

# **EXPLORING THE SPATIAL TOOLS FOR SOCIAL EMPOWERMENT**

**MASTER OF ARCHITECTURE (URBAN DESIGN)**

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MAY 2019**

## **Declaration**

I Charles Porwal , Scholar No. 2017MUD013 hereby declare that the thesis entitled Exploring Spatial Tools for Social Empowerment submitted by me in partial fulfillment for the award of Master Of Architecture (Urban Design) , in School of Planning and Architecture Bhopal, India, is a record of bonafide work carried out by me. The matter embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

<[Date]>

Charles Porwal

## **Certificate**

This is to certify that the declaration of \_\_\_\_Charles Porwal\_\_\_\_ is true to the best of my knowledge and that the student has worked for one semester in preparing this thesis.

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# EXPLORING SPATIAL TOOLS FOR SOCIAL EMPOWERMENT

A DESIGN THESIS

***Submitted***

*in partial fulfillment of the requirements for the  
award of the degree of*

**MASTER OF ARCHITECTURE (URBAN DESIGN)**

By

**Charles Porwal**

Sch. No.2017MUD013

Under the Guidance of

**Dr. Anand Wadwekar**



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- Charles Porwal

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## Abstract

A good public space must be accommodative for everyone included the marginal, the forgotten, the silent, and an undesirable people. With the process of development, the city leaves behind the marginalized section of the society especially urban poor, who constitute about 20-30 percent of the urban population and are majorly involved in informal settlement like slums and informal economy in which they face the everyday social, physical and economic exclusion. Thus, the informal sector and the marginalized becomes the forgotten elements in urban space. 'Cities for the Citizen' a slogan described by Douglas address the same issues of democratization, multicultural/gender difference and human. These people share a unique pattern for movement in the city which makes a city a dynamic entity. The lack of opportunities and participation to such section leaves the city divided and generates the negative impacts in the mind of victims which further leads to degradation of city life because of their involvement in crime, unemployment, illiteracy and unwanted areas. The physical, social, cultural and economic aspects of space should accommodate the space needed for the forgotten and provide them with inclusive public environment to be a part of the city. Thus, as a society should be educated to learn and share, to respect the rights of other users in the city and by design ideas the physical quality of the visual city would be better by minimizing the annexation of space and overlapping activities. The idea of social urbanism talks about development of cities aiming to the social benefit and upliftment of the citizen. The social urbanism strategy uses specific projects to inject investment into targeted areas in a way that cultivates civic pride, participation, and greater social impact. Thus, making the cities inclusive and interactive for all the development.

*Key Words – urban rights, right to the city, marginalized people, urban poor, migrants, city for all, social infrastructure, social urbanism.*

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## सार-

एक अच्छे सार्वजनिक स्थान को सभी के लिए व्यवस्थित होना चाहिए, जिसमें सीमांत, विस्मृत, चुप और अवांछनीय लोग शामिल हों। विकास की प्रक्रिया के साथ, शहर विशेष रूप से शहरी गरीबों के समाज के हाशिए वाले हिस्से को पीछे छोड़ देता है, जो लगभग 20-30 प्रतिशत शहरी आबादी का गठन करते हैं और प्रमुख रूप से अनौपचारिक बस्तियों में शामिल होते हैं जैसे कि मलिन बस्तियों और अनौपचारिक अर्थव्यवस्था जिसमें वे हर रोज सामाजिक सामना करते हैं, भौतिक और आर्थिक बहिष्करण। इस प्रकार, अनौपचारिक क्षेत्र और हाशिए पर शहरी अंतरिक्ष में भूल गए तत्व बन जाते हैं। डगलस द्वारा वर्णित नागरिक के नारे के लिए Cit शहर लोकतांत्रिककरण, बहुसांस्कृतिक / लिंग अंतर और मानव के समान मुद्दों को संबोधित करते हैं। ये लोग शहर में आंदोलन के लिए एक अनूठा पैटर्न साझा करते हैं जो एक शहर को एक गतिशील इकाई बनाता है। अवसरों की कमी और इस तरह के खंड में भागीदारी शहर को विभाजित करती है और पीड़ितों के मन में नकारात्मक प्रभाव उत्पन्न करती है, जो आगे चलकर अपराध, बेरोजगारी, अशिक्षा और अवांछित क्षेत्रों में शामिल होने के कारण शहर के जीवन में गिरावट को जन्म देती है। और अंतरिक्ष के आर्थिक पहलुओं को भूल जाने के लिए आवश्यक स्थान को समायोजित करना चाहिए और उन्हें शहर का हिस्सा बनने के लिए समावेशी सार्वजनिक वातावरण प्रदान करना चाहिए। इस प्रकार, जैसा कि एक समाज को शहर में अन्य उपयोगकर्ताओं के अधिकारों का सम्मान करने और डिजाइन करने के लिए सीखने और साझा करने के लिए शिक्षित किया जाना चाहिए, अंतरिक्ष के अतिरेक और गतिविधियों को कम करने से दृश्य शहर की भौतिक गुणवत्ता बेहतर होगी। सामाजिक शहरीकरण का विचार नागरिकों के सामाजिक लाभ और उत्थान के लिए शहरों के विकास के बारे में बात करता है। सामाजिक शहरीता रणनीति विशिष्ट क्षेत्रों में निवेश को इंजेक्ट करने के लिए विशिष्ट परियोजनाओं का उपयोग करती है जो कि नागरिक गर्व, भागीदारी

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मुख्य शब्द - शहरी अधिकार, शहर का अधिकार, हाशिए पर मौजूद लोग, शहरी गरीब, प्रवासी, सभी के लिए शहर, सामाजिक बुनियादी ढांचा, सामाजिक शहरीकरण।

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## 1. INTRODUCTION

Considering cities as reflections of larger economic and social forces, evolution of the urban fabric is determined by change in political and economic structures. This paper examines the influence of socialist ideology upon urban development. A walk in a poor neighbourhood, interaction with the inhabitants one realised it is not the charity that they want but rather a sense of acceptance, inclusion and dignity. Interestingly, Medellin in Columbia, Latin America shows us an example of how an integrated planning method that unites political will, governance, civil society, architecture and design together to transform the once 'violence and drug capital' into a transforming inclusive society has given the fundamental human right of the poor back – Dignity! The tool Medellin employed has been popularised as 'Social urbanism'.

### **Background**

Social urbanism as a strategy has been designed as a comprehensive strategy that seeks solutions to mobility, governance and education together with the recovery of public space and green areas. The aim of this strategy is to recover the poorest sectors of the city that were dominated by communist groups, paramilitaries or drug smugglers.

His idea of social urbanism revolves around putting pride back into a city through architecture and design. Journalist and social commentator Angela Sanchez described social urbanism in her report 'Social Urbanism: the Metamorphosis of Medellin' as "investing the greatest amount of resources, of the highest quality and aesthetic excellence, in the poorest, most violent parts of the city."

### **Aim**

To explore the spatial urban approaches for bringing the social inclusion and

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social transformation.

## Objectives

To understand the various approaches to carry such social transformation.

To analyse the transformation due to development at such areas.

To categorizes the major components for the transformation.

To understand the formal & informal structure at the development.

## Methodology

The methodology of the thesis tries to understand the idea and evolution of the concept of social urbanism through literature and extract the learning from the live project happening in the world and India. The thesis looks toward the different approaches to tackle the social problem spatially. With the site selection & analysis, it tries to intervene into the site issues and problem spatially with design proposal.



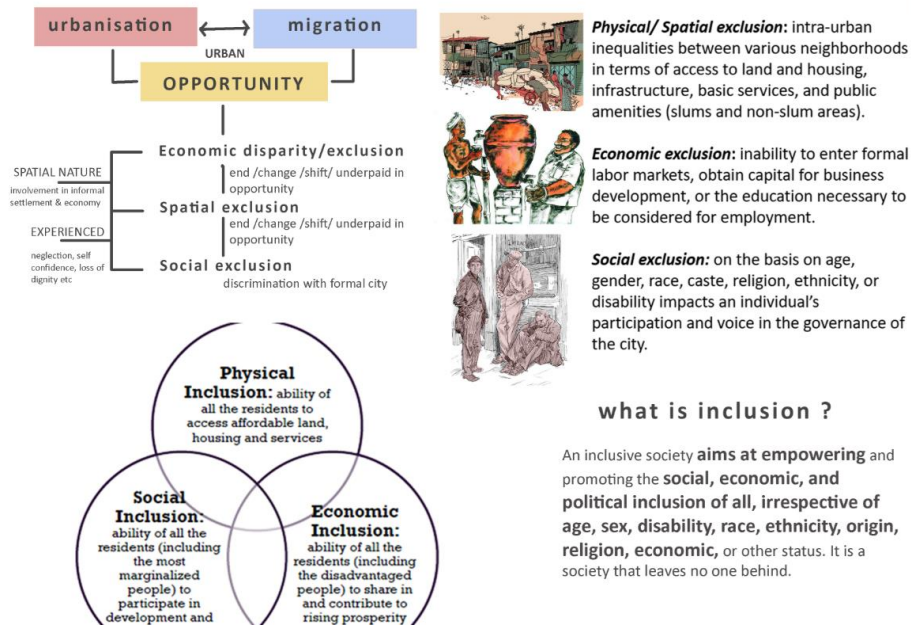
*Figure 1 Right of an individual in urban area*

## Urban design domain

The thesis tries to look into the spatial transformation happening due to the design intervention in the informal settlement and informal economy system. Spatial components of these settlement and livelihood can be made better through urban design

approaches. Helping these communities to be the part of the inclusive society through city level interaction through urban design approach to such land parcel.

**SPATIAL TOOLS FOR SOCIAL EMPOWERMENT**



**what is inclusion ?**

An inclusive society aims at empowering and promoting the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion, economic, or other status. It is a society that leaves no one behind.

Figure 2 Types of inclusion in society

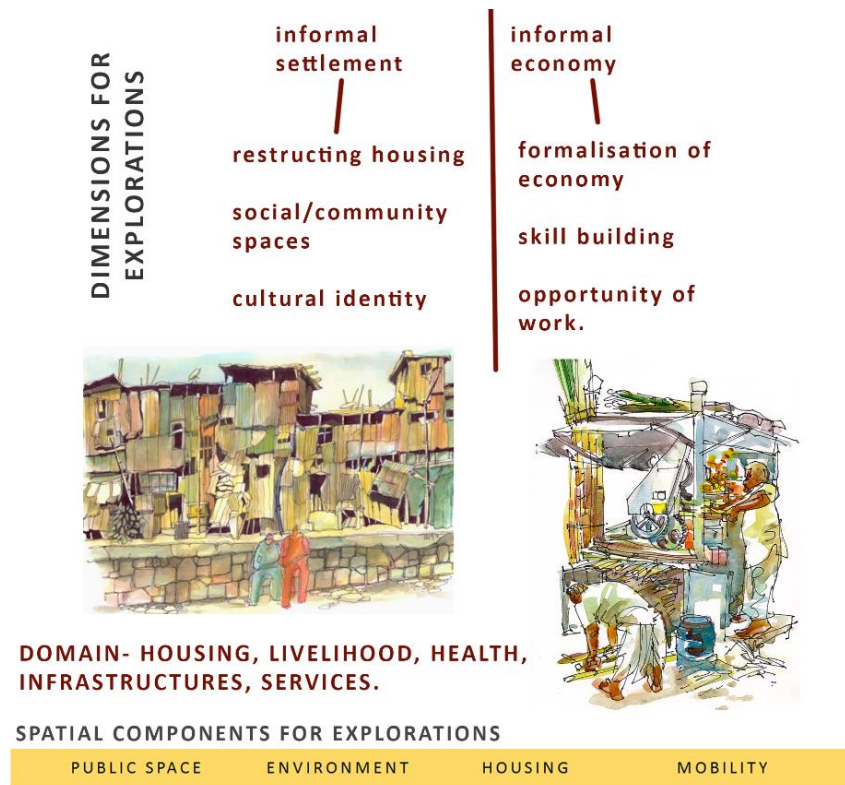


Figure 3 spatial for explorations

components

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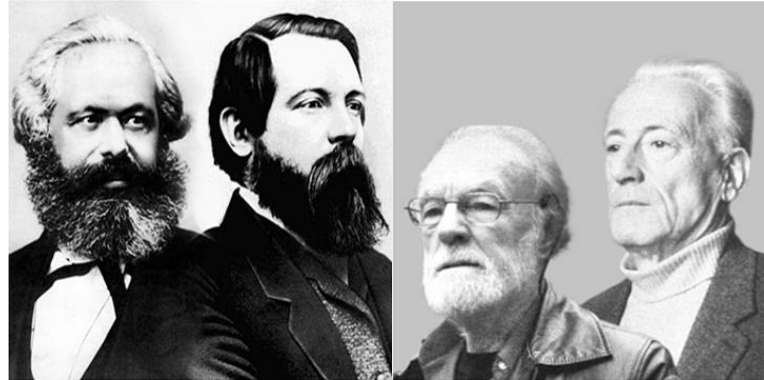
## 2. THEORETICAL BACKGROUND

### Marxism

As a theory, it relies on a method of socioeconomic analysis that views class relations and social conflict using a materialist interpretation of historical development and takes a dialectical view of social transformation. It originates from the works of 19th-century German philosophers Karl Marx and Friedrich Engels. (Prychitko)

### Socialism

Socialism is a range of economic and social systems characterised by social ownership of the means of production and workers' self-management, as well as the political theories and movements associated with them. Social ownership can be public, collective or cooperative ownership, or citizen ownership of equity. (KENTON)



*Figure 4 Karl Marx & Henry Lefebvre*

### Right to the city

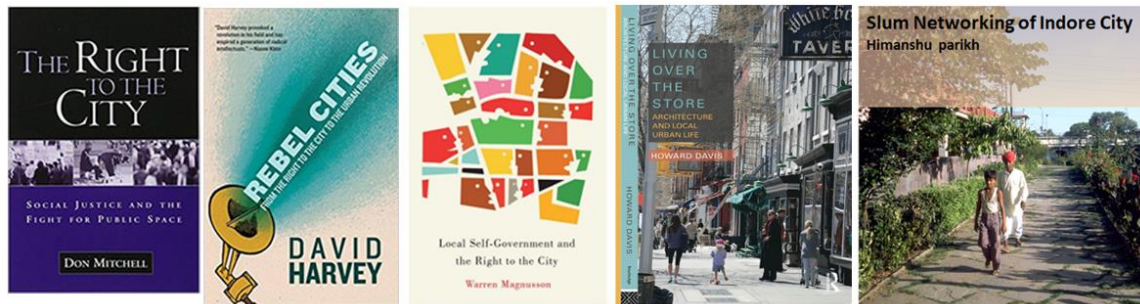
The Right to the city is not meant to be understood as an individual legal right. It is often seen as a social utopia and collective claim inspiring ideas and suggestions for social movements and a better world. It is a slogan for movements worldwide which fight against the manifestations of many modern cities in which public processes and utilities have been privatized and where

development is driven primarily if not solely by corporations and markets.

According to Harvey: “The Right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization. The freedom to make and remake our cities and ourselves is, I want to argue, one of the most precious yet most neglected of our human rights.” (Harvey)

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### 3. LITERATURE STUDY



*Figure 5 various referred literature*

#### Urban Design Journal - Africa

The upgrading of informal settlements was also central to the overall spatial strategy. Drawing upon UN guidance and approaches adopted elsewhere, we prepared a study investigating the application of urban design principles to informal settlement upgrading. This included settlement analysis, scenario/ option development and the development of a neighbourhood level spatial framework based on the principles of:

- minimising intervention such as the demolition of existing buildings
  - enhancing spatial integration with the wider settlement; formalising a hierarchy of routes and spaces
  - focusing higher density development around bus stops along upgraded roads to act as focal points for markets and other community uses
  - relaxing plot size standards to bring about the more efficient use of land
  - taking an incremental approach to the provision and upgrading of infrastructure.
- (habitat, 2015)





*Figure 6 informal settlements in Africa*

## **Contested Urbanism in Dharavi**

To achieve a sustainable upgrading of Dharavi is necessary to recognize that each other in it has a set of assets that can put into the process. Social capital has a network is one of those assets. The project seeks to capitalise these current networks and introduce new ones. The way to introduce these new networks is through the construction and improvement of schools, gateway of sanitary, social and technological network to the neighbourhood.

From the schools as the main part of upgradation, the projects intervene into housing upgradation which is based into the notion of multi level process. With that it allows small scale participatory involved to respond. The process that allows recognition and consevation of their assets and network. Later a post construction process that

includes the integration of new neighbours and recognition and consolidation of the different level of public space. (Camillo Boano)

CHALLENGING THE DRP

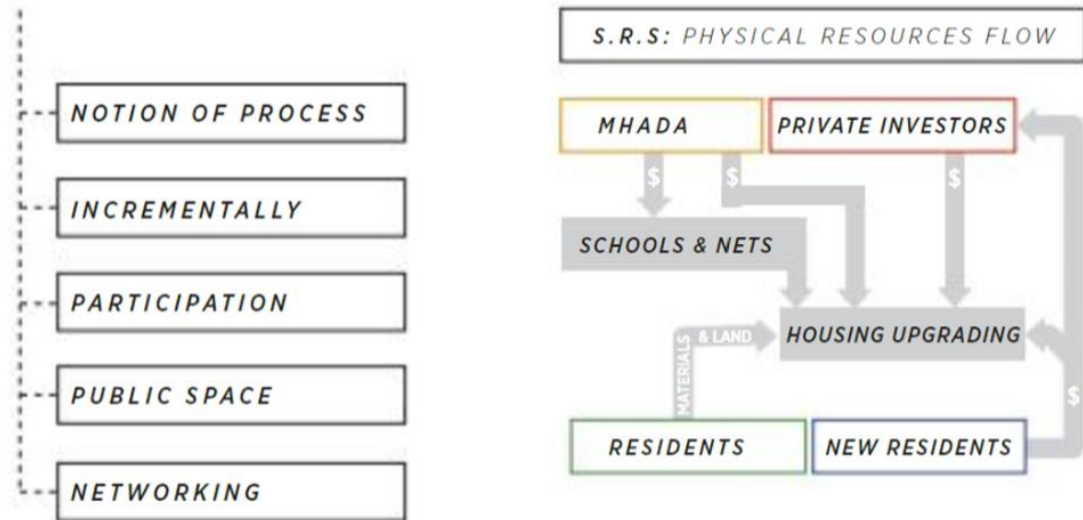


Figure 7 Majors takes for Dharavi slum redevelopment

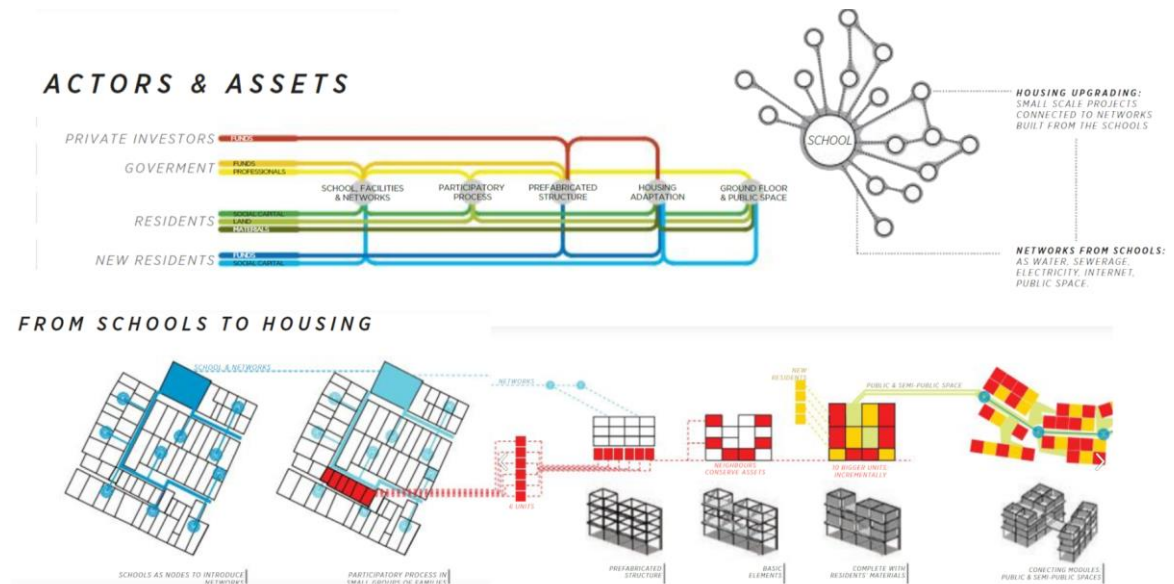


Figure 8 Various approaches for interventions



# LITERATURE STUDY

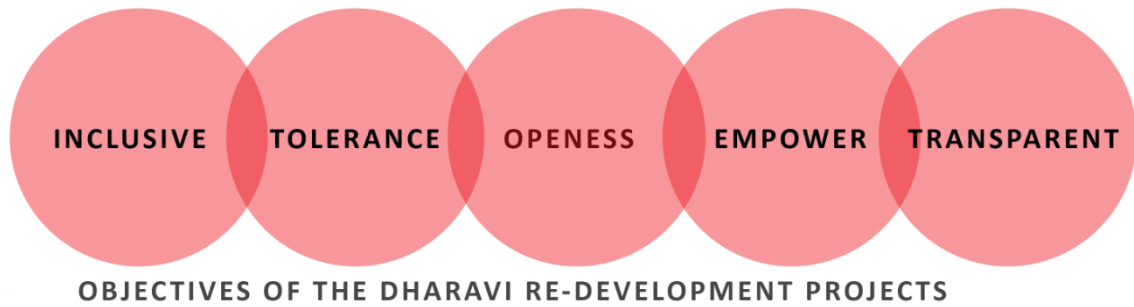
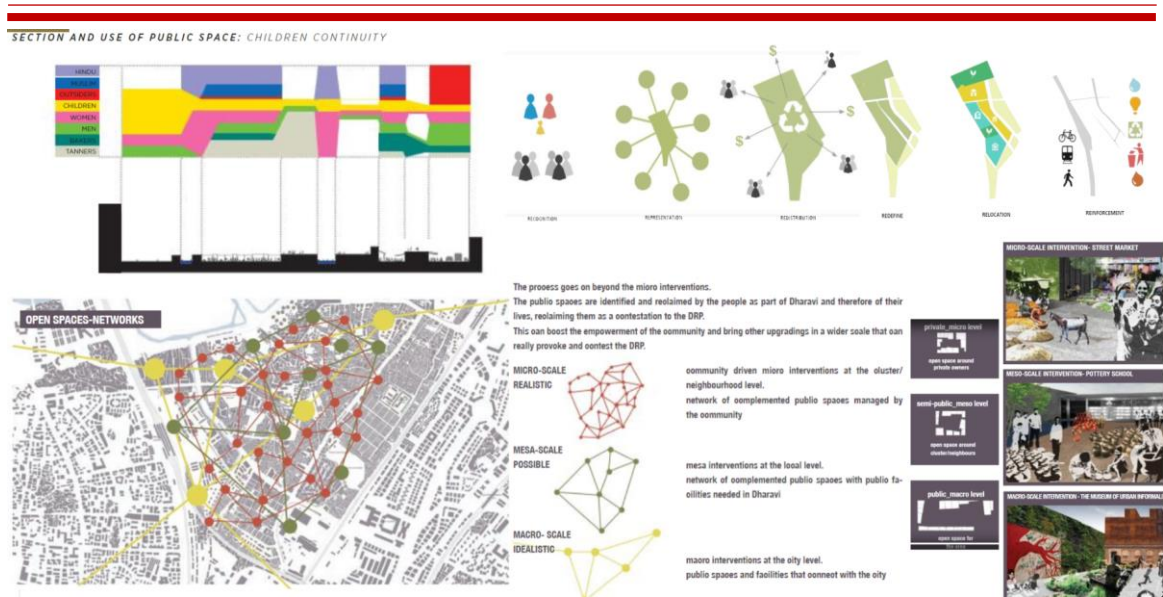


Figure 9 objectives of the Dharavi redevelopment project

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## 4. CASE STUDY

### Medellin City's transformation

Medellin's urban development began with the management of mayors Luis Perez (2000 and 2003), Sergio Fajardo (2003-2007) and Alonso Salazar (2007-2011). The administration of Mayor Sergio Fajardo was vital to the city development with his model 'Medellin, the most educated'. His aim was to recover the marginalized areas of the city through what he termed as "Social Urbanism". He sought to heighten critical awareness of the injustices of traditional urban development and municipal management. Fajardo implemented projects that reflected his interest in improving the education system through new schools and libraries parks with high architectural value, symbolizing a "New Medellin" in order to show that violence can be fought by means of cultural development and social inclusion.



*Figure 10 : Public work intervention at Medellin. Street scaping, Rope ways, Public parks, library parks etc.*

PUI: Integral Urban Project			
INTEGRAL URBAN PROJECT - PUI NORTHEASTERN COMMUNE: MEDELLIN	COMPONENTS		ACTIONS
	SOCIAL	COMMUNITY PARTICIPATION AND COMMUNICATION	INSTITUTIONAL COORDINATION
			INTERSECTORIAL COORDINATION
PHYSICAL	PUBLIC SPACE & TRANSPORT		IDENTIFICATION
			VALIDATION
			PARTICIPATION
			EDUCATION
	HOUSING		CONSTRUCTION OF NEW PUBLIC SPACES
			IMPROVEMENT OF EXISTING PUBLIC SPACE
			ORDERING OF THE PUBLIC TRANSPORT SYSTEMS
	PUBLIC FACILITIES		NEWHOUSING CONSTRUCTION
			HOUSING IMPROVEMENT
	ENVIRONMENT		HOUSING LEGAL TENANCY
		IMPROVEMENT OF COMMON FACILITIES	
		CONSTRUCTION OF NEW FACILITIES	
		ENVIRONMENTAL RECOVERY	

Table 3. PUI Main Components and Actions

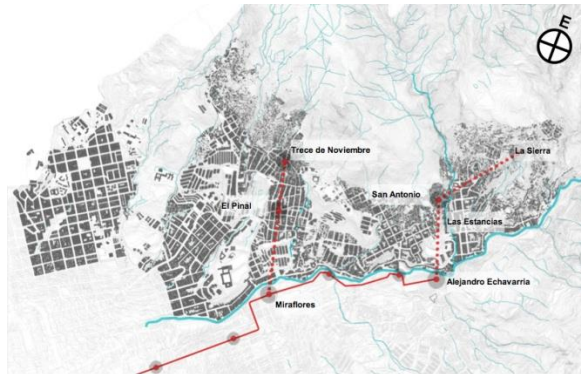


Figure 11 Adapted from: Urban Development Enterprise EDU - Medellín Mayor's Office

Medellin is the second largest city in Colombia and for a long time held a high-profile reputation for violence and drug activity. But with intensive public investment in infrastructure and urban renewal, encompassing transport as well as facilities such as libraries and learning centres. Medellín was largely able to change its global brand from city of violence to city of innovation and hope. One very visible example of this is the city, where a transportation project of a metro and above ground cable-car system was set up to connect the city centre to the marginalized informal areas that sprawl up the city's steep hillsides. (Malandrino, 2017)

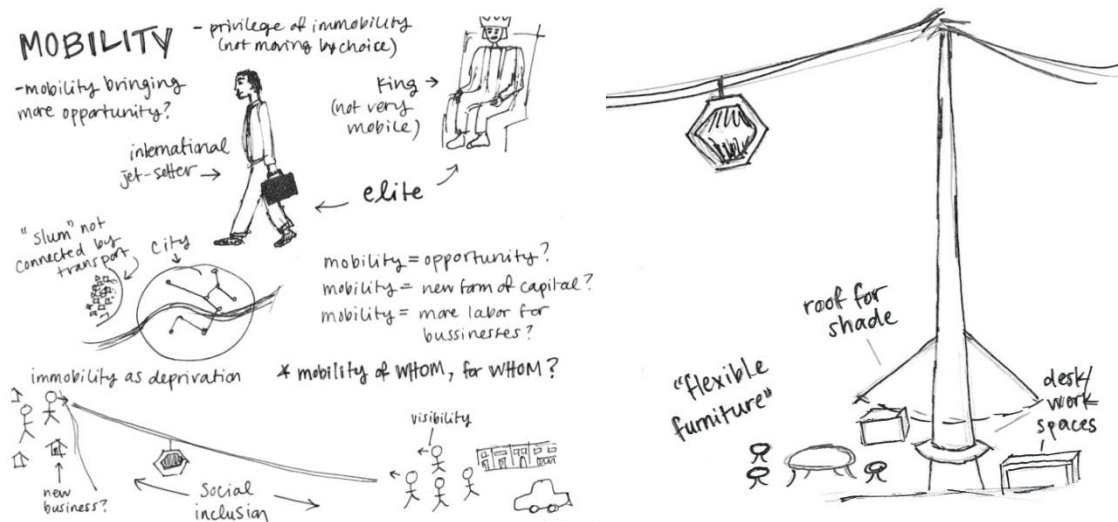


Figure 12 Role of mobility in

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*slum redevelopment*

The citizens of the comunas have historically been underserved by transportation, which has restricted their participation in the formal economy, and in doing so has limited economic opportunities for the poorest people, perpetuating cycles of poverty. Entangled in these webs of informality has been a culture of violence and disorder that in the 1990s earned Medellin a reputation as most dangerous city in the world.

In Medellin, Fajardo's idea was that big public spaces in impoverished areas would draw people of incomes into places they normally avoid—thus igniting economic development in the surrounding area. With community support, the local government built important educational hubs accessible to the residents of San Javier. The Parque Biblioteca (Library Park) provides low-income children with access to computers and workshops to learn new skills. They are also able to play together in the library's green space, equipped with recreational facilities such as soccer fields and basketball courts. Community centers and programs have been established like Cada Vida, which helps women become more financially and emotionally independent.

### **Slum Networking of Indore City**

Slum Networking is a community driven approach which sees slums not as resource draining liabilities, but as opportunities of sustainable change for the city as a whole. The programme involves the building of low-cost service trunks which include gravity-based systems of sewerage and storm drainage, the planting of gardens, and the surfacing of roads. In addition, 120 community halls have been constructed for health, educational, and training activities. This approach opens up funding from local and national government, which can then be matched by donor funding if necessary to construct sewerage and water supply systems. The costs savings provide leverage to get local government to provide tenure to slum dwellers. The slum dwellers, once given tenure, are willing to spend their own money on developing the slums as the risk of losing their investment is removed. Microcredit schemes mobilise this funding and allow slum housing to be connected to sewers and



water systems and for slums to be landscaped and lit.



*Figure 13 Improved public realm & Post-development Street using one of the key design features of lowering the road level which served as natural drainage channel*

The key issues touched and dealt by the project are assurance of tenure to the slum dwellers by the city administration, access to amenities and empowerment of the community, especially the women. The access to safe and secure sanitation is always considered a luxury within slum households. The resulting outcomes increase in participation of women, reduction of diseases and increased literacy rates. (parekh)

Development component	Individual items of activity
City level impacts	<ul style="list-style-type: none"> <li>• Strengthening of sewage network to receive slums, particularly in areas where city sewers do not exist.</li> <li>• Environmental improvement of the river &amp; the streams of the city.</li> <li>• Landscaping within slums &amp; development of lakes &amp; gardens in marginal lands or low- lying open spaces around slums.</li> <li>• Improving city roads on the peripheries of slums.</li> <li>• Improvements of water supply pressures around slums.</li> <li>• Extension of city storm drainage to reach the slum pockets &amp; low- lying areas.</li> <li>• Improvement of solid waste management.</li> </ul>

<p>Slum level physical work</p>	<ul style="list-style-type: none"> <li>• Roads &amp; paving</li> <li>• Individual water supply</li> <li>• House to house underground sewerage with individual toilets (in reference to public latrines)</li> <li>• Storm drainage</li> <li>• Street lighting</li> <li>• Solid waste management</li> <li>• Community based landscaping</li> </ul>
<p>Community development</p>	<ul style="list-style-type: none"> <li>• Setting up neighbourhood groups, women’s groups &amp; youth activities.</li> <li>• Mobilizing community savings for undertaking physical works.</li> <li>• Educational activities for pre-primary age children, school dropouts &amp; illiterate adults.</li> <li>• Community health education &amp; other interventions vocational training, job access to unemployed persons.</li> <li>• Developing linkages with formal sector finance to help people start small businesses &amp; trades.</li> </ul>
<p>Miscellaneous</p>	<ul style="list-style-type: none"> <li>• Project formulation</li> <li>• Baseline socio-economic survey</li> <li>• Project evaluation</li> <li>• Setting up of archives</li> <li>• Management information system</li> <li>• Documentation &amp; dissemination</li> </ul>

*Table 1 Slum development strategies in Indore*

## **Findings from literature cases studies**

There are different approaches for social transformation.

### *4.1.1. Macro to micro level*

This approach work with the city level strategies to connect to the settlement through mobility or other urban infrastructure. And then intervening into the developed nodes which slowly bring about the meso level transformation to the connected areas. Further they enter into the micro level to the settlement zones and improving the quality of

living conditions.

#### 4.1.2. *Micro to macro level*

This approach has a strong city level structure for development. But the intervention and development start at both community level with people involvement and participation. Construction of community hall for various purpose health, education and skill development purposes.

The overall paper describes the importance of social infrastructure for the social empowerment and transformation and how the life around those structures can generate a sense of inclusiveness in the minds of the habitats. Like one of the Medellin Mayor quoted that " Our most beautiful buildings of the city must be in our poorest areas."

### **Inference & conclusion**

Strategies to the Public Space and Mobility components, initiated a radical internal and external transformation on perceptions within the area. Transformation was based not only on the real-estate finances, but on the understanding of the socio-spatial fundamentals and the community-oriented planning. (PUI) of Medellin demonstrated through its results the importance of a holistic approach, strongly based on the community participation and the social component. Public space has the potential of serving as an equalizing force, but it may also reinforce social hierarchies and keep the actual users of a service (e.g., "the community") at bay.

CASE STUDY

REHABILITATE	REINFORCE	RECONNECT
Construction / repair/ retain of building.	rationalize behind the open space	rationalize behind the open space
Incorporating different typologies	reinforce Public realm / public space	reinforce Public realm / public space
self-sustaining community incorporating incremental nature	social & community life (enhance, education & health)	social & community life (enhance, education & health)
climate responsive built form	re imagining the public infrastructure	re imagining the public infrastructure
improving the quality of life	building skill + knowledge + semi-public spaces.	building skill + knowledge + semi-public spaces.
upgrading physical structure without destroying socially		
mitigate geological risk		
human centred design approach		

*Table 2 Collective inferences of slum redevelopment*



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## 5. SITE INTRODUCTION

### About Kanpur City

The city is famous for its leather and textile industries. It is the 11th most populous urban agglomeration in India and largest urban agglomeration in Uttar Pradesh. Kanpur was an important British garrison town until 1947 when India gained independence. Kanpur the administrative headquarter of Kanpur (Urban) district and Kanpur division.

Located on the west bank of the Ganges River, it is a principal trade and commercial centre in North India with the first woollen mill of India, the British India Corporation established here in 1876 by Alexander McRobert. The city is widely regarded as "The Leather City of the World" and is also nicknamed as "Manchester of India". (Sinha)

### Industrial city & importance

After 1857 the city became an important center of the leather and textile industries. Government Harness and Saddler Factory was started for supplying leather material for army in 1860, followed by Cooper Allen & Co. in 1880. The first cotton textile mill, the Elgin Mills were started in 1862 and Moiré Mills in 1882. The British India Corporation (BIC) was headquartered here and led the development of many industries. The first Indian business house of Cawnpore was the firm Nihal Chand KishoriLal which set up a trading facility in 1857. This firm was a leader in Oil milling and had many oil mills spread across North India. The Juggilal Kamalapat Singhanian family launched many industrial units between 1930 and 1970. The group is known as J K Group of Industries till date. The Jaipuria family contributed to the patriotic cause, by building the Swadeshi Cotton Mills in response to charges that the foreign rulers were raiding India of its cotton only to sell back textiles to the residents. Kanpur was known as the "Manchester of India" during the 20th Century. The Nihal Chand KishoriLal group (also known as Kejriwal Group) over time diversified into flour milling, tea plantations and steel. They bought over in 1942 Cawnpore Flour Mills which had been established in 1886 by

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Edward Foy a Scotsman. New Cawnpore Flour Mills is at present one of the larger flour mills of North India and still managed by the same family. The steel industry was first brought to Kanpur by Singh Engineering and grew with JK Steel and the many ordinance factories which were set up. The Kejriwal's set up a ministeel mill on the outskirts of Kanpur which is now a leading long products manufacturer.



*Figure 14 Glimpse of Kanpur city with mills as their skyline*

Kanpur is also an important centre for India's leather industry with numerous leading manufacturers, situated in the Jajmau Leather Industrial hub, which is exported worldwide. It is supposed to be the largest Sugar market in entire North India. As of now, the city also owns many leather tanneries, a 2-wheeler factory owned by LML India, under collaboration with Italy's Piaggio; and over a dozen Defence Ordnance Factories such as Small Arms Factory, Ordnance Parachute Factory etc. It is also home to the pan masala and gutkha industry. (INSTITUTE)

Kanpur city from traditional times has been one of the major Industrial cities in India. In the British times, due to large number of cotton textile units and a major trade center for cotton and it was also called as “Manchester of India”. At present, Kanpur has mostly industries relating to leather shoe making and cotton textiles. Other factories include manufacture silk, woolen and jute textiles, food products, fire-bricks, fertilizers, railway wagons, textile machinery, television sets, metal ware, leather goods, soap, tents, durries, fountain pens, hosiery, cutlery,

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television picture tubes etc.

## Kanpur slum free city data

### 5.1.1. *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 multipronged 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.



*Figure 15 Slum( Rakhi Mandi) of Kanpur*

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### 5.1.2. Objectives

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.

For the preparation of Slum Free City Plan of Action, the following methodology is followed for Kanpur 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. (RCUES)

- 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:



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Tendering process, implementation of proposals and appointing of TPIMA team

- Step 17: Impact Assessment
- Step-18: Revisions and rectifications of the strategies, reforms.

### 5.1.3. *Slum population*

The Kanpur city is having a total of 412 slums in its municipal jurisdiction area. Out of which 101 are notified slums and 311 are non-notified slums. The National Building Organization (NBO) Annexure primary survey is carried out in January, 2011 for all 412 slums in the city. The total slum population in the city is 714027 which constitute about 26% of city population. The total number of slum households in the city is 152124 which constitute about 30% of total city households.

*Table 3 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.
2767031	714027	26%	26223	1274.71	5%

### 5.1.4. *Distribution of Slums by Land Ownership*

it is observed over that 37% of the slums are built on lands are owned by urban local body. On other side, 23% of the slum lands belong to Private ownership and 15% under State Government; 14% of the slum lands belong to other ownership, 6% under Railways and 4% under Govt. of India other than railways, defense and airport. The remaining 1% of the slums is built on the lands belong to the ownership of Defence. In 23% of the slums situated on private land, 27% of the dwelling units hold pattas, possession certificates and are still eligible for slum redevelopment programmes considering the varying economic status of those dwellers.

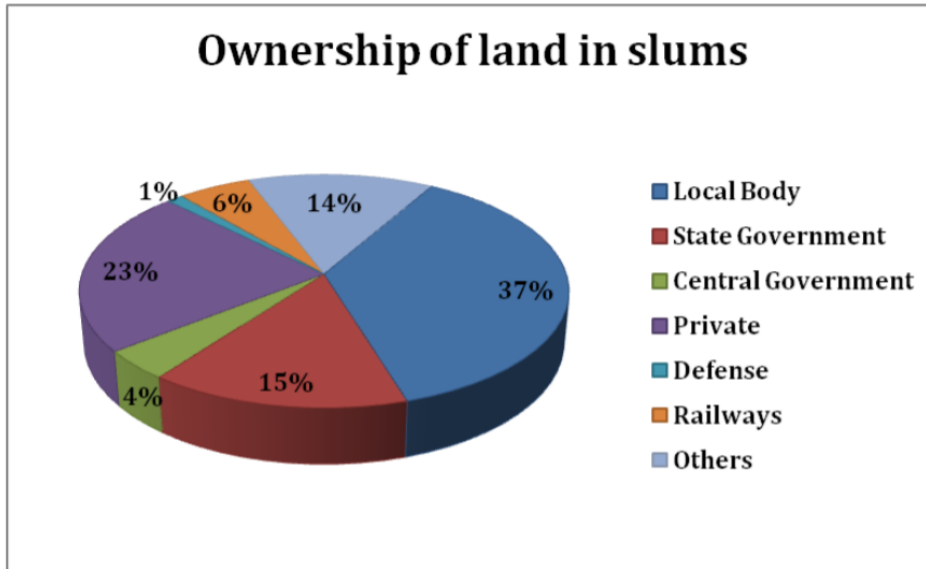


Figure 16 Distribution of slums by land ownership

5.1.5. *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 Kanpur being one of the oldest, populous as well as major Industrial city of Uttar Pradesh, it has slums into existence over 50 years. It is interesting to note that 73% of the slums in the city have been into existence for more than 50 years with remaining 27% of slums less than the 50 years.

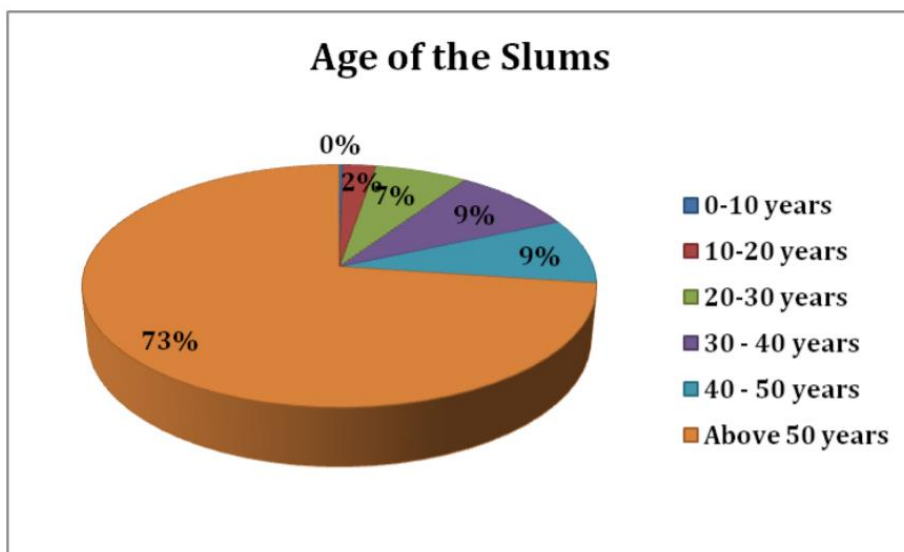


Figure 17  
Distribution of slums by age

*Distribution of*

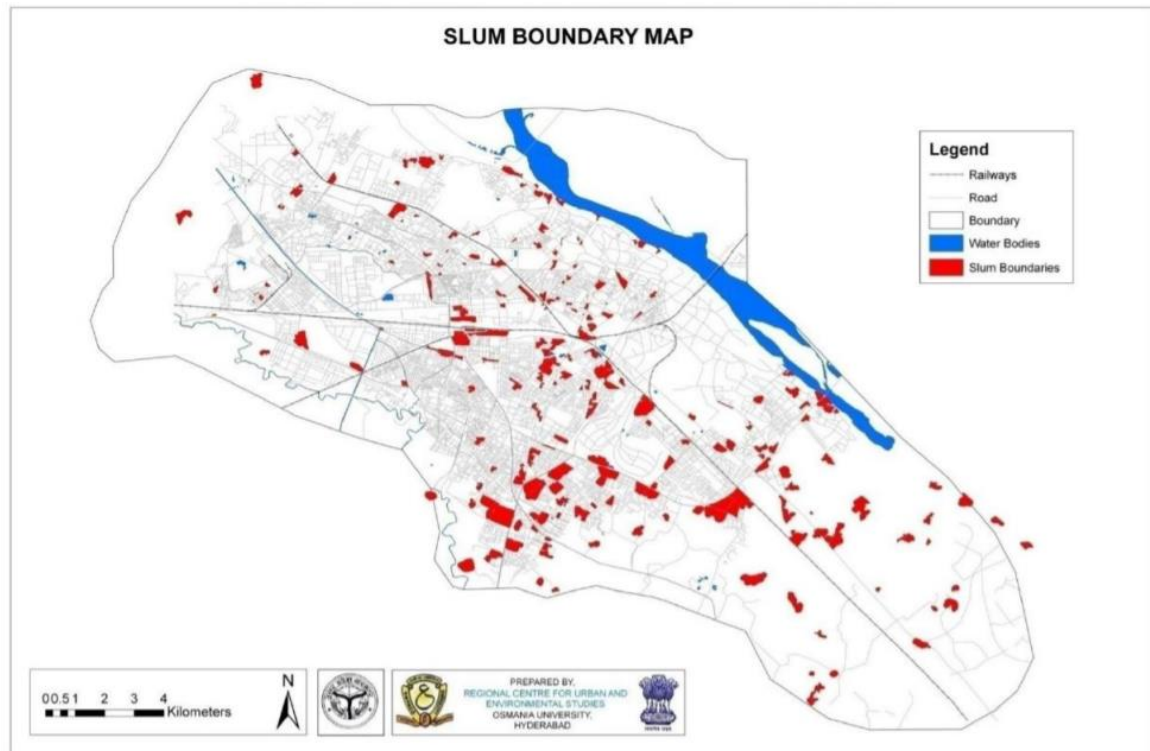


Figure 18 Map showing slum locations

#### 5.1.6. Distribution of Slums by Physical location

Out of 412 slums, 272 slums in core area of the city and the remaining 140 are in urban fringe areas. With respect to the physical location, around 14% are located along the major transport alignment, 21% along the open and storm water drains; 13% along the railway lines. On other side, 16% slums are found to be located along the river as well as on the river beds. In addition, 29% of the slums are located on the sites of non-hazardous / non objectionable areas and the remaining 7% (28 slums) are observed to be situated along the hazardous/objectionable sites. But, in the primary surveys and on consultation with DUDA, it was observed and taken into consideration that only 7 slums out of 28 are hazardous with respect to physical location. Further it is noted that 69 slums are located along the river/on water body bed which are more vulnerable to any kind of manmade or natural disaster (seen in Figure 3-4). These slums require special attention before undertaking any development, the beneficiary's cooperation and their livelihoods are of paramount importance.



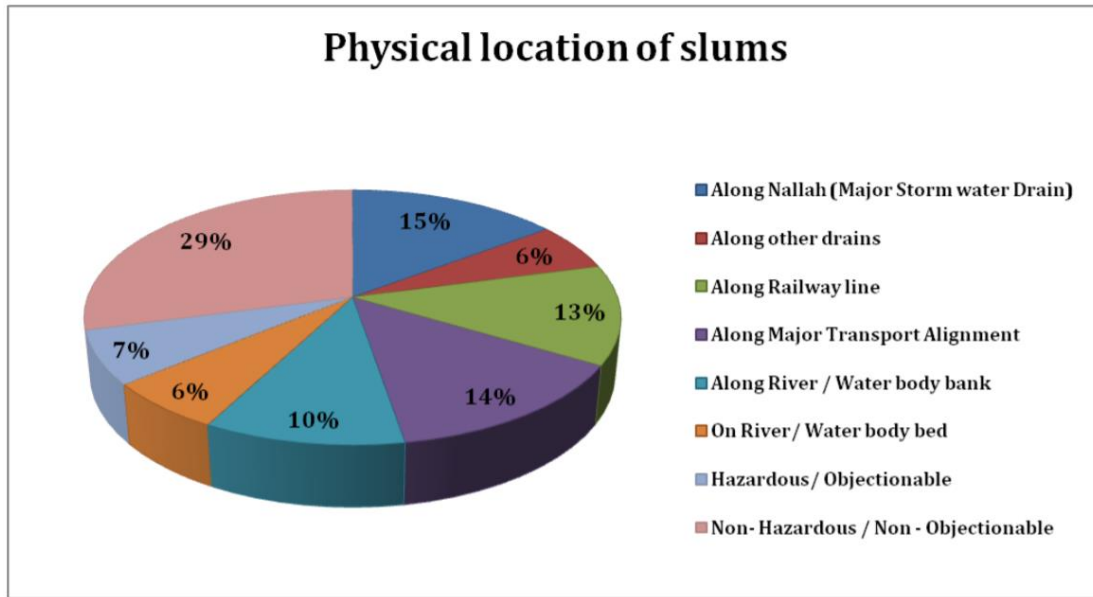


Figure 19 Distribution of Slums by Physical location

Other layers of the slums in the Kanpur.

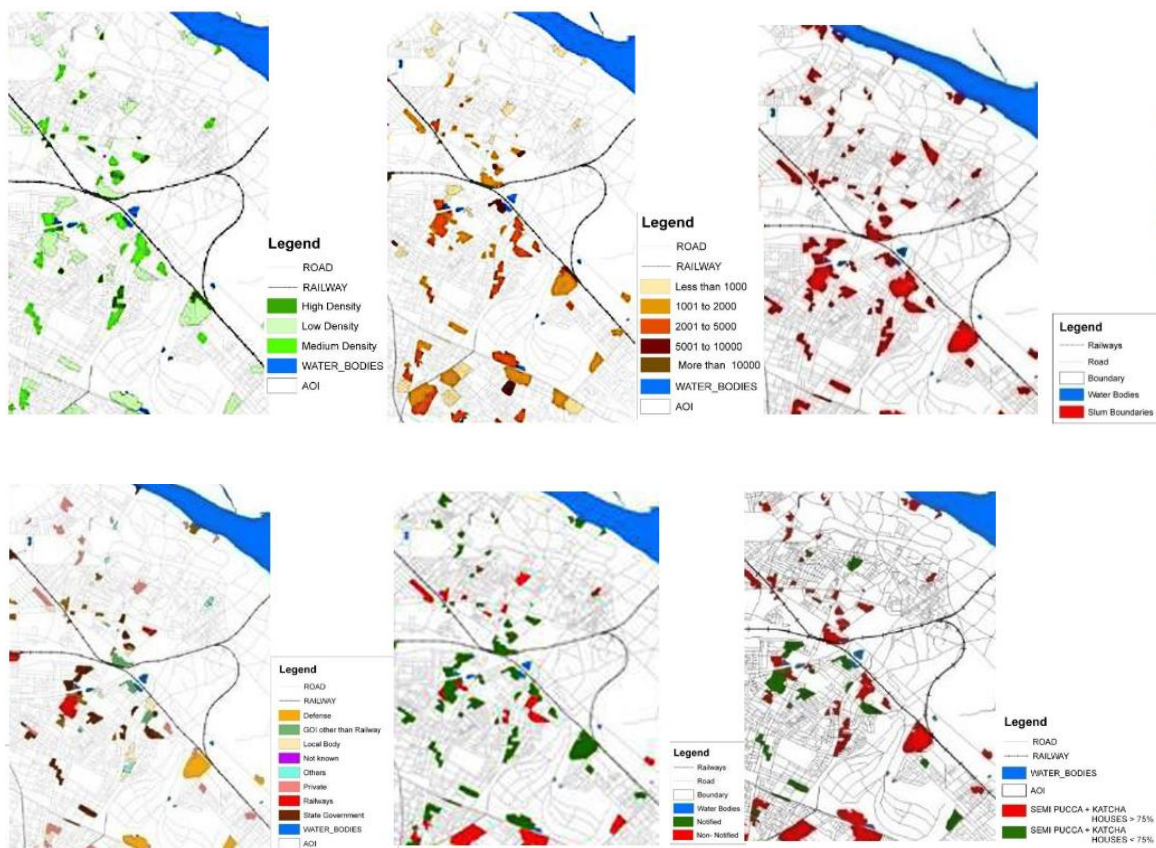


Figure 20 Maps showing multiple layers of slum

## Site delineation & introduction

The site is located at the centre of the city, situated at the junction of old core area and new developed city region. The site surrounding has major transit systems around it i.e. ISBT and Kanpur central station which is 1.2 km apart from each other and experiences the major footfall of the people looking for opportunity from the surrounding villages, towns & small cities. Apart from that the site shares the two important road network for goods & city movement which connects to the state & national highway.

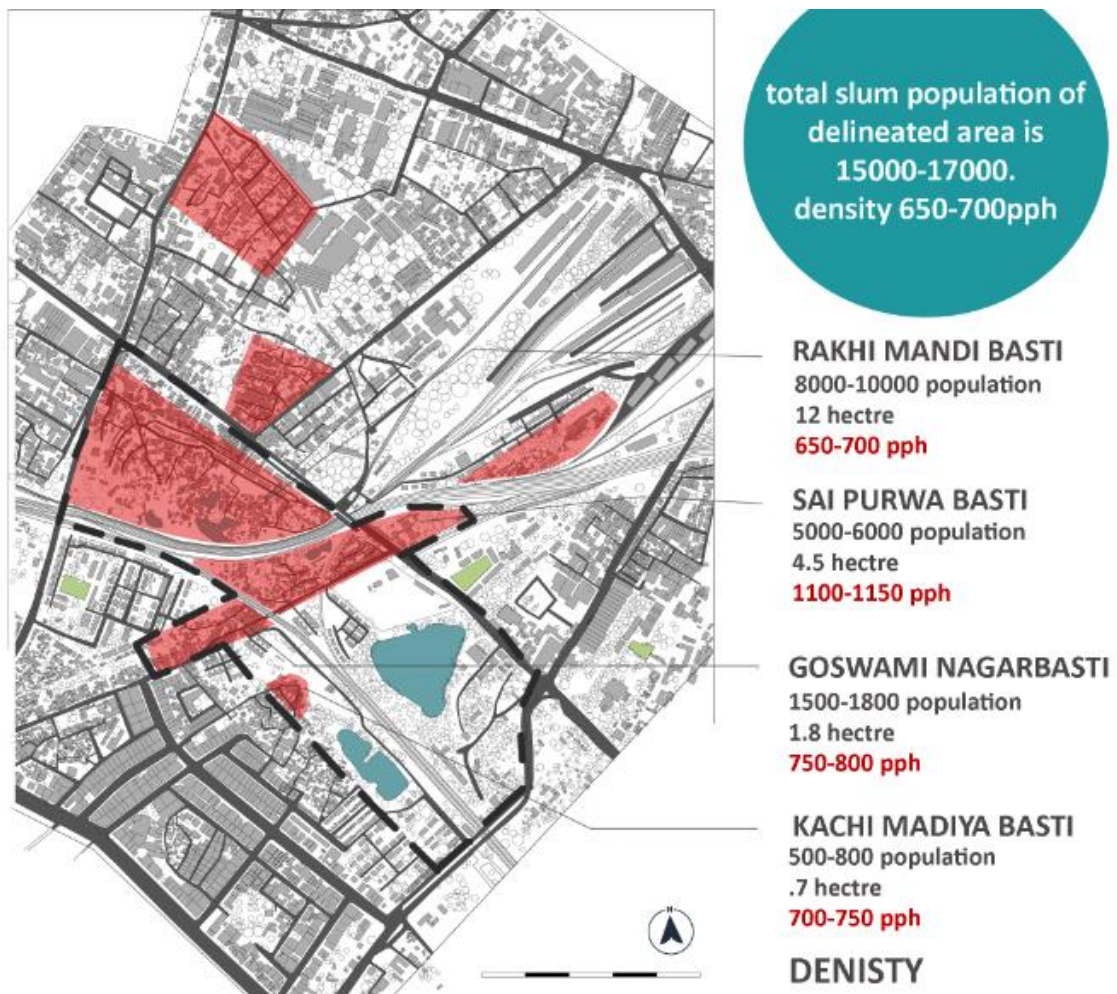


Figure 21 Site delineation & introduction

The site is surrounding by major commercial centre of old city on the north which deals with wholesale market and large & small industrial area at the north & west which includes the abundant mill lands, Loha market, Mall godown, industrial estate. The site is entangled between the web of railway track and that is why it

experiences the settlement of slums all these years because of isolated and inaccessible area on the city map. It has almost 6 slums site in and around with the population of 20000 people. The largest among them is Rakhi Mandi Basti in area and population both. Sandwiched between the underpass and flyovers, accessibility become the major problem apart of sanitation and other services.

5.1.7. *New proposals by the government*

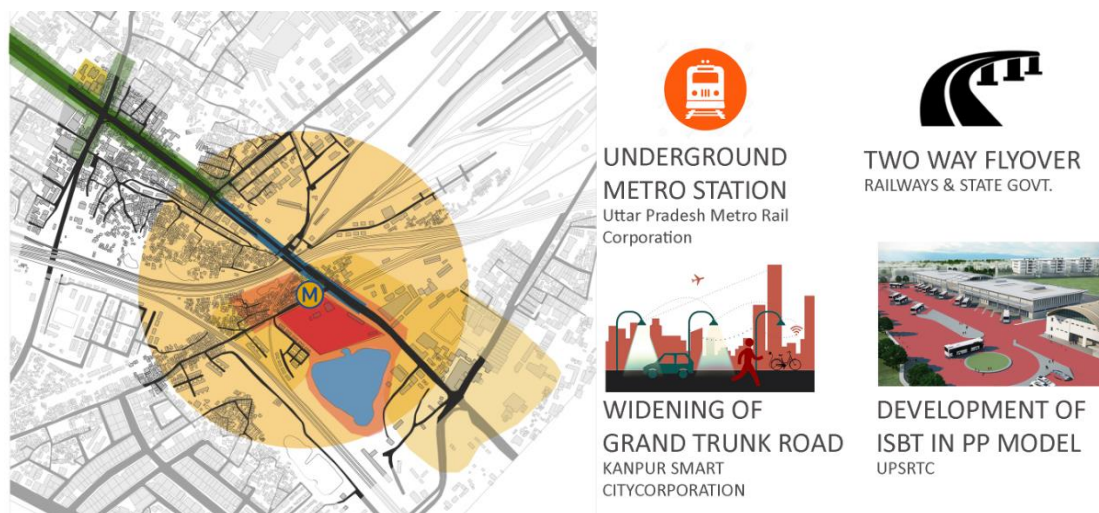
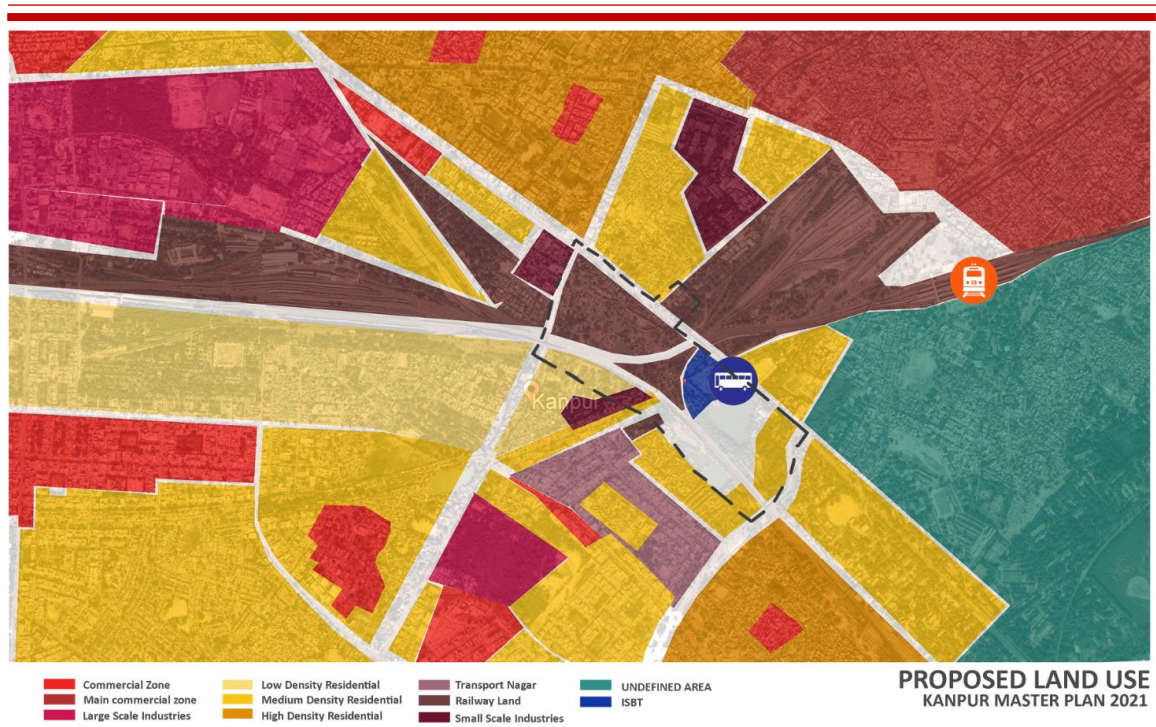


Figure 22 Initiatives taken by the government for surrounding redevelopment

There are many proposal from different agencies in this area. The major of them is underground metro station at ISBT, which will improve the connection to Kanpur Railway Staion and generate a increase in footfall of comunators. The other major development would be redevelopment of ISBT station in PPP model which will include a large varities of commercial, recreational and residential activities. The Sai Purwa Basti shares the edge with the ISBT and will experience the major transformation. The other two are flyover and widening of GT Road.

All the above proposal are government and public based projects but will invite the developers for the developmentof landparcels.





*Figure 23 Proposed land use plan 2021*

The land use plan of delineated area have major railway land as per master plan, but as per primary survey the ownership map is very different. The site is surrounded by commercial, industrial and small scale industries land use. (AUTHORITY)

## 6. SITE SURVEY & DEMOGRAPHY

### Demographic Data & Building Conditions

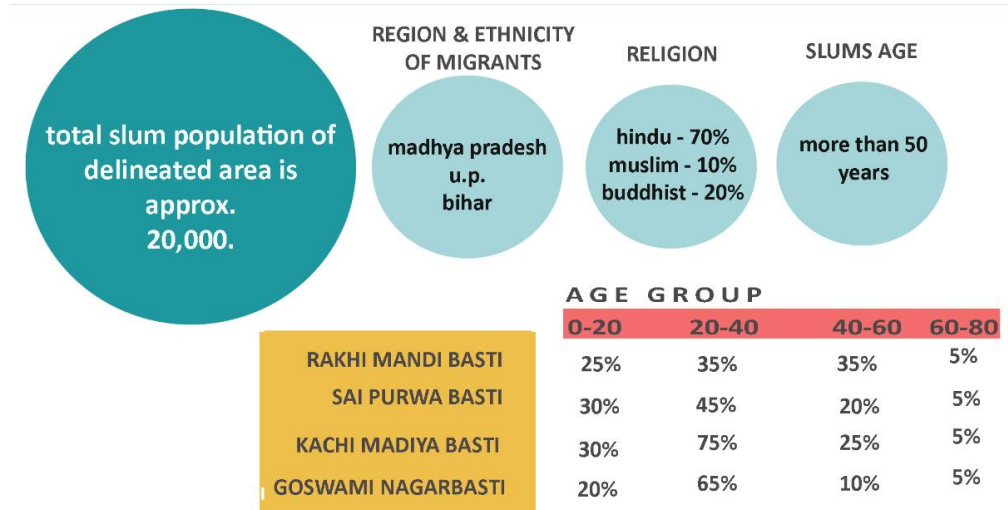


Figure 24 Demographic data of the slums

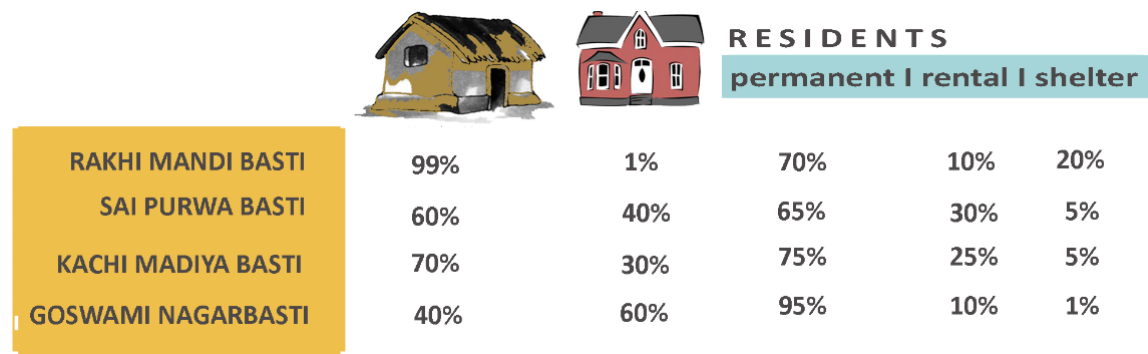


Figure 25 Building condition data of slums

## People perception



“ Tracks are the only functional open spaces throughout the year rest are filled with sewage water. Its dangerous we know. ”



“ I have been living from 70 years without no development. I wish to see something before I depart. ”



“ We(females) have to wake up early at 4pm for open defecation and all govt. toilet complex are badly managed. ”



“ If we could compress and process the waste, we could have minimize the space requirement and earn more money. ”



“ I can make more products out of bamboo if given a chance. We(family) are doing htis from last 100 years. we belong to Rewa, M.P. ”



“ We look forward to the formal working space, where we can grow & earn more like others. I would like to open my own shop. ”

*Figure 26 Perception of slum dwellers*





Figure 27 Land ownership pattern of study area

### Ownership Pattern

As per primary survey and report by RCUES, Hyderabad, the slum dwellers have been living here from last 75 years and were engaged in the ancillary industries to mills. The ownership of this is complex and are broadly divided into four owners. The maximum land parcel is owned by railways authority. The Rakhi mandi is in dispute in court as per primary data.

### Livelihood pattern

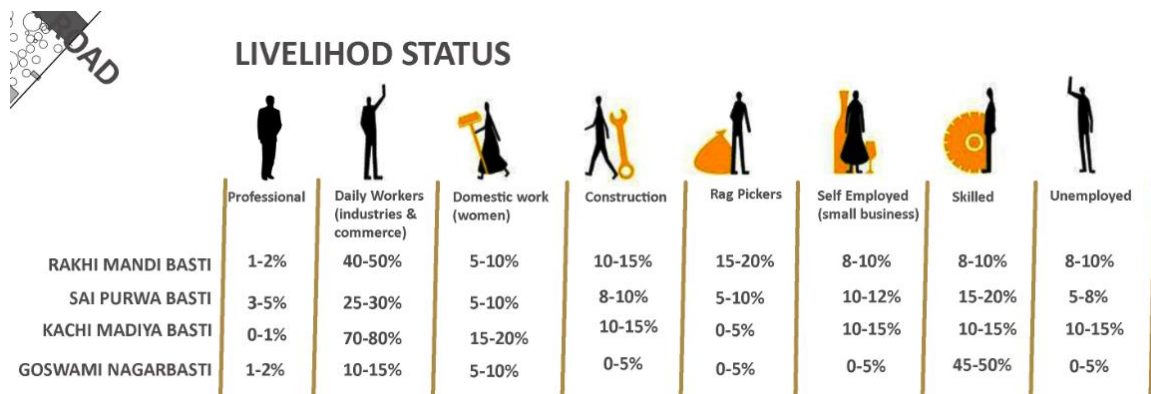


Figure 28 Livelihood pattern



Figure 29 the detail documentation of livelihood pattern of all the slum dwellers is enlisted and represented above through mapping

### 6.1.1. Detail workspace analysis

These are the details of the socio economic based workspace. Analysis of working space tries to understand the basic area requirement, condition, form and relation to the habitation spaces for further issues and design improvement. There are also some community based activity which requires a large space as respect to individual work areas. There are some heavy metal workshop which require machine, instrument and larger space.



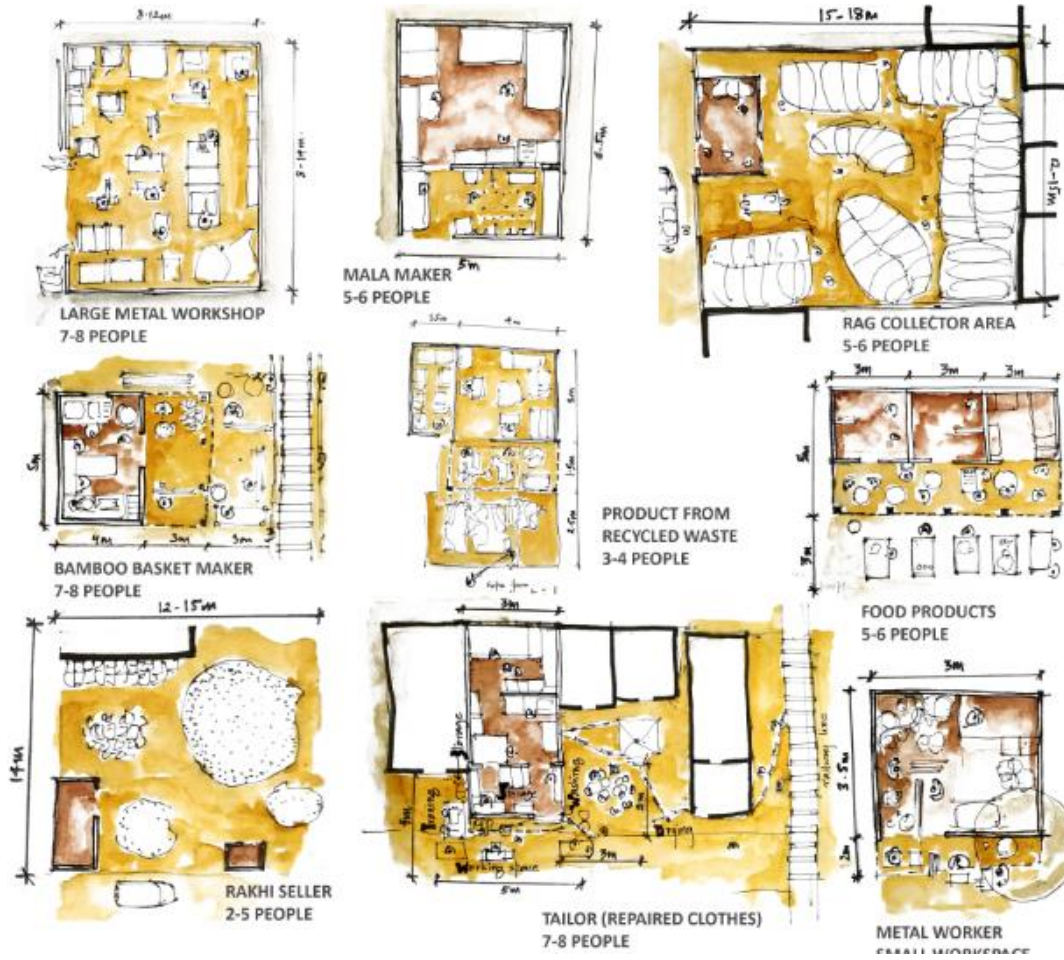


Figure 30 Detail workplace typologies

6.1.2. Movement Pattern



Figure 31 map

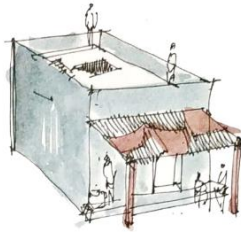
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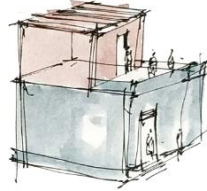
*correlation between movement pattern & livelihood*

## Housing Typologies

HOUSING TYPOLOGIES



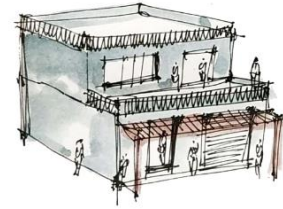
Ground Floor pucca house with temporary extension at the front.



Ground Floor pucca house with extension at the first floor with temporary shade.



Kutch house usually made of thatch and mud and roof of clay tile or tin sheets.



Pucca house with G+1 floor and little extension at the front with temporary shade..

*Figure 32 housing typologies in contextual site*

## Open space network



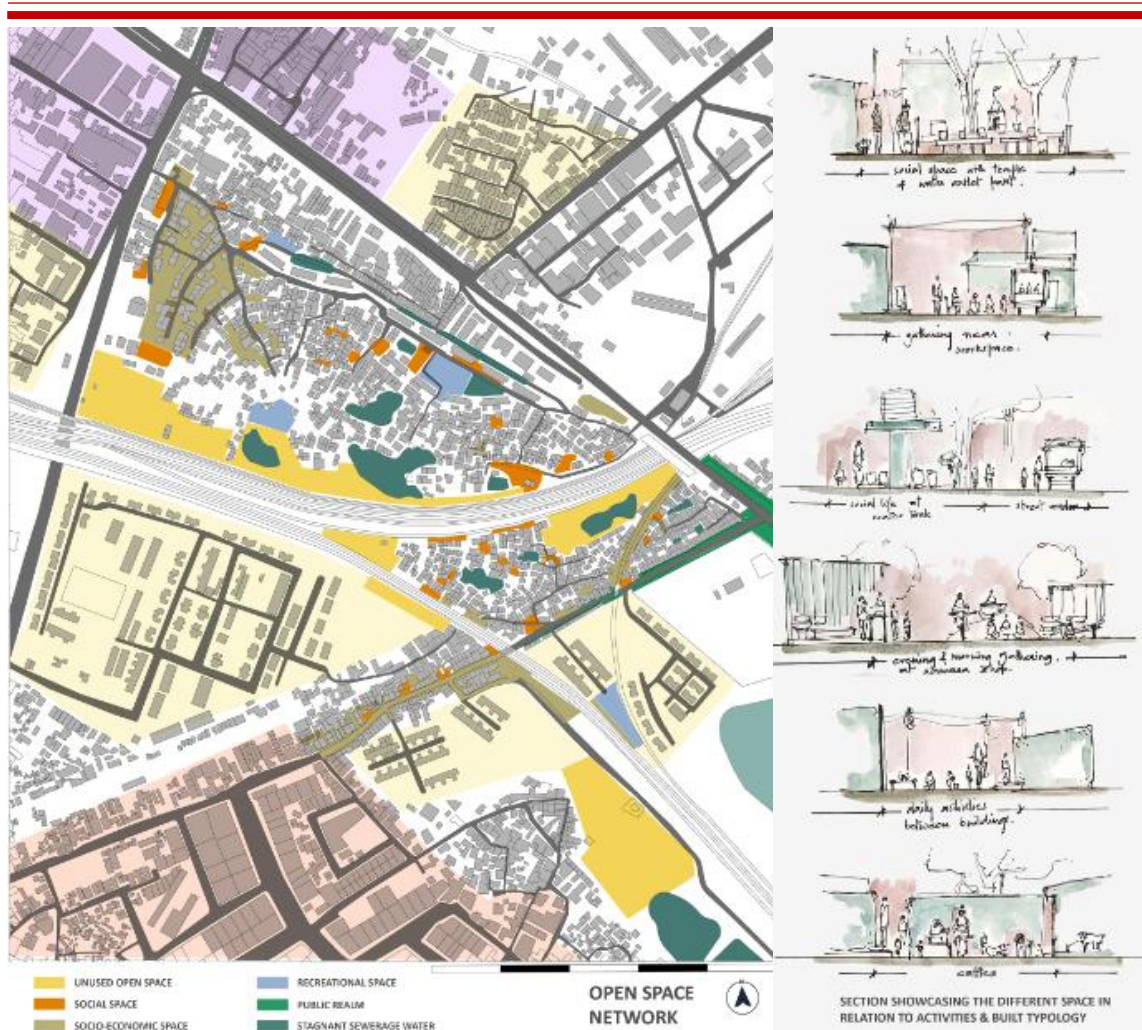


Figure 33 nature of open space & open space network

The problem with the slums is that the open spaces get trapped due to poor drainage or open sewage system and sanitation. The open land keep flooded with the drainage & sewage water which later becomes the root of health problem to the dwellers. The only social and cultural space are the tried area of the site or spaces near their houses where they are involved with the daily routines. The site has 3-4 temples or working spaces which becomes their social spaces during festivals. One major observation is that the dwellers are seen near railway track area for their daily routine because it provide a large neat area to work and play.



Figure 34 spatial site issues

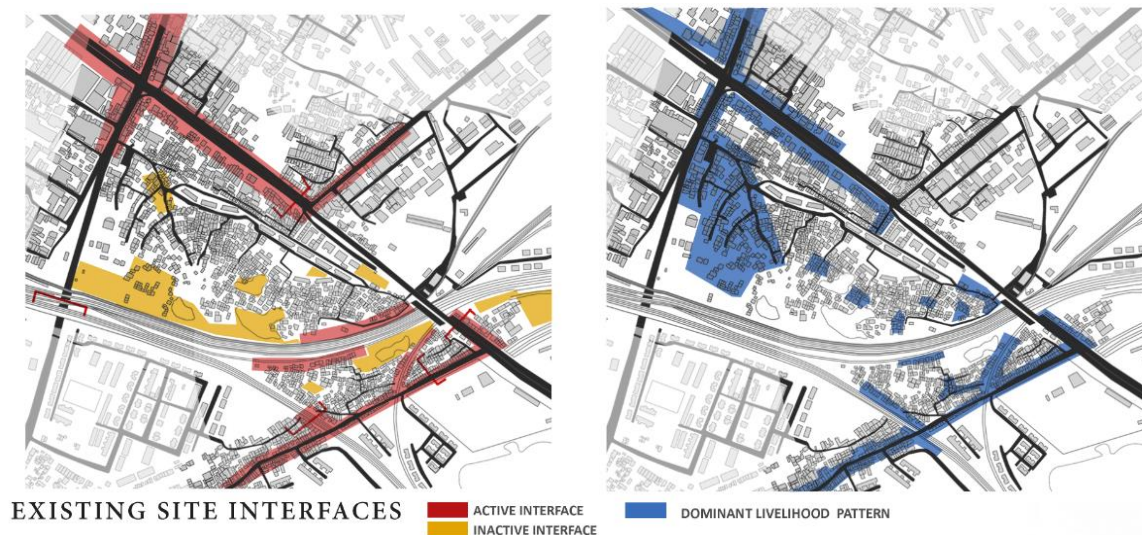


Figure 35 Site interfaces (existing)

The active site interface is along the road network and near the railway edge due to the informal activities happening near Bus stand and G.T. Road. They are also engaged on road system for their livelihood network and activities. The open space near the track are been active because it provide the large open space for working and also acts as a spill over space from the unhygenic and stagnant sewage water.



## 7. ANALYSIS, ISSUES & STRATEGIES

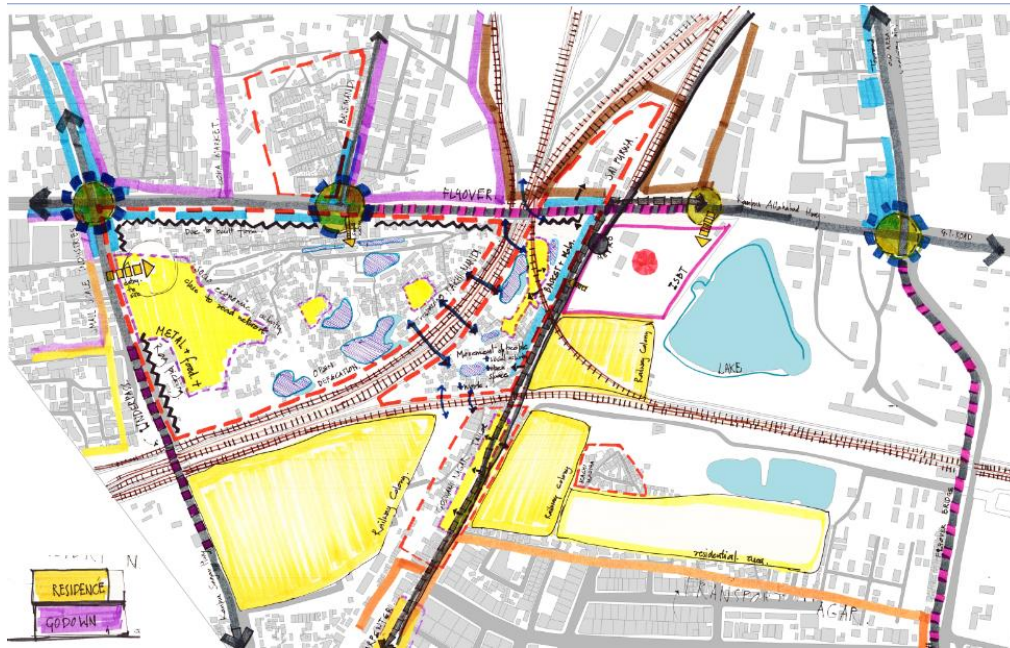


Figure 36 Existing structure plan analysis

### Existing Structure Plan

The existing structure plan shows the important nodes and present important network of movement around the site area. The site has a lot of railway colony adjacent to it. The railway track acts as a barrier for movement and generates the problem of permeability and accessibility of the area, keeping it isolated from the city network. The yellow patches in the above diagram showcase the area with socio economic based activities are encountered. The site is only accessible from one or two point and it remain as a segregated parcel of land which becomes the root of crime, violence and hygienic living.

#### 7.1.1. Issues

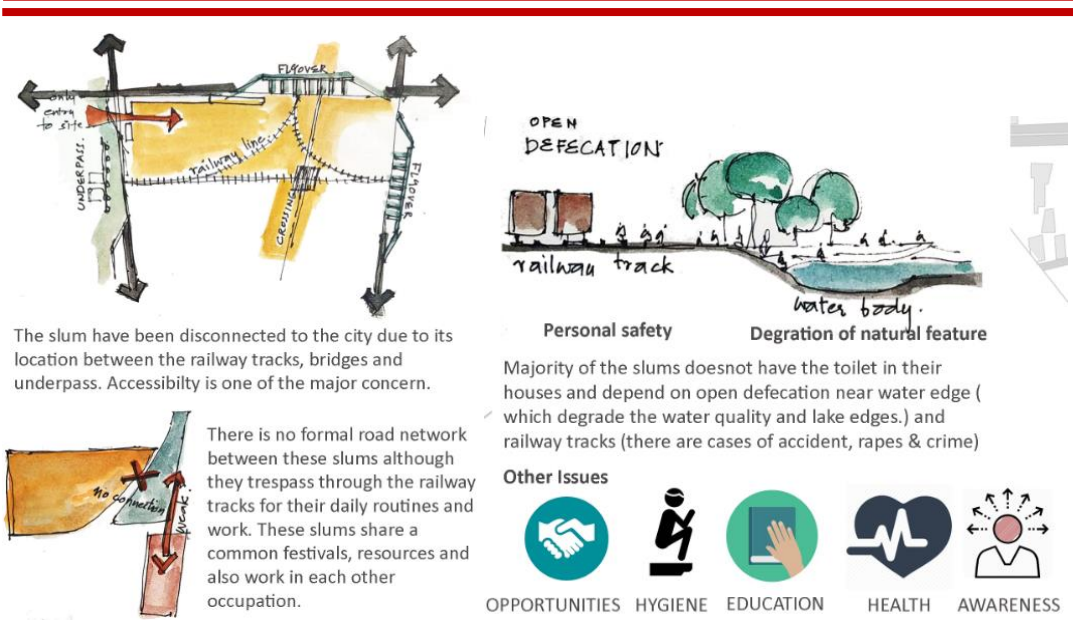


Figure 37 spatial & social issues

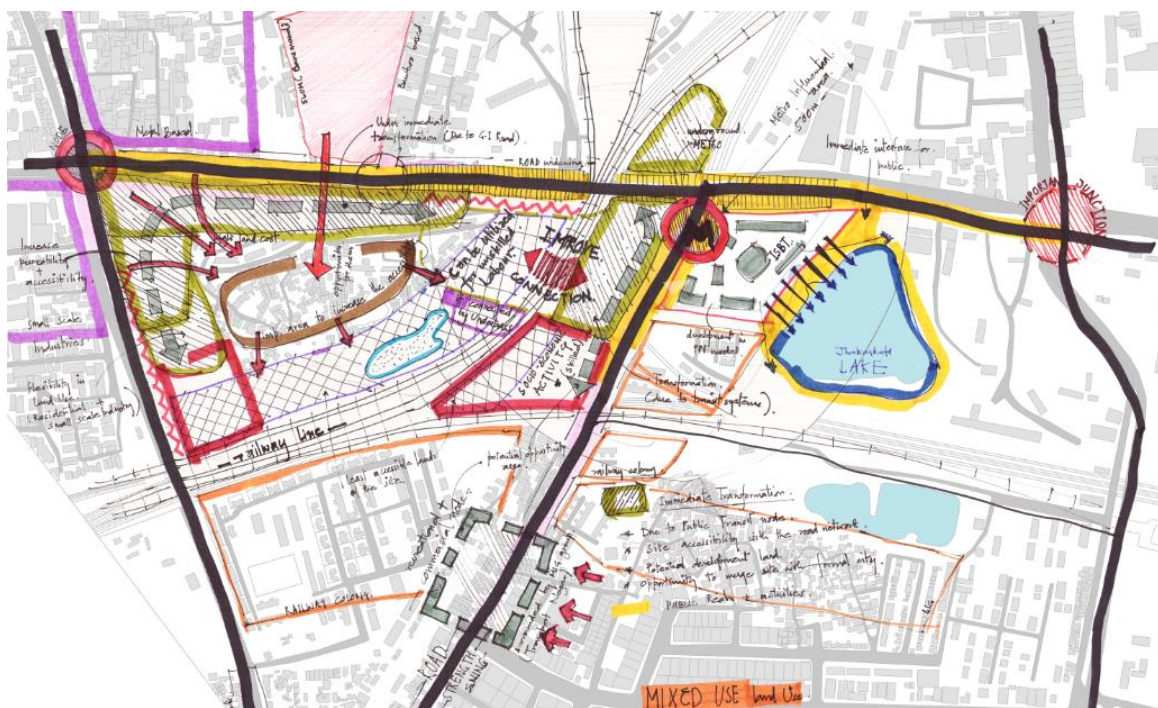
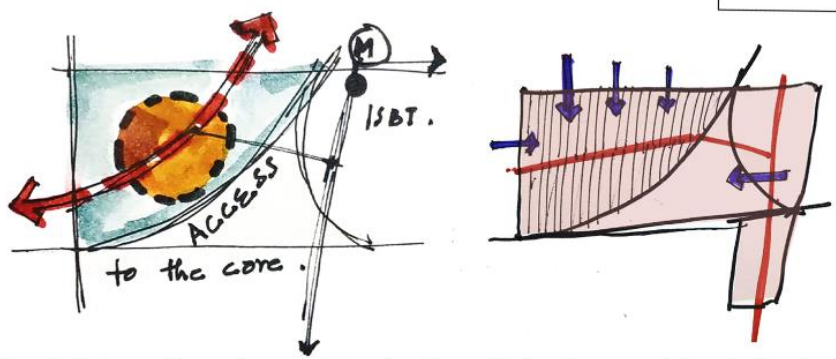


Figure 38 plan showing existing issues in study area

### Proposed Structure Plan



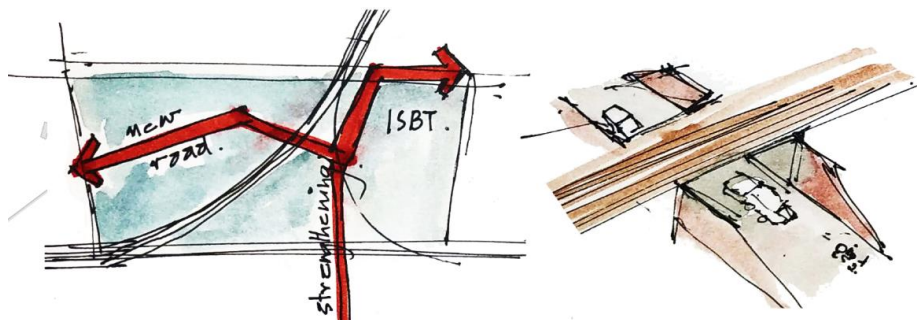
PROPOSED STRUCTURE



The Rakhi mandi area has a higher depth and is least connect due to its site shape & location. So a major intervention at the centre will enhanced the accesibility & legibility to the site hence, a surveillence will be created. Also physical visual permeability is required from site edges.



Generating a through Public realm from slum edge to Jharkarkati lake edge with complementing the upcoming Metro and ISBT development and focussing on the public's experience.



Strengthening the adajcent road to ISBT as major movement corridor connecting Metro & ISBT. And improving the access to the city through site by making a underpass.



Improving walkability



Improving livability of neighborhoods



Improving the quality of the public realm & built environment



Improving community engagement



Free land for development



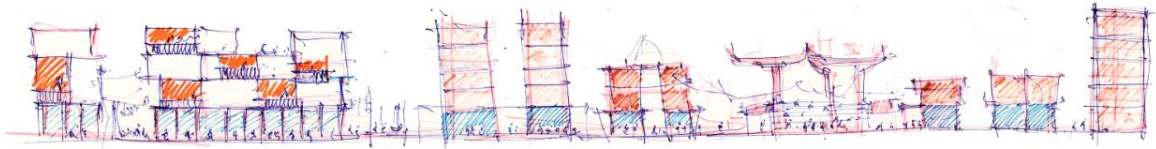


Figure 39 Conceptual sketch showing the public realm at the ISBT and metro area and the activity under flyover.



**Livelihood**

- Socio economic Activity
- Commercial street (site & city level at transit)
- small scale industries
- .Public



**Social housing**

- Rental housing
- Affordable housing - (slum dwellers) + community + city level



**Social Infrastructure**

- Hospital
- School
- Skill center
- Public Utilities



**Open Space**

- Community level space
- neighbourhood space
- City level open space
- Public Space (transit)



**City Connectivity (Accessibility)**

- Strengthen Road Network
- Formal & Informal edge
- City Level Activity



**Financial, approach for development**

- Housing (affordable)
- Commercial Use
- Industrial Use ( small scale)
- Informal vendors

Figure 40 approaches for development

Impact

- De-stigmatisation toward the slum dweller.
- Generating the new beautiful imagine to the city.
- Making the part of public edge & utilising land for development.
- Providing them with designed neighbourhood.

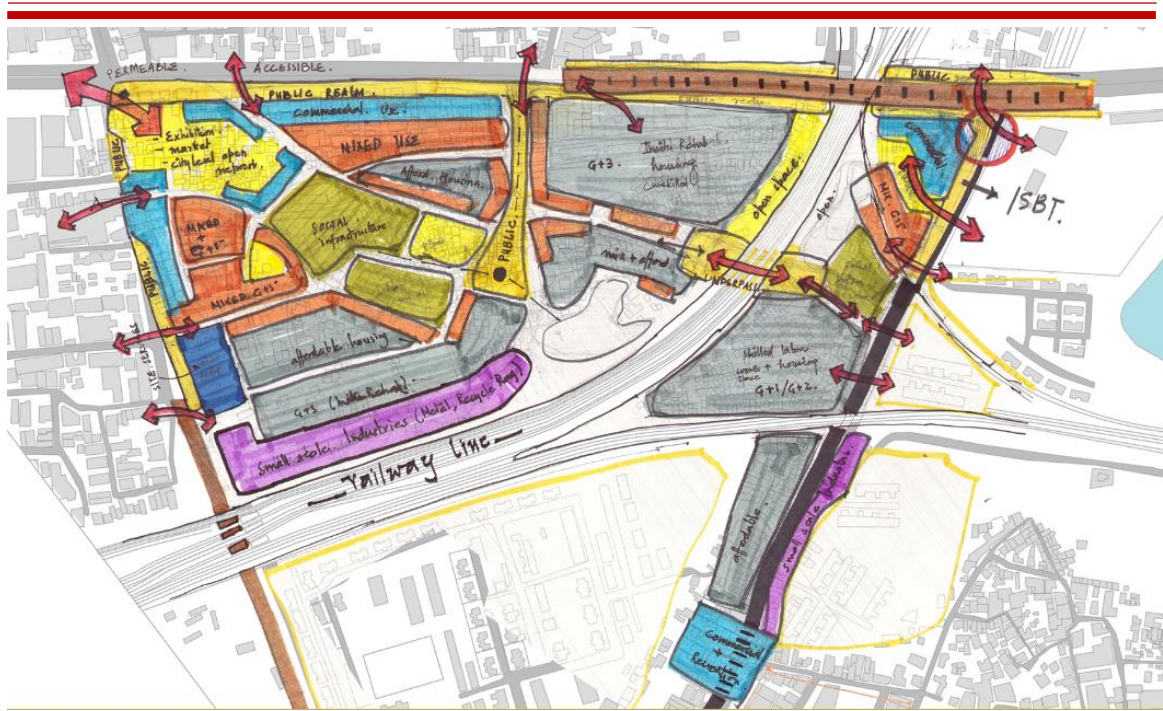


Figure 41 proposed land use & zoning

CONCEPTUAL ZONING & DEVELOPMENT

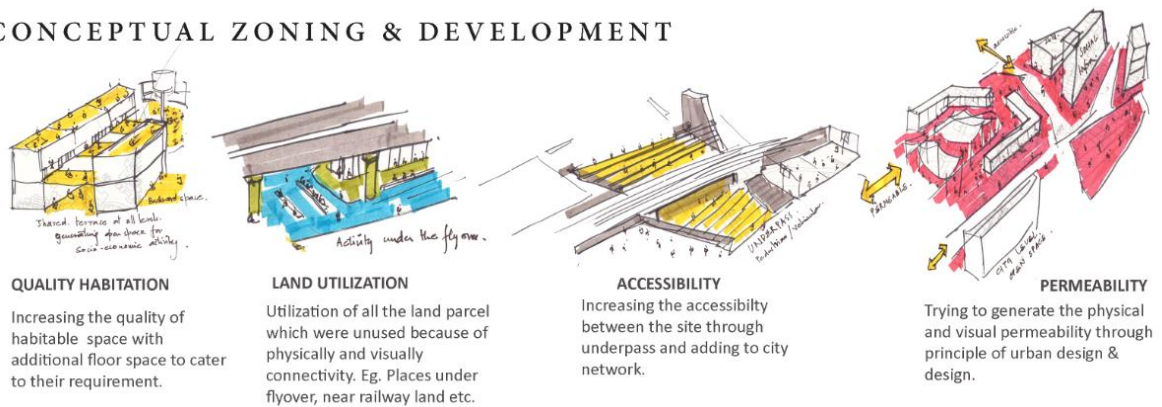


Figure 42 conceptual zoning & development

DESIGN IDEAS FOR EMPOWERMENT

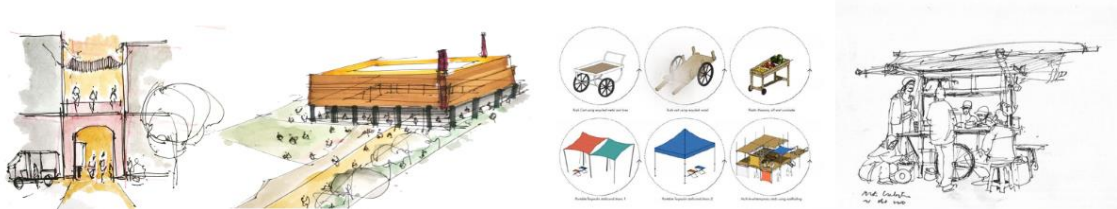


Figure 43 proposals for empowerment



# 8. DESIGN PROPOSALS

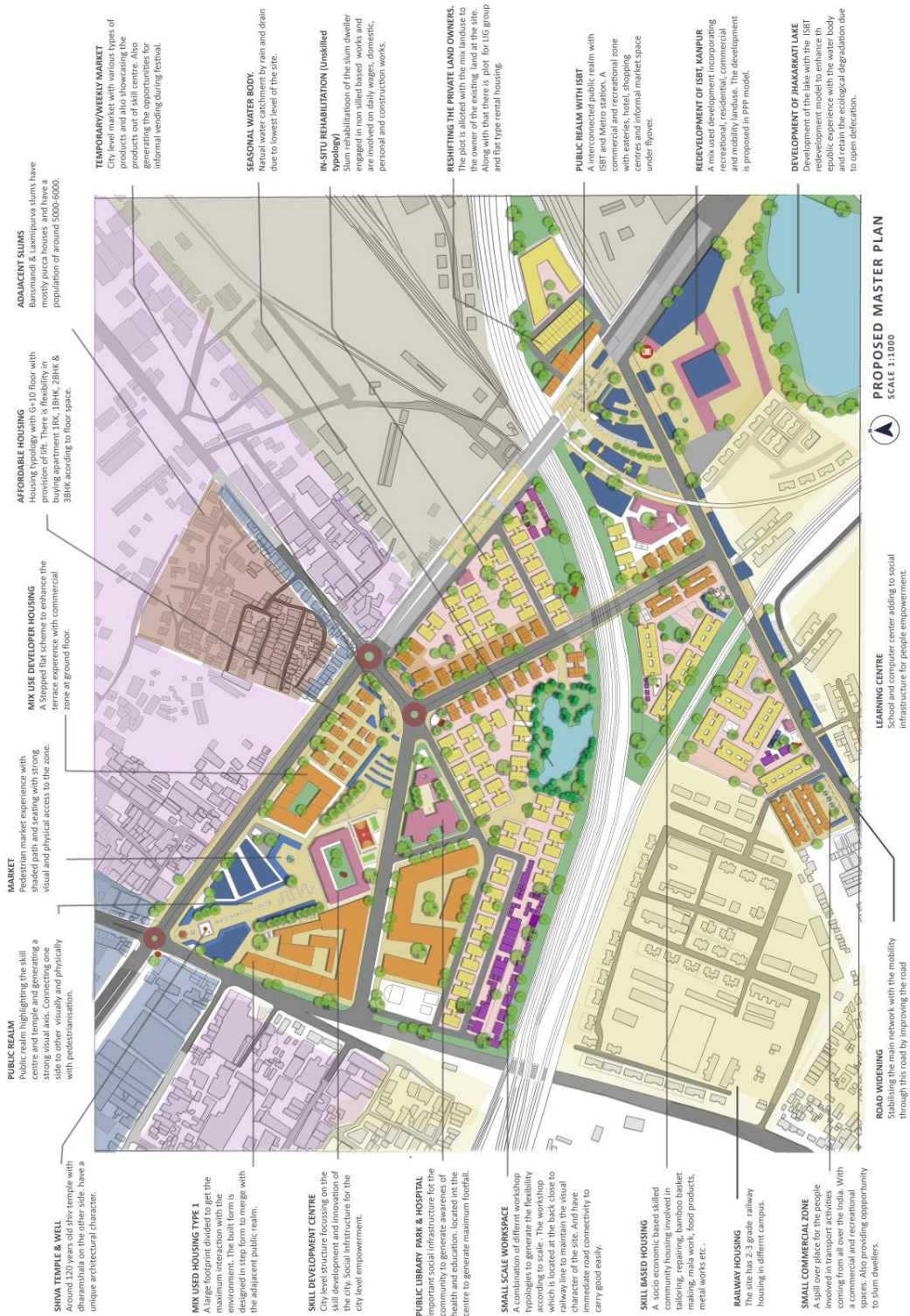
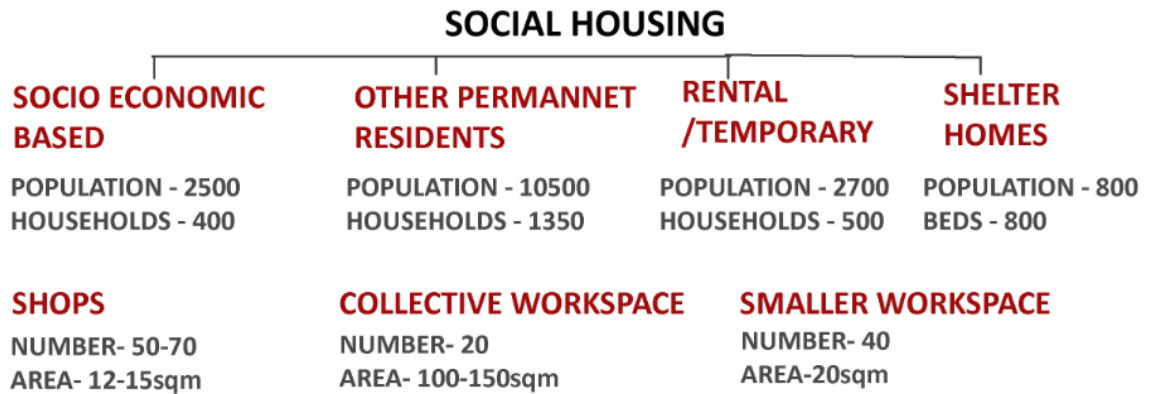


Figure 44 detailed design proposal



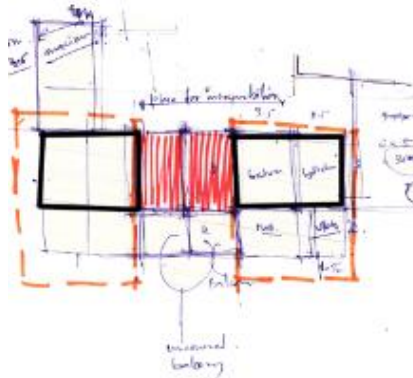
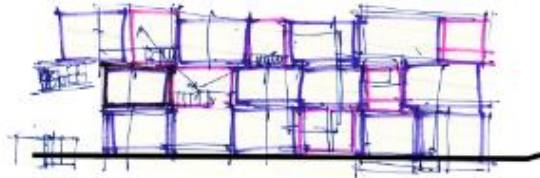
*Figure 45 space requirement to rehabilitate the existing Slum dweller along with their livelihood*

### **Social housing**

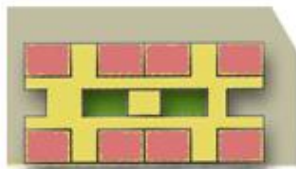
The major challenge is to retain the relationship of housing and livelihood for slum dwellers. The rehabilitation of the actors of the site has to dealt sensitively. The open space relation of slum to the rehabilitation block should offer them flexibility in design and space. The design tries to cater to around 15000 slum dwellers and also generating the affordable housing for adjacent slums with LIG and EWS categories.

REHABILITATION

SOCIO ECONOMIC  
BASED OCCUPATION

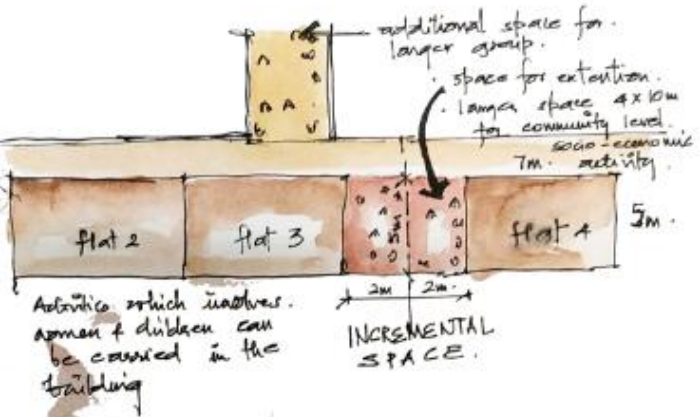


play of space incrementation generates drama



PLAN

UNSKILLED OCCUPATION



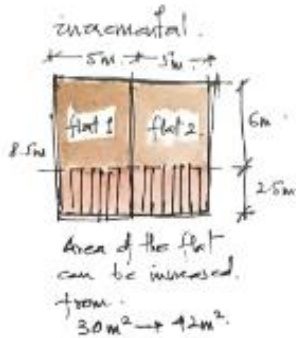
Incremental common space for the socio economic based community for their daily activities. An additional space between if given if the incremented space get occupied.



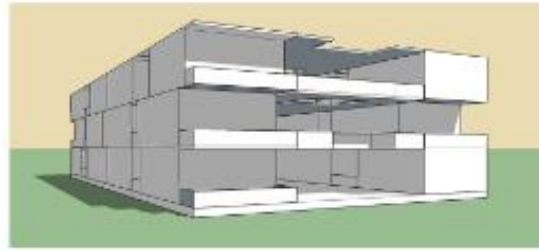
Figure 46 proposed social housing typology



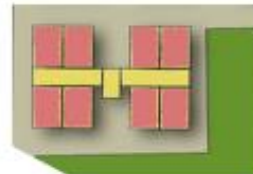
UNSKILLED OCCUPATION



Incremental common space for the socio economic based community for their daily activities. An addition space between if given if the incremented space get occupied.



Incremental side given at the balcony side of the flat scheme. The space can be occupied as per required open space. It could be fully covered or balcony width from 1m-2.5m.



PLAN



AFFORDABLE



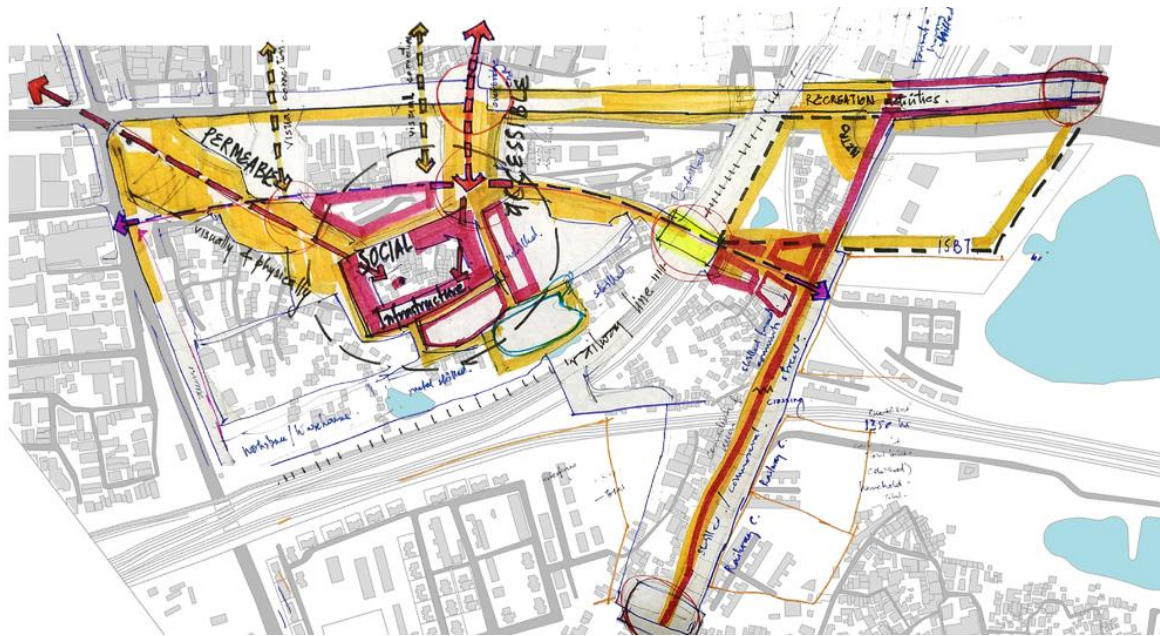
RENTAL

Figure 47 details of proposed housing typologies

**Social Infrastructure**

The major part of empowerment holds on to this area. Any habitation needs social infrastructure to uplift and empower themselves. And infrastructure to such section of society is the prime need of concern. The idea of social urbanism talks about dealing with such ideas of involvement and innovation in the city. In similar case, the design of the project talks about the engagement of people to the self-development through

training and learning from the resources. A skill development centre would help to build the skilled human resource for the city which in return would empower the slum dwellers in and around the city. As Kanpur is an industrial city and it is engaging people in a lot of large- and small-scale industrial work and business. The trained crowd will help to develop more individual engagement in such fields. Along with that the other such as library park, school, computer centre, hospital, anganwadi etc will help to promote awareness of such things in the communities.



*Figure 48 proposed social infrastructure*

As an urban designer, it is necessary to understand the need of the people and city's context and potential to do justice to design through ideas and innovations. The location of such social infrastructure is also necessary to maximize the potential of built form and space. In the proposed design the idea is to utilize the central space of the site to generate the major activity which would bridge the gap between the formal and informal edge. Like case of Medellin the skill centre is designed with strong architectural character. Long with that the a proper foreground has been maintained along these social infrastructure for strong visibility and usability during events and activities.



## SKILL DEVELOPMENT CENTER

Kanpur is the industrial city and people are engaged in various types of small and large scale industrial works which employ a lot of people into the industry. eg. leather, textiles, pan masala, food items etc.

So skill development center will enhance the skills and will give the exposure to earn and learn more.

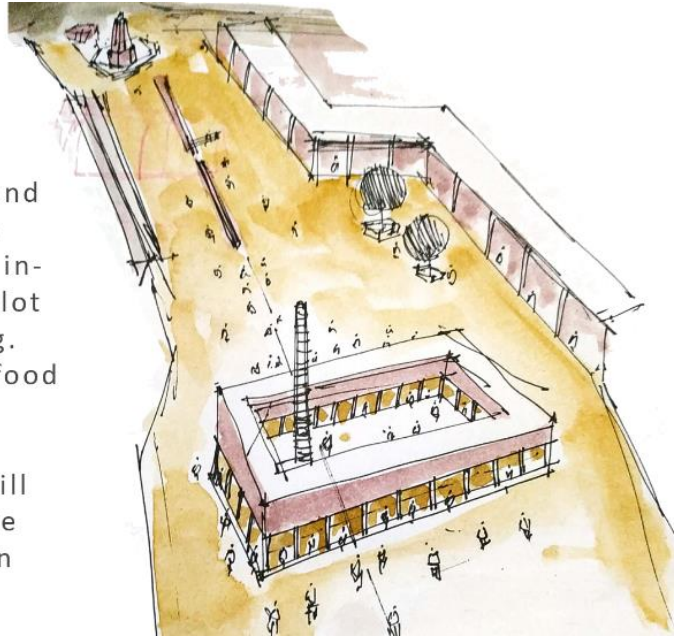


Figure 49 proposed skill development centre

## LIBRARY PARK , HOSPITAL & HOSPITAL

Awareness, knowledge and learning is required for empowerment. So a playful environment adding with basic need will help to get involve slowly with the social infrastructure. The social infrastructure occupies larger idea of overall development.



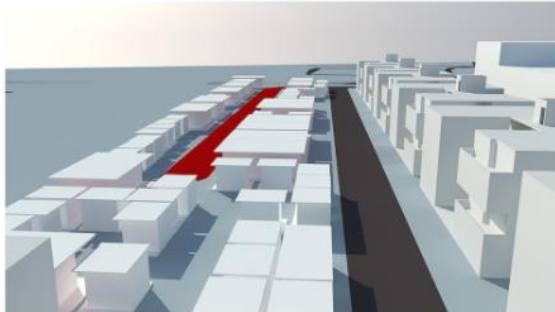
PLAN showing important move of developing a city level social infrastructure.

Figure 50 Other proposed infrastructure & amenities

## Livelihood

The livelihoods of slum dwellers majorly depend on the daily routine and the space they used. A lot of people are engaged in the activities where they use the shared space with the house and in which family is also involved in livelihood system. So, the proposed

design work on the idea of live, work and play for the socio economic based community and provide opportunities to the people at workshop area, shops and nearby informal vending zone.

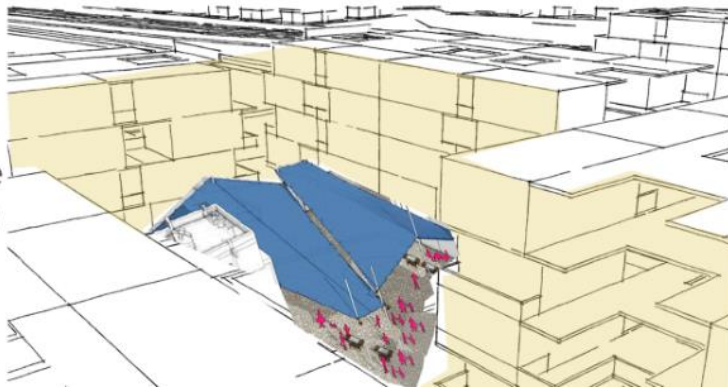


**WORKSPACE**

Workspace provided for the community & others to Engage in small scale industry work. It is located at the back side of the site to avoid visual & physical disturbance but connected through side roads.

**HOUSING SPACE**

The inside courtyard of the cluster can act as a working space at the time of the economic sessions . Also such space will be active during social gathering & festivals.



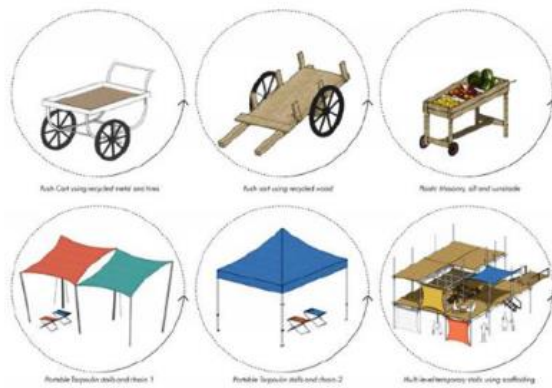
*Figure 51 workspaces in social housing*

**MARKET/SHOPS**



As per people aspiration, a formal space is given along their residential area to ear & grow more. The formal commercial space give them platform to display their skills. A community market is near every cluster is provided so that female n children can easily engage without disturbing the daily life cycle.

**INFORMAL VENDING**



*Figure 52 space for other daily commercial activities*

Flexible space for slum dwellers and city people for informal vending.



*Figure 53 details of informal vending space*

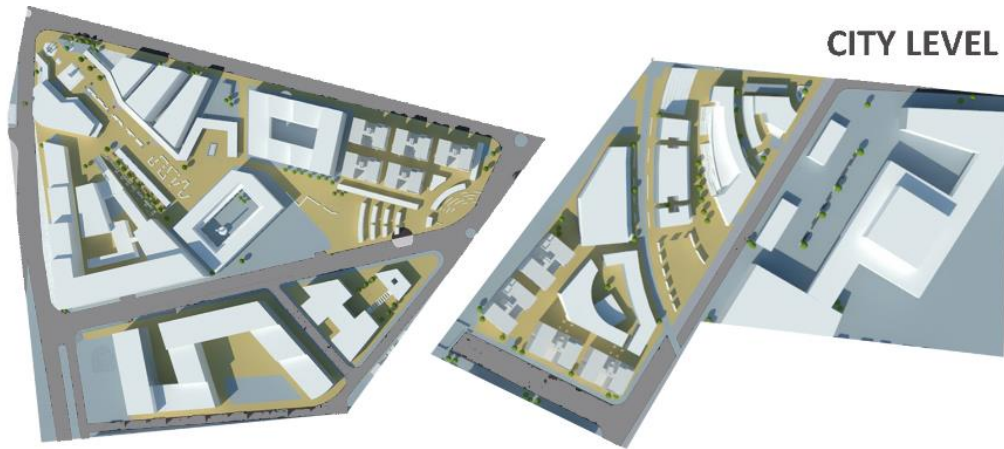
**Open space**

The improved space network of the site majorly targets to two major areas.

1. The city connected edge at the site.
2. The housing space at the level for



carrying out socio economic activities.



The city level open spaces have higher connectivity with public transport. Both the end of the site has city level open space and have connectivity with & recreational activities.

*Figure 54 proposed city level open space*



The community level spaces are left flexible for the people to use in multiple way as per festival, occupation and needs. All the community spaces are different and unique.

*Figure 55 proposed neighbourhood level open space*

**COMMUNITIES (FUNCTIONAL CHANGE)**



The community level spaces are left flexible for the people to use in multiple way as per festival, occupation and needs. All the community spaces are different and unique.

*Figure 56 proposed community level open space*



*Figure 57 level wise distribution of open spaces*



Figure 58 Plan showing the open space network

### **Accessibility (City Connectivity)**

The major problem of isolation arises from the fact of weak accessibility and permeability of the area. All the slums encountered the same type of problem or formation in such zones which are neglected and merely visited. These areas become the part of violence, crime and unhealthy environment. To bring back the area into the city map, such area has to be dealt with extreme design solution to enhance the movement and access. The proposed design generates the connection between two most isolated areas of the site i.e. near the railway line by making a vehicular and pedestrian underpass. Thus, connecting ISBT and Transport nagar to the shortest route to the Afeem Kothi area. The public realm has been maintained in such a way that that it shares the edge with informal edge or housing of slum dwellers. The visibility of the area is enhanced by the visual markers in form of building form, sculpture, public art etc.

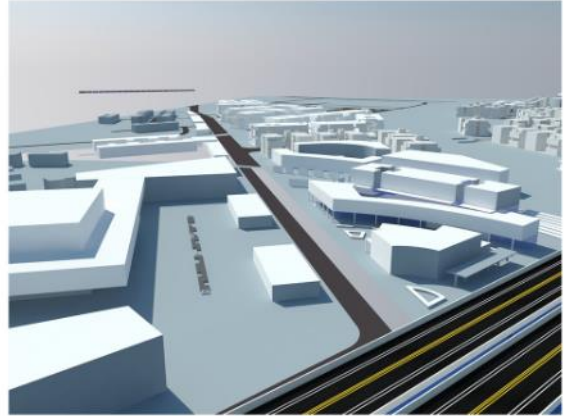


**ROAD WIDENING  
LAND ACCESSIBILITY**

The site is connected at both the edges with city major activity area. Also there is physical & visual transparency.



Public Space at Afeem Kothi Junction



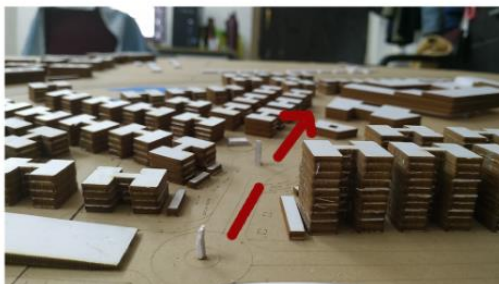
View from Bridge toward ISBT

Figure 59 majors taken for land accessibility

**VISUAL MARKER**



Visual markers like, sculpture, pillar, temple ect are aligned along major visual & physical access node.



**UNDERPASS**

Major moves of connecting both sites with underpass and making it is as imp. street connecting city & ISBT.

Figure 60 majors taken for the identification of areas

**Financial Approaches**





**GUIDELINES**

**Pradhan Mantri Awas Yojna- Housing for all (Urban Mission)**

**Beneficiary family-** husband, wife, son and daughter.

**Area - 30sqm (323ft.)** and can be increased as per ULBs & state.

**Basic Infrastructure** - Water, sanitation, sewage, road and electricity.

**Development-** In-situ- formal urban settlement  
State govt./ cities can provide **additional FAR/ FSI/ TDR** for making project viable.

**Subsidy-** 1lakh per house.

**PMAY approach-**

Identification, number of area, market potential.

Additional FAR/ FSI/ TDR relax density.

Allow mixed usage

Club nearby slums to make financially and technically viable.

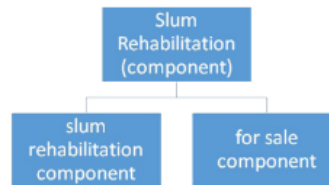


Figure 61 financial approaches



Figure 62 Plan

showing the

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*land under development*

Blue- Government initiative(housing), Yellow- Social Infrastructure, Red- Land under development model.

The land close to transit system and G.T.Road has been kept for the developers to develop to gain maximum profit. The rehabilitated houses were kept at the most undesired place of the site near the track but improved connected with underpass between tracks. And the yellow portion of land is made closer to both city edge and rehabilitated slum edge. The land for housing will be given to the slum dweller with government subsidy of 1-1.5 lakh and the rest amount bear by developer. But for that government provide extra FSI and TDR for development for financial stability on both ends.

8.1.1. *Area statement*

**Housing typology 1**

Total number of mixed use clusters 13

Commercial area-4810 & Residential 14430

Only residential 53280

**Housing typology 2**

Total number of clusters 7

Mixed use 2

Commercial area-1116.8 & Residential 3350.6

Only residential 15636.4

**Housing typology 3**

Total number of clusters 5

Mixed use 2

Commercial area-1685.3 & Residential 5056.09

Only residential 10112.1

**Housing typology 4(Affordable Housing)**

Total number of clusters 5

Mixed use-5

Commercial-1850 & Residential-16650

**Housing typology 5**

Total number of clusters 1 Residential-11142.84

**Built typology 6**

Commercial typology 2

Type 1 area-5199.9 & Type 2 area – 1876.3

Workshop

Type 1: 100x17=1700 & Type 2: 20x51=1020

**Mixed use development**

Type-1 Commercial-11652 & Residential-16327

Type-2 Commercial-1920 & Residential-

Type-3 Commercial-6563 & Residential-

**Social infrastructure**

Skill centre-5558.6 & Hospital 5326.9 & School1686.9

**Total area**

a-193172.3 & b-92417.9

## **9. ANNEXURE**

**Sheet 1: Area of concern, Site introduction, Literature review.**

**Sheet 2: Case study**

**Sheet 3: Demographic Survey**

**Sheet 4: Livelihood & Open Space (Documentation)**

**Sheet 5: Documentation & Analysis**

**Sheet 6: Structure Plan & Strategies**

**Sheet 7: Zoning & Master Plan**

**Sheet 8: Design detail & valuation**



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