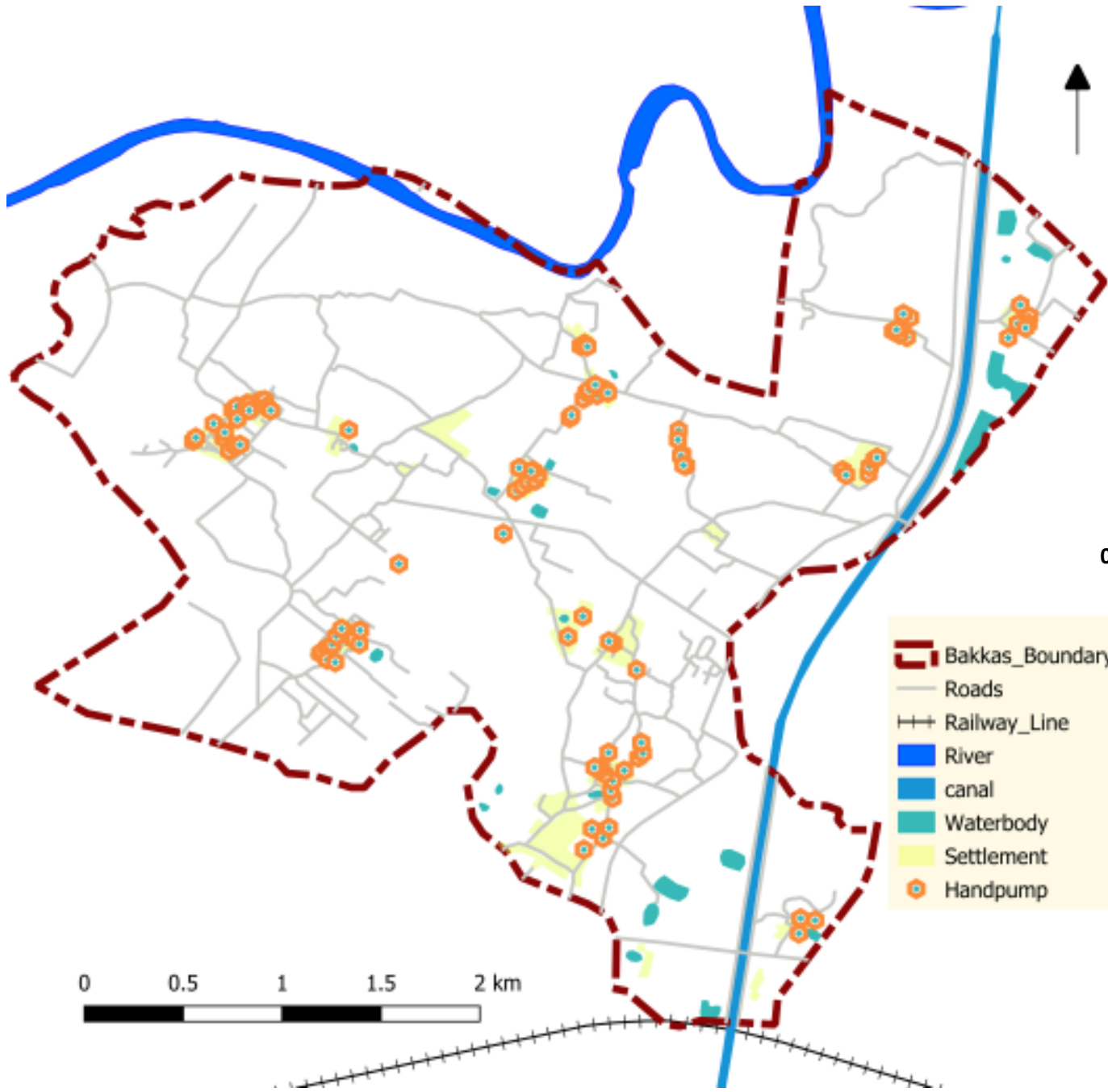


- **All Abadi areas have electrification.** Electric Poles and Transformers could be observed all around the study area.
- Majorly electricity is used for residential and irrigation purposes.
- **No electricity issues such as long power cuts etc.** were observed in the study area



- **72% of HHs had more than 16 hours of electricity**
- Around 10% have electrification issues

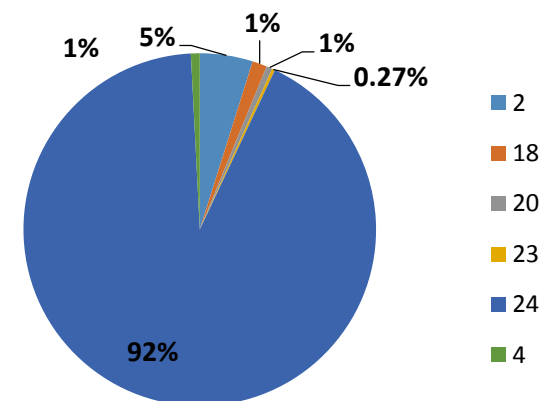
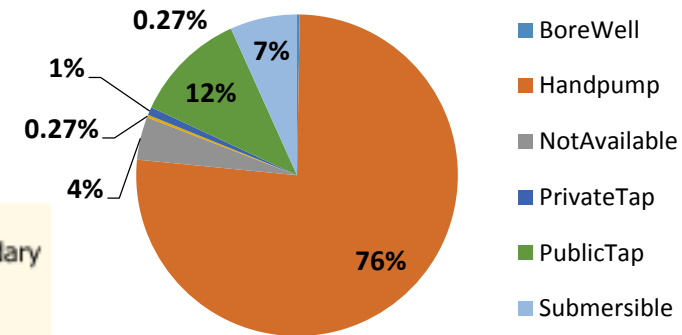
Water Related Infrastructure



Pond in study area



Hand pump outside HHs



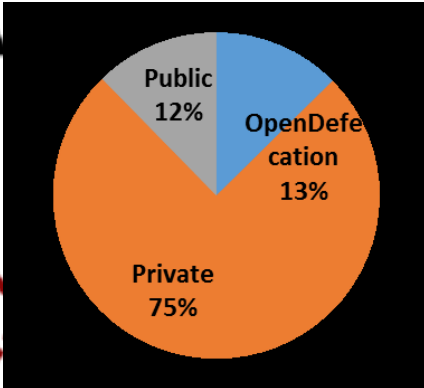
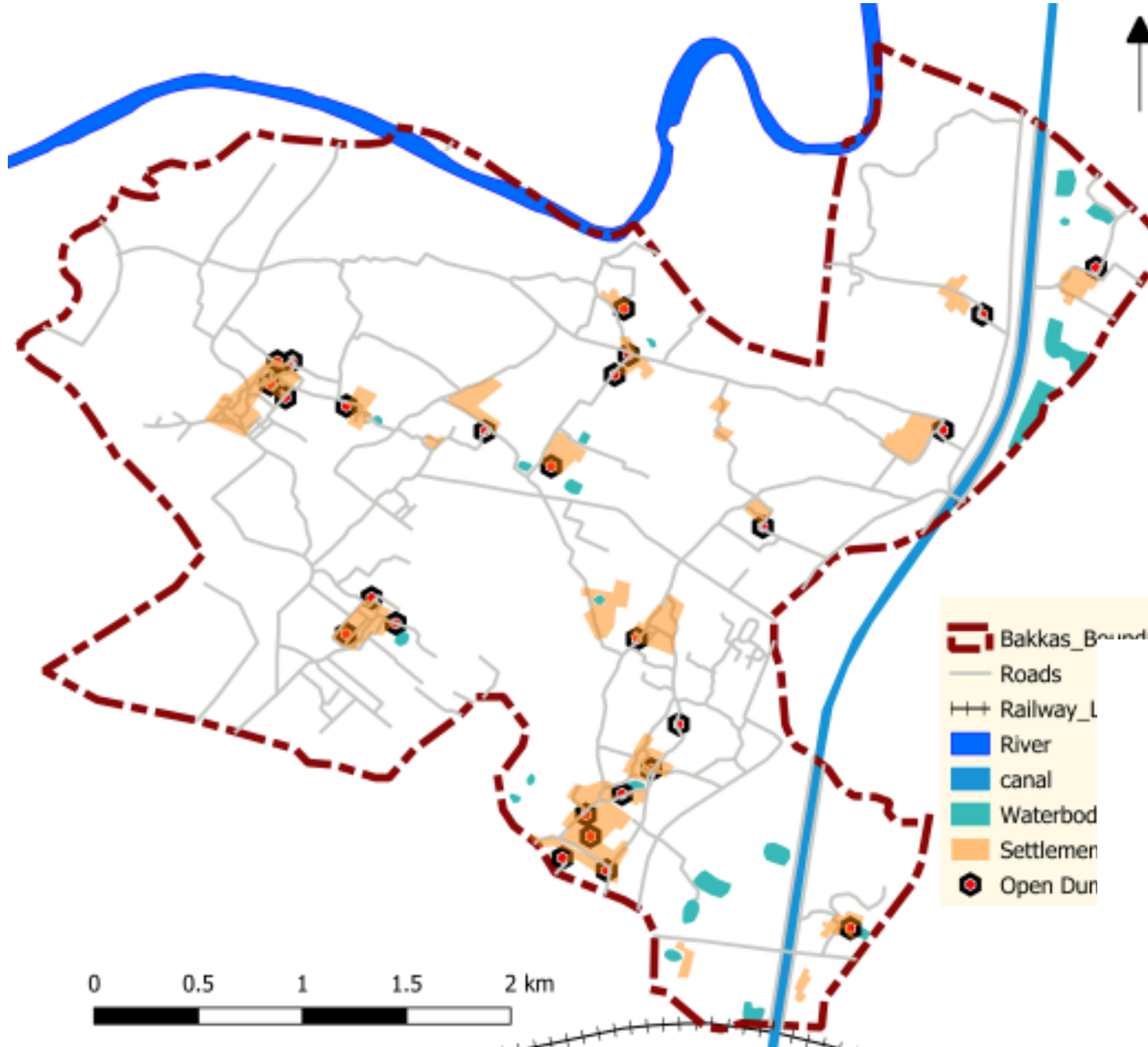
- 83% of HHs have their own means for drinkable water via bore well/ hand pumps with 24 hours of water supply facility [92%].

- There was **no OHT observed in the study area**

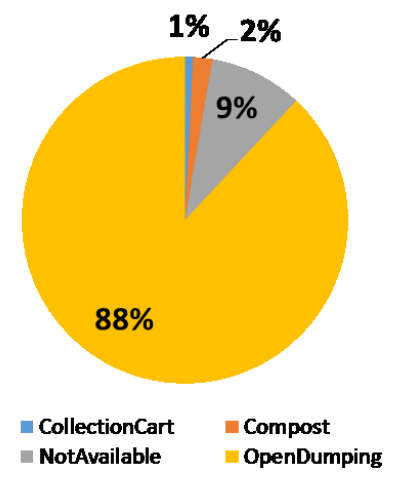
- Municipal water lines were not present** as it lies outside planning area

Source: Primary Survey, Mapping

Sewerage and Solid Waste Dumping Locations



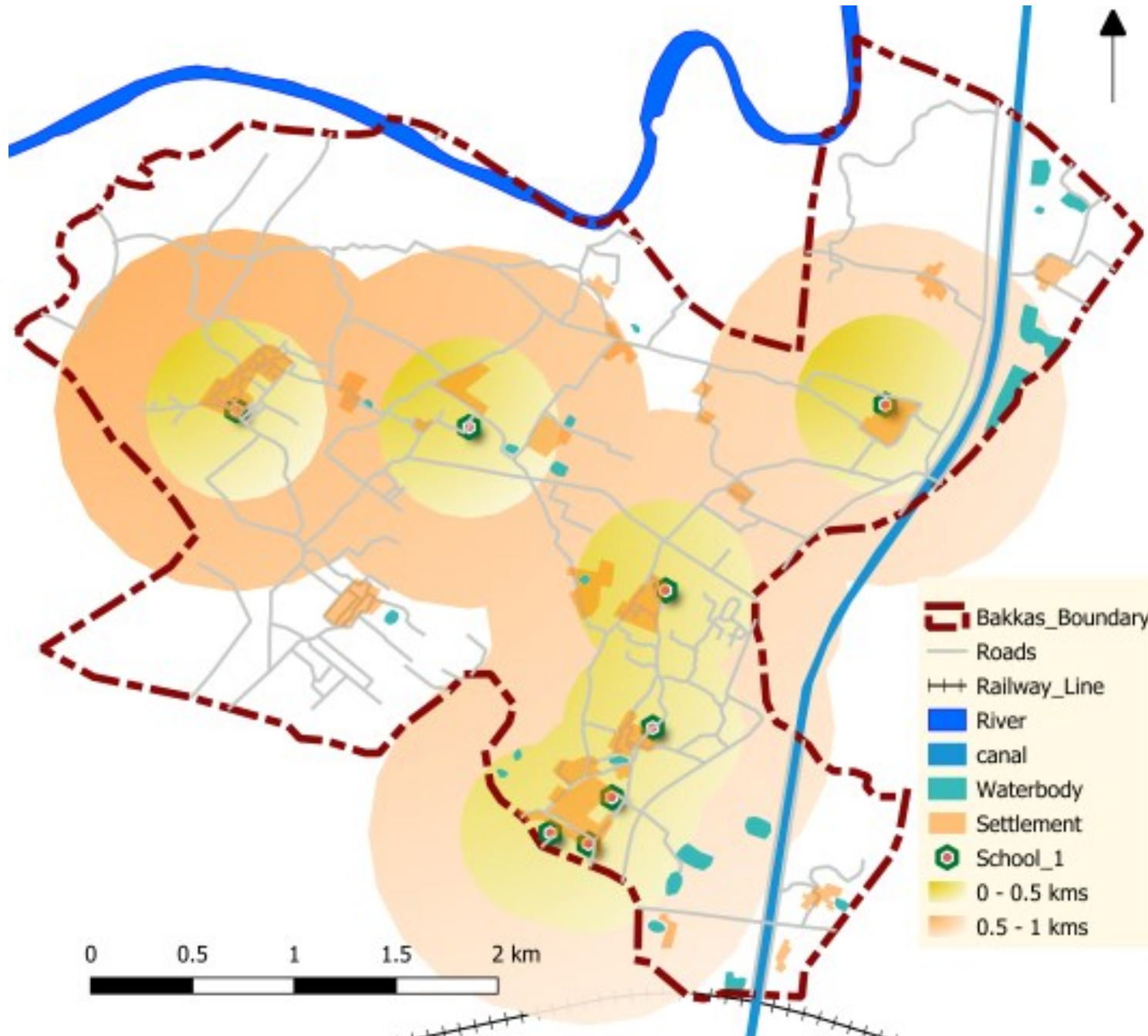
- **75% HHs have toilets within 13% practice open defecation.**
- **37% were built under scheme rest by self.**



- There are **no organized means of collection of waste.**
- **88% of HHs go for open dumping**
- The map shows the identified areas for open dumping found on the site.

Social Infrastructure

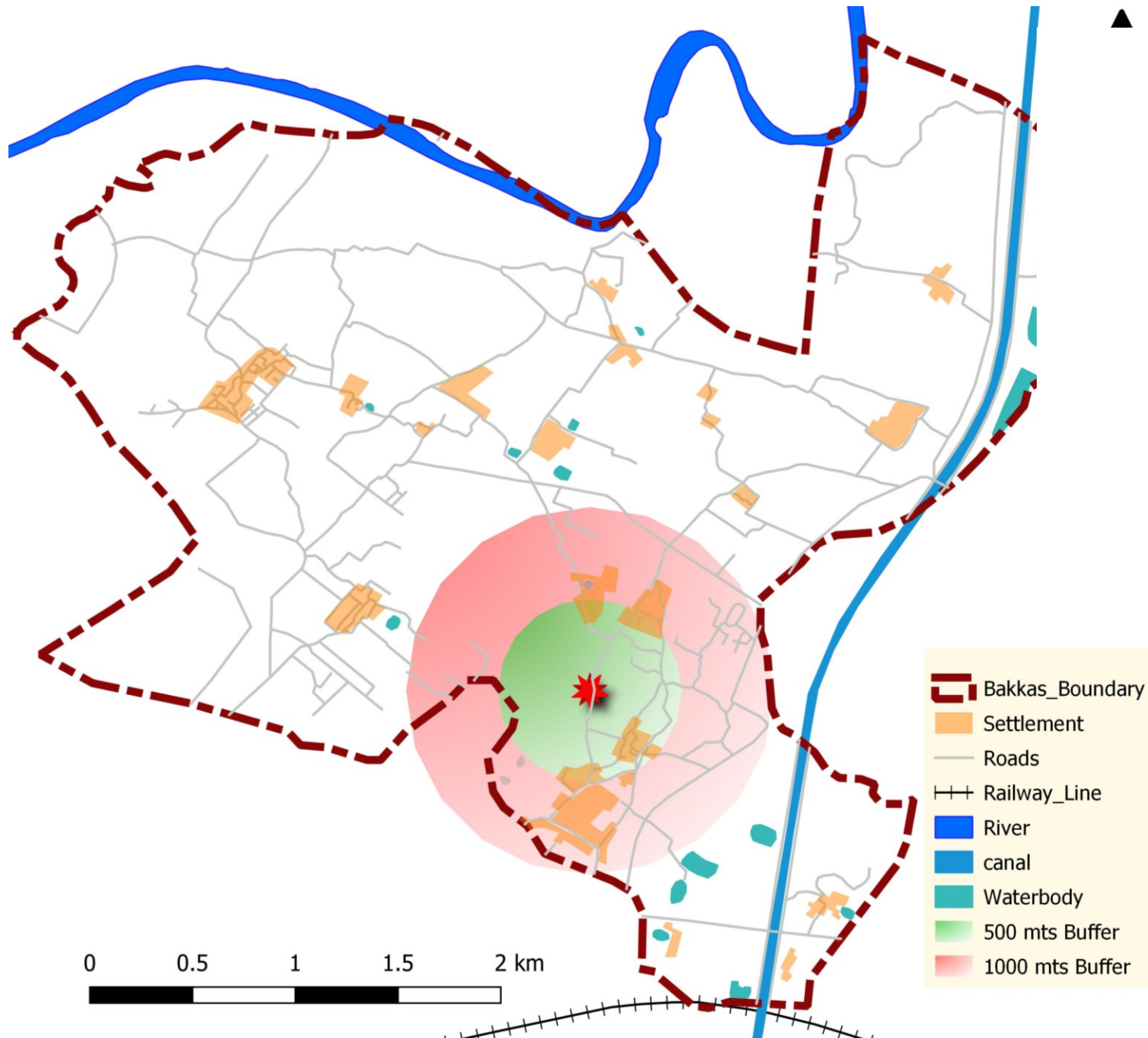
Location and Accessibility of Educational Institutions



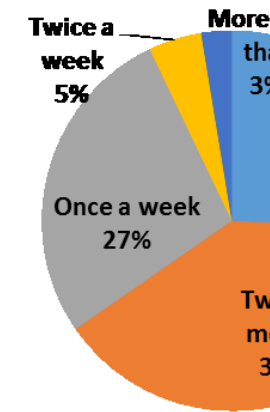
Condition of Schools in the Study Area

- There are **4 primary schools and 2 middle primary schools** observed in the study area.
- **2 private schools** were also found in the study area.
- The **condition of schools in the study area seems to be in a desirable manner with the basic necessities** of toilets, water taps, and paved tiles
- The map shows the **accessibility of schools from the settlement area and it is observed they are within the range of 500 – 1000mts** as desired
- The study area has **no means of further education**. Nearest Senior Secondary School is located in Ahmamau [$>5\text{kms}$] and college is in Lucknow [$>10\text{kms}$]

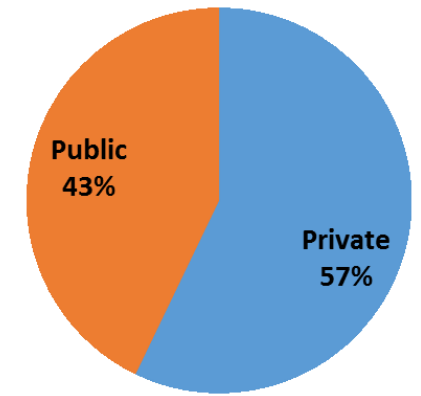
Location and Accessibility of Health Infrastructure



Frequency of Visit

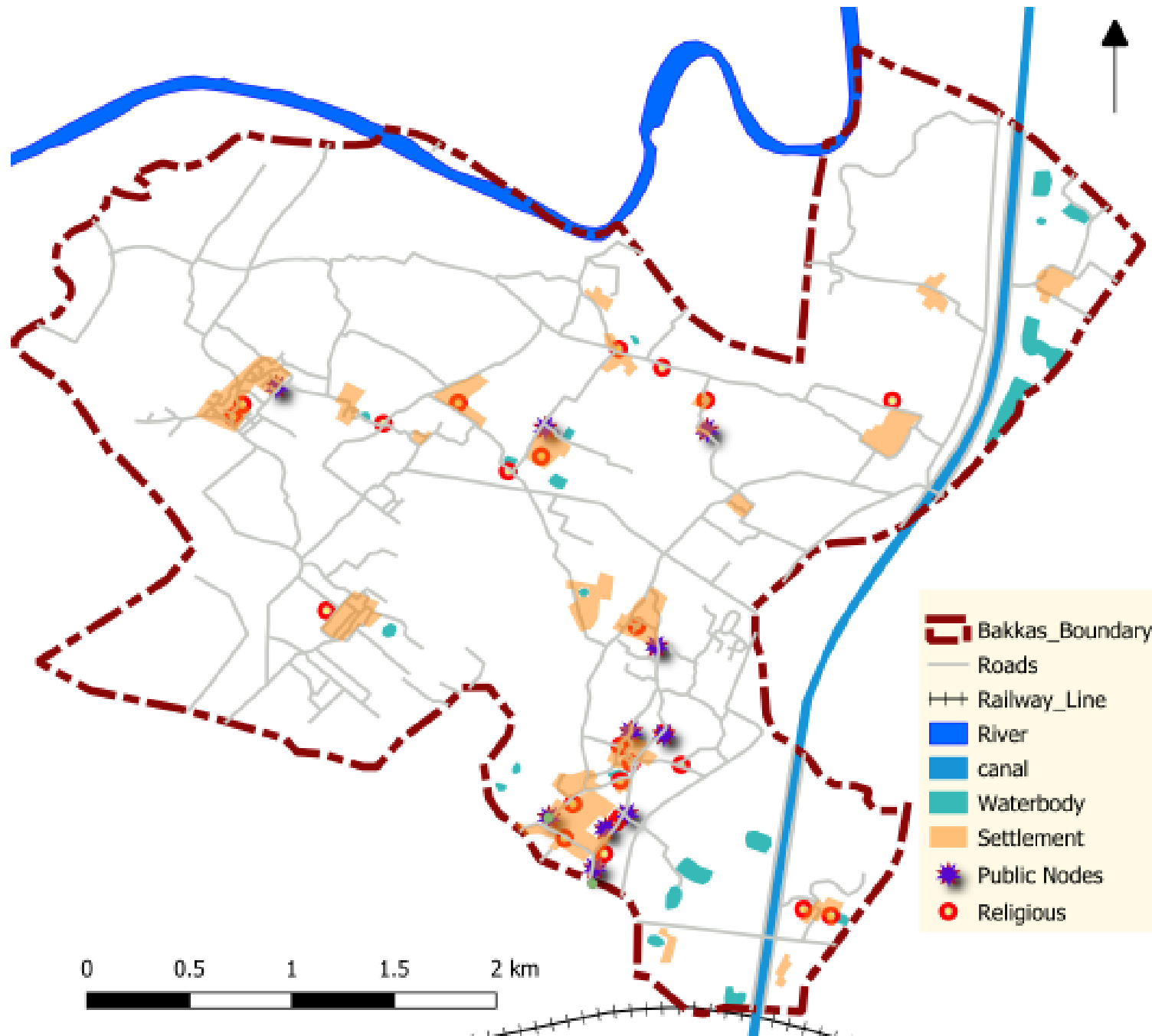


Mode of Transport



- **Health is the 4th most part for expenditure** and due to any proper facility of Health as well as commuting people generally take private modes.
- Based upon survey it was found that **35% of persons need to visit more than or once a week health facility.**
- There **is only 1 CHC in the study area.** The facilities provision are not adequate to the need of the study area. The location of CHC is also not accessible from all settlement areas as shown in map.
- **Few dispensary** were observed near the highway road.

Other Social Infrastructure



Religious Place



Panchayat Bhawan



Public Nodes



Community Hall



Ghat Area

The area has sufficient amount of Religious places. **Lacks Health Facilities**



Temple Complex

Poor Maintenance of few places such as ghat area etc. leads to loss of aesthetics

Summary of the findings

Economic Activities



Major Crops

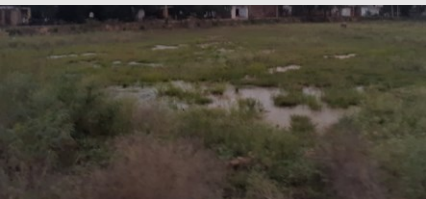
Wheat, Paddy and Vegetables

Net Sown Area – 249.57 Hectares [2011] has decreased [exact not known]

- Agriculture lands have received NA permissions and major population have sold off their Agricultural lands.
- **75%** of the male working force is dependent upon Non Agricultural Activities.

Physical Infrastructure

- **Roads and Drainage:** Abadi area **have concrete roads and open drainage.**
- **Electrification and Street Lights:** **72-80%** of HHs receive more than 16 hours of electricity and all Major streets within the Abadi area are covered with street lights and Solar lights
- **Water Supply:** **No municipal supply** or OHT is observed. People are dependent upon hand pumps and Bore well.
- **Solid Waste Management:** **No collection carts or organized means of waste collection present.** Open dumping is practiced at large scale thereby ruining the aesthetics.



Housing Conditions

- **53%** of structures are Pucca buildings
- **86%** of the spaces are in good and livable conditions
- **98%** of the structure are owned.
- Majorly Structures are single storey and ground structures
- **Range of residential projects are upcoming** which may change the percentage of own/ rented and building heights in future.



Commercial Spaces

No designated commercial spaces/ Market Area/ Weekly Haat/ Storage areas present.

Social Infrastructure

- Education Facilities are present up to senior secondary and in good condition but not above that.
- **Lacks adequate health facility.**
- Community Halls, Crematorium Grounds, Panchayat Bhawan present **less than the required norms.**
- **No organized recreational/ park spaces** present within the Abadi or settlement area.
- Temples are more than adequate but the **maintenance is in poor condition** especially of few attractions such as Shekhna ghat, Old Temple complex which might add aesthetic value to the study area.

Major Issues and Potentials

STRENGTH

- **Located next to National Highway 731.** Thus, wide scope for Real Estate Development.
- Being **adjacent to institutional area** increases the job opportunity for the service sector.
- Verge on being **declared as census town** as well as being in the planning area boundary, thereby increasing means of development.
- Proper **accessible roads present** to all Abadi areas [Road widening needed based upon RADPFI Norms]

OPPORTUNITY

- Gomti River can be **potential sources of water supply** with proper treatment plant.
- **Ring Road proposed** to pass along the Indira canal providing dual accessibility
- **Scope of small and medium scale industries** to reserve the spaces
- Adequate **space for big commercial or expo canters** due to its accessibility through major trunk roads and being on the outskirts.

THREAT

- **Flood possibility at time of heavy rainfall**, thus proper containment walls and channels to be prepared along gomti.
- Restrict dense development on the northern parts
- **Lack of proper public transport** facility increases the dependency upon private transport.

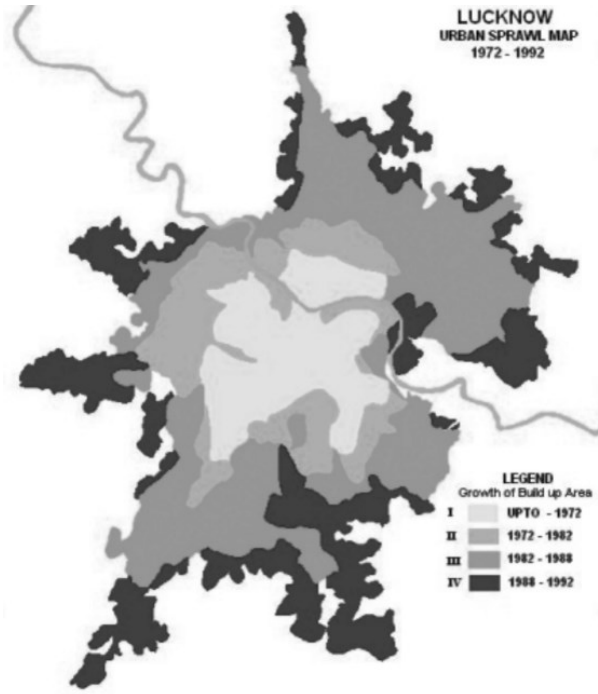
WEAKNESS

- **Being under Rural the area is primarily dependent on Service Sector** and laborers. Only 2% of the HHs are dependent upon agricultural activities.
- **Lack proper amenities to support agriculture** produce such as godowns, Weekly Haats etc.
- Gomti River, Canal and Wetlands **limits its boundaries of growth** in the Northern, eastern and Western Ends
- Being adjacent to the institutional area and small industries such as dairy plants etc., but **don't have proper infrastructural facilities** such as treatment plants and public transport etc
- **Lacks Proper Closed Drainage and Sewerage facilities** leading to waterlogged Areas
- **Poor Maintenance of Cultural Spaces.**
- **Lacks proper gathering spaces** and organized green spaces
- **Lacks Public Transport** to access the main highway.
- **Lacks Proper Health Infrastructure Facility**

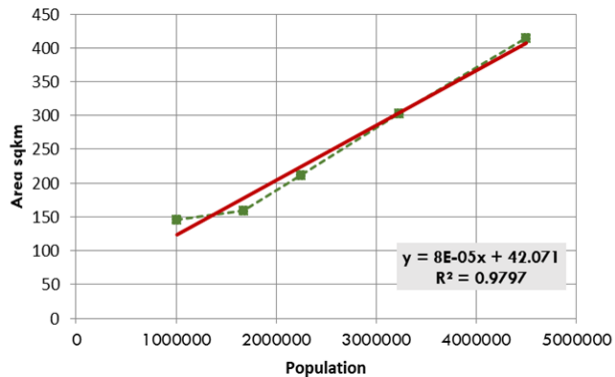
Proposal for Gram Panchayat

Regional Linkages and Upcoming Potential Developments

Growth of Lucknow over the years

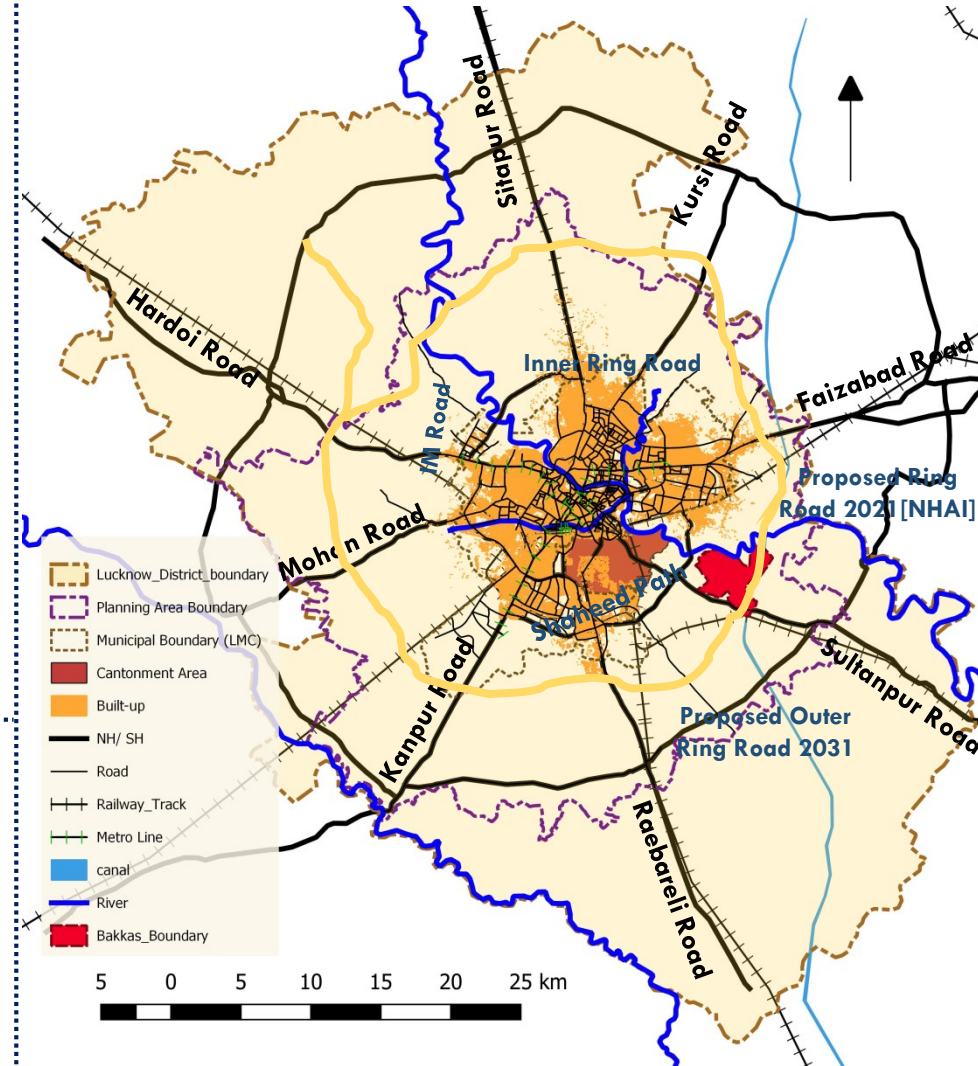


Area vs. Population



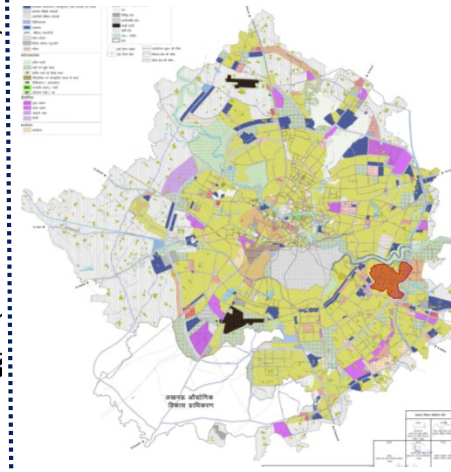
Strong Relation b/w Population and Area [R= 0.98]. Thus, Planning area tends to increase in near future

Regional Linkage with Lucknow



- The Planning area increased to 1050sqkm. [As per Proposed Master Plan 2031]
- Population increase close to 60 lakhs.
- Bakkas currently in close vicinity included within the planning area. Parts of the Periurban area with development to be pacing soon

Master Plan 2031



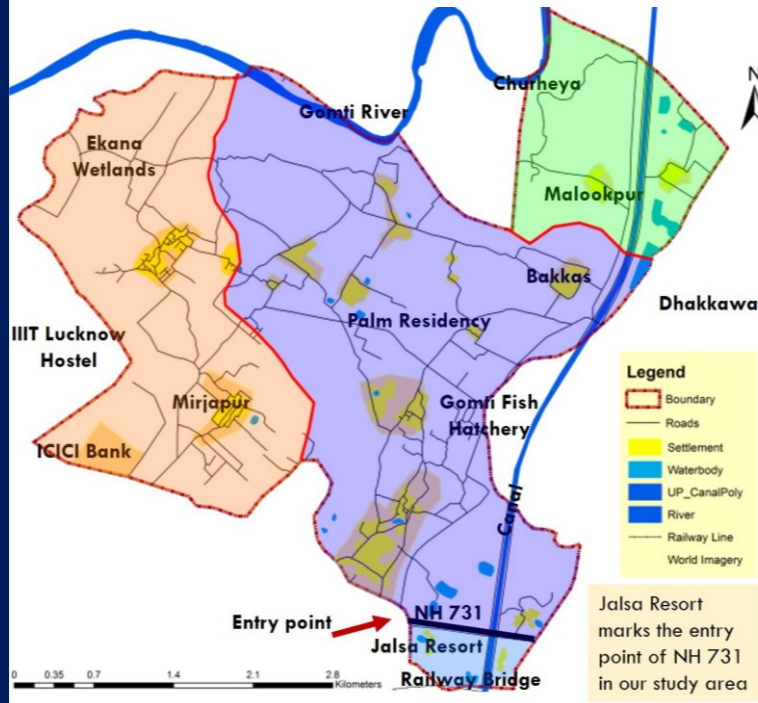
- Master Plan suggests major Land use in the area to be Residential
- Commercial, Industrial and Office spaces surround the area due to its close vicinity and connectivity with NH731 and Proposed Ring Road.

Major Upcoming Developments which impacts the study area

- Residential Real Estate Projects upcoming all around the periphery
- IT City, Institutional Area [IIT, Law University etc.], Dairy Plants etc. in vicinity.
- Ring Road Corridor 2021 by NHAI
- Proposed Outer Ring Road 2031
- Proposed Commercial around ring road



Population Forecast



- Study Area Projection been done at three parts and zonal level as well.
- The population Projection in the three zones has been stated in the table.
- Total Population has been taken as the mean values of the three methods of projection as study area shows traits of both arithmetic and exponential growth.

Year/ Means	Categories	Zone 1		Zone 2	Zone 3
		Mirjapur	Mastemau	Bakkas	Malookpur
2001	HHs	174	332	1115	515
	Population	1013	1945	6490	2893
	Avg HH Size	5.8	5.9	5.8	5.6
2011	HHs	289	344	1444	573
	Population	1528	2239	8171	3307
	Avg HH Size	5.3	6.5	5.7	5.8
HH Size Assumption for future forecast		5.3	6.2	5.5	5.7
Arithmetic Projection	Population [2021]	2305	2577	10287	3792
	HHs	436	417	1861	675
	Population [2031]	2541	2605	10589	3838
	HHs	481	421	1915	683
Geometric Projection	Population [2021]	2509	2601	10552	3832
	HHs	475	421	1908	682
	Population [2031]	4120	3022	13627	4457
	HHs	779	489	2465	793
Exponential Projection	Population [2021]	3082	2916	12404	4277
	HHs	583	472	2243	761
	Population [2031]	4227	3030	13721	4470
	HHs	799	490	2482	796
Total	Population [2021]	2632	2698	11081	3967
	HHs	498	436	2004	706
	Population [2031]	3629	2886	12645	4255
	HHs	686	467	2287	757

- Total Population Study Area [2021] = **20378**
- Total Population Study Area [2031] = **23415**

The study area shows characteristics of both arithmetic and geometric projection thus the average of all have been taken for consideration for final population values

Landuse Considerations:

Predefined Abadi area boundaries is not known thus, study area as a whole with zone wise consideration been undertaken.

Existing and Upcoming Projects have been taken into consideration during designation of areas.

Zone wise amenities have been planned based upon the RADPFI Guidelines as stated in the Table below.

Amenities	Population	Area [Ha]	Distance From Habitation	Zone 1 [6615]	Zone 2 [12645]	Zone 3 [4255]	Total [23515]
Primary School	5000	0.4-0.6	500m	1	3	1	5
High School	15000	1	1000m	0	1	0	2
Dispensary	5000	0.05	500m	1	3	1	5
Community Hall	5000	0.05	1000m	1	3	1	5
Anganwadi	5000	0.05	500m	1	3	1	5
Crematorium	5000	0.05	-	1	3	1	5
Playground	5000	1	-	1	3	1	5
Religious Places	5000	0.04	-	1	3	1	5

The amenities location would be within the residential area marked in the conceptual landuse layout.

Conceptual Landuse Layout

The land around the canal and especially towards the canal area has been already purchased by developers for residential projects. Thus, Residential area bound to increase in the upcoming years and same has been suggested in the master plan 2031

The area near the river is suitable for provision of water treatment plant and provision of municipal water supply in the area, which at current is not present

The planned Ring Road passes along the canal road providing new accessibility on the eastern end. Thus area adjacent may be utilized with commercial, Convention center or small scale and medium scale industrial enterprises which may not harm any residential development.

Existing IIIT Lucknow and law university hostel campus present. The area may be planned to facilitate with offices and other administrative purposes.

Major Corridor for Access into the study area. Thus development should be provided along the same.

The amenities provision as per the current requirement is bound to be present in the Bakkas area [Zone 2] being the center and having the major corridor or development.

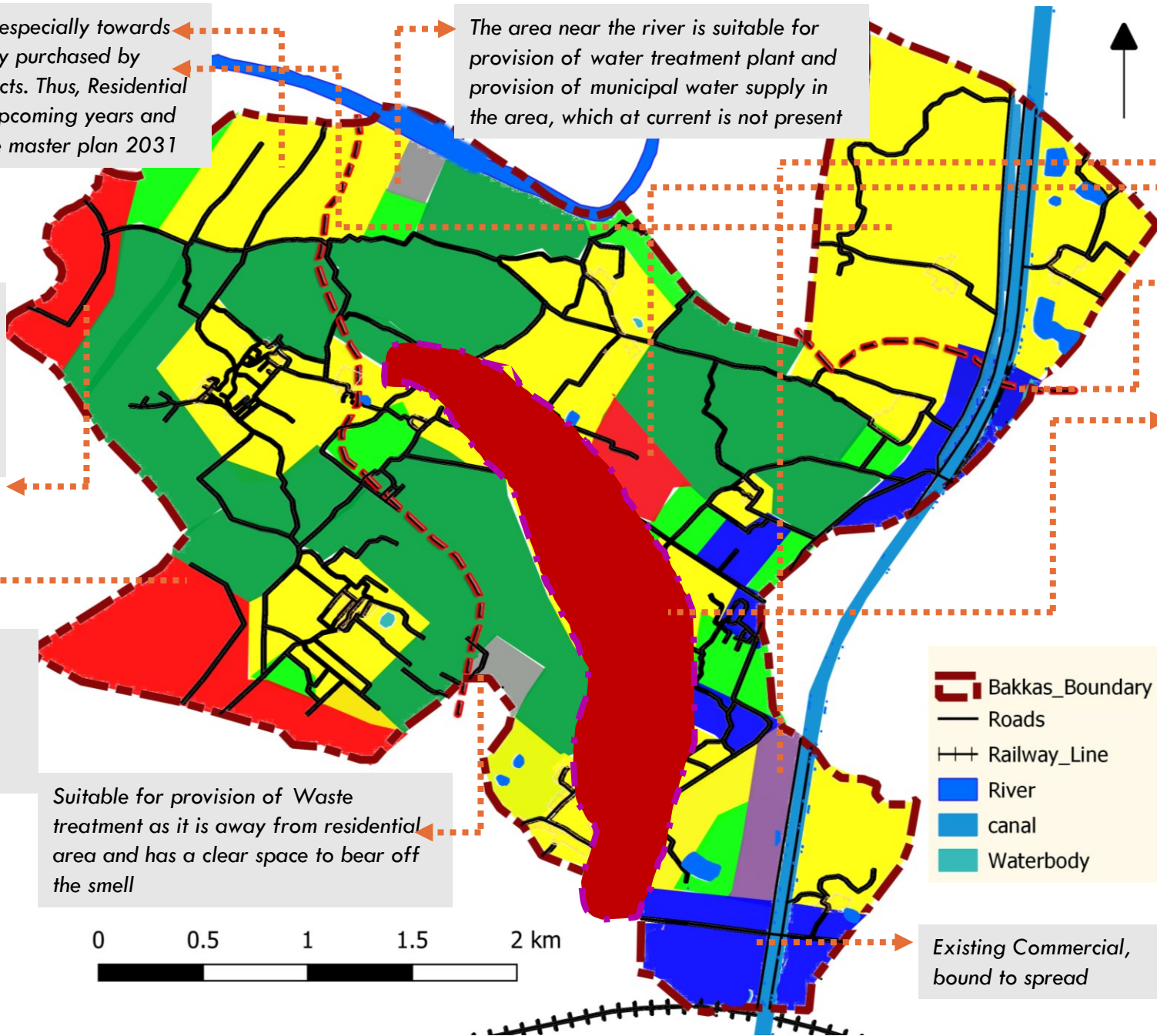
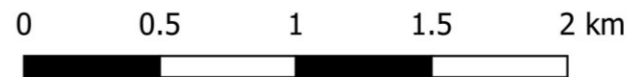
Existing IT City Proposed under construction. Thus the area may be reserved for institutional purpose itself

Suitable for provision of Waste treatment as it is away from residential area and has a clear space to bear off the smell

Cultivable Lands near the settlements may not be allowed to be converted into other uses as agriculture is equally important for survival.

- Bakkas_Boundary
- Roads
- Railway_Line
- River
- canal
- Waterbody

Existing Commercial, bound to spread



THANK YOU