KAMLA RAHEJA VIDYANIDHI INSTITUTE FOR ARCHITECTURE AND ENVIRONMENTAL STUDIES (KRVIA) + YOUTH FOR UNITY AND VOLUNTARY ACTION (YUVA) | 2014

KRVIA

Happily there is another school of planning, of building and gardening that investigates and considers a whole set of existing conditions; that studies the whole place as it stands, seeking out how it has grown to be what it is, and recognizing alike its advantages, its difficulties and its defects... to undo as little as possible, while planning to increase the well-being of the people at all levels, from the humblest to the highest.

Patrick Geddes

...that part of the language which defines the town or community...can never be "designed" or "built" in one fell swoop - but patient piecemeal growth, designed in such a way that every individual act is always helping to create or generate these larger global patterns, will, slowly and surely, over the years, make a community that has these global patterns in it.

Christopher Alexander

What is a city but the people?

William Shakespere

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2013-2014

Malvani People's Plan

A Study and Physical Plan for the Development of Malvani Area of Mumbai

KRVIA + YUVA

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ABBREVIATIONS

B-UR	Built Un-built Ratio
BPA	Buildable Plot Areas
BPR	Buildable Plot Ratio
BUA	Built Up Areas
CBUA	Commercial Built Up Area
DDA	Delhi Development Authority
DU	Dwelling Units
ELU	Existing Land Use
FAR	Floor Area Ratio
FSI	Floor Space Index
NBCI	National Building Code of India
PGA	Public Ground Area
PLU	Proposed Land Use
PSS	Public Service Space
RBUA	Residential Built Up Area
UDPFI	Urban Development Plan Formulation and Implementation Guidelines

DEFINITIONS

Private Spaces	Built up private spaces: rooms, stairs, landings, etc
	Open private spaces: courts, parking, driveways
	Semi-private spaces: clubs, shared courts
Private Realm	Residential built up areas and residential areas with restricted access to outsiders
	Commercial built up areas and plots
	Industrial built up areas and plots
Public Realm	Social infrastructure: such as health facilities, educational facilities, socio-cultural facilities
	Open public spaces recreation areas: such as playgrounds, parks
	Open public service spaces : pedestrian circulation, local roads, street markets, bicycle tracks, parking
Develop-able Areas	All lands that can be built upon. Exclude natural areas and NDZs
Undeveloped areas	Develop-able areas that are lying vacant or unused
Build-able Plot Area (BPA)	RBPA = Residential Build-able Plot Area
	CBPA = Commercial Build-able Plot Area
Public Ground Area (PGA)	Social infrastructure area + recreation area + service areas
Built Up Areas (BUA)	RBUA = Residential Built Up Area
	CBUA = Commercial Built Up Area + Industrial
Build-able Plot Ratio (BPR)	Proportion of BUA to Public Spaces (Amenities, open public recreation and service spaces)
Built / Un-built Ratio (B-UR)	Ratio of built up ground coverage to ground areas that are not built upon

DEFINITIONS

RA / CAPITA	Residential land area / number of persons sharing this area
RBUA / CAPITA	Residential Built Up Area / number of persons sharing this area
MFA / CAPITA	Total Health Facility Area in a defined region / number of persons living within the region
ACCESSIBLE MFA / CAPITA	Total Health Facility Area in a defined region / number of persons living within the region *who can actually use or benefit from this area*
EFA / CAPITA	Total Educational Facility Area in a defined region / number of persons living within the region
ACCESSIBLE EFA / CAPITA	Total Educational Facility Area in a defined region / number of persons living within the region *who can actually use or benefit from this area*
SFA / CAPITA	Total Socio-cultural Facility Area in a defined region / number of persons living within the region
ACCESSIBLE SFA / CAPITA	Total Socio-cultural Facility Area in a defined region / number of persons living within the region *who can actu*
OSA / CAPITA	Total recreational area in a defined region / number of persons living within the region
ACCESSIBLE OSA / CAPITA	Total Recreational Facility Area in a defined region / number of persons living within the region *who can actua*
DU / Ha	Dwelling Units / Hectare
MFU	Health Facility Units
EFU	Educational Facility Units
SFU	Socio-cultural Facility Units
OSU	Recreational Facility Units
BPA	Total Buildable Plot Areas
SIA	Total Social Infrastructure Area [MFA + EFA + SFA]
PGA	Total Public Ground Area [SIA + OSA + PSS]
RESIDENTIAL FSI CONSUMPTION	RBUA / RA
COMMERCIAL FSI CONSUMPTION	CBUA / CA
NIGHT-TIME GLOBAL DENSITY	Persons / [RA+PGA]
DAY-TIME GLOBAL DENSITY	[Residents + Jobs – No of Employed] / [RA + CA + PGA]
PLOT FACTOR	BPA / Street area
INDOOR CROWDING	Occupants / Hectare of BUA
STREET CROWDING	Occupants / Hectare of Street Area

BASIC LAND USE CATEGORIES AND THEIR DEFINITIONS

RESIDENTIAL	R	Lands that are predominantly or exclusively used for residential purposes
COMMERCIAL	C	Lands that are predominantly or exclusively used for commercial purposes
INDUSTRIAL	I	Lands that are predominantly or exclusively used for industrial or manufacturing purposes
HEALTH	M	Lands reserved for or used for health facilities (social infrastructure)
EDUCATIONAL	E	Lands reserved or used for educational facilities (social infrastructure)
SOCIO-CULTURAL	S	Lands reserved or used for socio-cultural facilities (social infrastructure)
OPEN SPACES	OS	Lands reserved or used for open recreational facilities
UTILITY	U	Lands reserved or used for public utilities (STPs, public toilets, etc.)
URBAN VILLAGES	UV	Formerly rural settlements that are now part of the city but retain their distinct socio-spatial character
PRIMARY ACTIVITY	P	Lands reserved or used for the extraction of natural resources or agriculture
NATURAL AREA	N	Ecologically significant or sensitive areas
WATER BODY	W/B	Natural or Man made water body
TRANSIT AREA	T	Areas for movement of people, animals, goods and vehicles (service areas)
COMMUNICATION	CO	Areas reserved or used for mass communications infrastructure
ARTERIAL TRANSPORT	AT	Areas for mass transport movement and parking such as freeways, highways, railway lines, etc.
VACANT LAND	VL	Unused lands or abandoned buildings
UNCLASSIFIED	X	Unknown land use or unclassified


WESTERN SUBURBS
SUB-CITY LEVEL
PN WARD
WARD LEVEL
MALVANI
SITE / URBAN DISTRICT LEVEL
AMBOOJWADI NEIGHBORHOOD
NEIGHBORHOOD LEVEL
PATRACHAWL
COMMUNITY LEVEL
STREET LEVEL

DEVELOPMENT PLAN AIMS AND OBJECTIVES

Introduction

An approach to planning, improvement and up-gradation of existing high density low income settlements in Mumbai

The habitat of a city dweller is not simply her dwelling unit – minimum area with walls and a roof – but a place that offers to her and her family opportunities of work, of leisure, of social interaction, health and safety, the freedom to shape their environment, and the possibility of growth and improvement - in short, an institution for habitation, a place for creative well being. As physical infrastructure, it extends much beyond the isolated units provided by private developers or housing agencies. The city, the settlement district, the neighborhood, the community, the street, the housing cluster and dwelling itself – all form a nested spatial structure, each ring dependent on and completing the one outside it, and completed in turn by the one inside.

The Malvani People's Plan is a local area development plan for the urban district of Malvani in the Western Suburb of Mumbai, an area of 2.8 Sq Km, and home to an estimated 390,000 people (net density of 2670 p/Ha and tenement density of 463 DU/Ha). Settlements such as Malvani, a high density low income under-developed area, pose special problems, and there are many such areas in the city – Dharavi, Shivajinagar, Asalfa, are some of the larger examples. The Development Plan of 2014-34 for Greater Mumbai already identifies these as "areas requiring comprehensive development" and suggests making "local plans" for them. Though the thinking behind such a step is a "holistic development," the present study indicates that the Malvani (and almost certainly other similar areas in Mumbai) are internally quite diverse in terms levels of development and settlement patterns, and while holistic planning is necessary, development, if is has to be beneficial to the residents, will need to be discriminate, tentative and incremental.

This project began with a few concerns that were voiced during the

1 Mahbub Ul Haq, UNDP, 1990

2 Sen, Amartya, 1999, Development as Freedom, Oxford University Press

many debates and discussions around Mumbai's Development Plan last year by the People's Campaign – a movement consisting of more than one hundred grassroots, non-governmental and community based organizations, activists and academics. For the Campaign, the striking inequities in access to the urban commons, the low levels of human development in the city, the little or no participation of residents in the planning process, the increasing shift of urban development in the interests of developers and investors, and the poor quality and availability of affordable housing, among others, were crucial concerns. When YUVA invited KRVIA to collaborate on drafting a development plan for Malvani, these concerns became the first questions we asked ourselves:

1) What is the role of physical development in the achievement of human development goals? What are, in other words, the physical barriers to the exercise of reasoned agency of urban dwellers, and how can these be mitigated? How can planning be undertaken for the achievement of social goals as opposed to development that is linked to economic growth objectives?

2) What is the role of physical planning in creating spatial equity? How can we ensure equitable access of every urban dweller to essential services, social infrastructure and the urban commons?

3) How can planning facilitate dweller control without compromising on social commitments and welfare objectives? What kind of participatory structures are necessary for planners to understand the needs and priorities of communities, and how can these be set up?

4) Is it possible, and beneficial, to plan for the informal economy? What sort of questions need to be asked? What kind of research is necessary? What kind of recommendations will be made?

5) What is the purpose of norms and standards for development? What are their limitations? Is it possible to retain the substance and values that these are based on even in circumstances where their actual achievement may not be possible?

Based on these questions, we sought to understand the historical and formative circumstances of Malvani, the socio-spatial patterns and the quality and conditions of the existing settlement, through various kinds of surveys and studies. Resident communities were identified and mapped, and Focused Group Discussions (FGDs) were carried out with each of these communities to understand needs and priorities. Much of the amenity mapping at the community level was carried out with the help of the residents. The FGDs also revealed availability and quality of services and infrastructure at the community level, which were spatialized to show the variations, and the general inadequacy of basic necessities. Communities also indicated their own preferences with respect to their future needs, which were adopted into the final proposals. The final proposal was made at two levels: the first level was the Proposed Land Use (PLU), which reserves lands for public and private use, and the social infrastructure facilities reserved are to be built and managed by the MCGM or any other public agency. The first level will provide the infrastructural framework for the second level, that details the developments in private use areas (mainly residential areas) where guidelines are provided for the repair, improvement or up gradation of homes. Here, development may be undertaken by households or by cooperatives with the support (finance, construction, etc.) of a public agency.

The Malvani Plan proposes a low-rise high density development for the district undertaken through a conservative, incremental and cooperative self development. Presently, the average residential space available in Malvani is 4.66 sqm / capita (out of which only 2.6 sqm is authorized) and only 0.8 sqm / capita of public area (social infrastructure, recreation and circulation areas) is available. Despite there being only 0.6 sqm / capita vacant land, with the adoption of what we call the "free-layout

typology" it is possible to achieve 6 sqm / capita average residential space (ranging from 5.9 sqm / capita) and 6.4 sqm / capita of public area. In addition, the study and analysis that led to the proposals have also evolved general principles which may find application in similar contexts elsewhere in the city. These are given as points below, and are described at length in the report.

1) Possible strategies for how incremental, piecemeal and conservative transformation of the lived environment along with adequate planned provisions for health, education, socio-cultural activities, leisure, goods and services and mobility may be achieved.

2) The importance of building typologies and planned urban layouts for physical development.

3) The promise of collective / neighborhood ownership of land and cooperative development and control over housing.

4) A way of achieving adequate social infrastructure and services for high density settlements with limited availability of land for infrastructure creation.

5) How planned provision of infrastructure, support and services for the informal economy and informal livelihoods may be undertaken.

6) How improvement and augmentation of public and semi public transport infrastructure in the district could be achieved.

7) The new kinds of social amenities and facilities that are appropriate and suitable for the needs of informal working people and often transient communities.

8) A range of 'intermediate' improvement and up gradation models for mixed use neighborhoods based on the priorities and capabilities of the resident community.

9) The physical and institutional ways to prevent the formation of gated enclaves and ghettos, and to setup safeguards against eventual gentrification as the district develops.

10) The basic development controls and built form codes that can be employed for a low-rise high density development scheme, to achieve an affordable, self-developed and diverse built environment.

11) How structures for participation and involvement of local communities could be carried out at various stages in the plan making process.

On Development

The Maharashtra Regional and Town Planning Act (MR&TP), 1966 defines development "with its grammatical variations [as] the carrying out of buildings, engineering, mining or other operations in, or over, or under, land or the making of any material change, in any building or land or in the use of any building or land." Partial or complete demolition of any building or structure, land reclamation, redevelopment or lay-out and sub-division of land are also included in the definition of development. It is obvious that this definition is physicalist, but even as a physicalist definition, it is narrowly conceived. There is not a trace of the ends or aims for which this development ought to be undertaken, making development synonymous with any construction or building activity. It is not surprising, therefore, that even in popular usage this meaning has persisted. In recent times, the notion that physical development - usually urbanisation - is essential for the achievement of economic growth objectives has taken hold, and rapid urban growth, and the destruction and renewal of lived environments of people - especially the urban poor - has been assumed to be an end in itself. Quite ironically, the interests of organisationally disadvantaged communities have come into conflict with the interests of developers and development agencies, and out of this conflict emerges a built environment that is unaffordable and unmanageable and uninhabitable for people whose lives it was supposed to improve.

For this study and plan, we shall think about development as human development, as defined by the UNDP: "the objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives."[1] Amartya Sen in his Development as Freedom expresses a similar idea, of development as the "creation of social opportunities" for the "expansion of human capabilities and quality of life."[2] He writes, that the

'The rewards of human development go, as we have seen, well beyond the direct enhancement of quality of life, and include also its impact on people's productive abilities and thus on economic growth on a widely shared basis. Literacy and numeracy help the participation of the masses in the process of economic expansion. To use the opportunities of global trade, "quality control" as well as "production to specification" can be quite crucial, and they are hard for illiterate or innumerate labourers to achieve and maintain. Furthermore, there is considerable evidence that improved health care as well as nutrition also make the workforce more productive and better remunerated. There is much confirmation, in the contemporary empirical literature, of the impact of education, especially female education, on reducing fertility rates. "[3]

Sen argues here that development ought to be seen as a process that removes various kinds of constraints ("unfreedoms") that leave people with little choice or opportunity to exercise their "reasoned agency." This removal of "substantial unfreedoms" - by being literate and numerate, being able to actively participate in political affairs and so on - is constitutive of development. All this, of course, is in contrast to the narrow views of development that equates it simply with economic growth, technological advances or social modernisation.

The Urban Development Plan Formulation and Implementation (UDPFI) Guidelines express similar views when it speaks about social infrastructure and amenities (health facilities, educational facilities, socio-cultural infrastructure and recreational areas) as the "basic requirement of urban life." The "adequacy and accessibility" to them are the "two key contributors in the up-gradation and enrichment of quality of urban life which is the primary objective of a planned development effort." Amenities, it continues, falls under the "social welfare objectives of the urban development programme, as distinct from economic development objectives and especially in context of the rapidly developing liberalized and competitive economic scenario." Urban managers and administrators are "required to make special efforts to devise innovative strategies in order to ensure their wider coverage and equitable distribution for the society as a whole and the vulnerable sections of the urban society in specific."[4]

1. Mahbub ul Haq, UNDP, 1990

2. Sen, Amartya. 1999. Development as Freedom. Oxford University Press.

3. Sen, Amartya. 1999. Development as Freedom. Oxford University Press. p. 144.

4. Urban Development Plans Formulation and Implementation - Guidelines. Government of India. 1996.

The Supreme Court of India in the case of Chameli Singh and Others vs. State of Uttar Pradesh (1996) has given a clear understanding of the Right to Life:

'Right to life guaranteed in any civilized society implies the *right to food, water, decent environment, education, medical care and shelter*. These are the basic human rights known to any civilized society. All civil, political, social and cultural rights enshrined in the Universal Declaration of Human Rights and Conventions or under the Constitution of India cannot be exercised without these basic human rights'

The court has also understood and pronounced the right to livelihood as being indivisible from the right to shelter - in the case Olga Tellis vs. Bombay Municipal Corporation (1985), the court stated that,

"Eviction of the petitioners from their dwellings would result in the deprivation of their livelihood. Article 21 includes livelihood and so if the deprivation of livelihood were not effected by a reasonable procedure established by law, the same would be violative of Article 21. *The right under Article 21 is the right to livelihood, because no person can live without the means of living* i.e. the means of livelihood. If the right to livelihood were not to be recognized as part of the Constitutional right to life, the easiest way of depriving a person of his right to life would be to deprive him of his means of livelihood to the point of abrogation. There is thus a close nexus between life and means of livelihood. And as such that which alone makes it possible to live, leave aside what makes life liveable, *must be deemed to be an integral component of the right to life.* "

The Article 2 of the UN Declaration of the Right to Development clearly recognises the "human person" [as] the "central subject of development" who should "be an active *participant and beneficiary* of the right to development." States, it says, have the "right and duty" to formulate policies aimed at the constant well being of the *entire population and all individuals*, "on the basis of their *active, free and meaningful participation in development and in the fair distribution of the benefits resulting there from.*"

In addition to achieving rapid human development, the objective of Urban Development must be understood as the equitable distribution of opportunities offered by the city, and to ensure, to all individuals, access to the urban commons.

On Planning

Planning, concieved broadly, is the use of coherent means for the achievement of a given set of objectives, after an understanding the constraints, resources at hand and predictable consequences of intervention. There have been many traditions in city and urban planning. Ebenezer Howard, Patrick Geddes, Lewis Mumford, Colin Ward and others have belonged to the libertarian socialist tradition and planning here was understood as a combination of social movements and proposals.[5] There has also been an authoritarian tradition in planning, pioneered by Baron Hausmann in the 19th century, developed by Daniel Burnham in the early 20th, but popularised by one of the best known architects of the twentieth century, Le Corbusier. This approach has inspired the creation of many capital cities around the world, including the Indian capital, and perhaps the only city planned by Corbusier that got built - the city of Chandigarh. In addition to these two, there is a more mainstream approach to planning that has been the consequence of welfare state policies, and has, over the past century seen a set of reforms that have shaped modern urban planning in democratic societies - zoning and land use planning, the concept of public goods, environmental regulations, density and amenity norms, etc. - all constituting the common sense framework of the planning process. Though these instruments are narrow, limited and far from adequacy or perfection, they have some important elements that are worth protecting and when used well with a progressive interpretation, can be quite useful for a critique of development policies as well as in the planning of new urban environments.

Unfortunately, in recent times, the many welfare state measures and protections, and much of the social orientation of planning has suffered a setback, despite becoming a little more open to public knowledge, even if it is still quite far from public control. Planning has been recalibrated for the creation of investment opportunities and facilitating private enterprise, and the process has largely shifted from an emphasis on redistribution to an emphasis on the generation of wealth and economic growth. Often, these aims are shrouded in a technical vocabulary that is impossible for the common citizen to penetrate, and planners - almost always either state bureaucrats or a professional-managerial class, do little to make planning accessible to citizens.

Our view is that the distinction between physical and non-physical planning is artificial and misleading, as much of the consequences of physical planning are economic, social as well as physical. The sociologist Hebert Gans writes about the asymmetric consequences of planning, and the problem with the distinction between physical and social planning:

"Every planning activity, like any other form of social change, creates net benefits for some people, and net costs for others. These may be non-material as well as material. Whether intentionally or not, physical planning has tended to provide greater benefits to those who already have considerable economic resources or political power, be they redevelopers or tenants who profit from a luxury housing scheme, central business district retailers who gain, or expect to gain, from the ever increasing number of plans to "revive downtown," or the large taxpayers who are helped most when planning's main aim is to increase municipal revenues. The interest in social planning is a direct result of this distribution of benefits, for it seeks to help the people who are forced to pay net costs in the physical planning process. Too often, these are poor people, for example, residents of a renewal or highway project who suffer when adequate relocation housing is lacking. Needless to say, this political bifurcation, in which physical planning benefits the well-to-do, and social planning the less fortunate ones, is not a desirable state of affairs either for the community or for planning."[6]

Making planning method oriented as opposed to goal or objectives oriented suits planners who specialise in methods, and enables them to maintain their status and social position. Gans continues,

5 John Friedmann, Insurgencies: Essays in Planning Theory (Taylor & Francis, 2011), p.60. Also see Peter Hall, Cities of Tomorrow.

6 Herbert Gans, J. 1953. "Social and Physical Planning for the Elimination of Urban Poverty." Wash. UL.Q.

"If planning is conceived as goal-oriented, however, goals become most important and methods are subordinated to the goal. In such a planning process, in which a large number of different methods are used in an integrated fashion, any single method loses its magical aura. Moreover, no goal can be defined so narrowly that it is only physical or only social. In a goal-oriented approach, then, there can be no social or physical planning. There is only planning, an approach which agrees upon the best goals and then finds the best methods to achieve them."[1]

The discussion of goals and objectives requires asking the questions : what goals? how are they formulated? In whose interests? It is here that participation in the planning process - *real* participation, not mere tokenism - becomes crucial, as in a highly stratified and unequal context such as ours, it would take Diogenes to find a trace of shared interests.

Nevertheless, in our opinion, the general objectives of planning for urban development may be summarised as follows:

1) Physical development to rapidly achieve human development - or the removal of unfreedoms that constrain the exercise of "reasoned agency" of urban dwellers.

2) Ensuring access to basic urban services and essential social infrastructure - shelter, health, education and socio-cultural facilities.

3) Ensuring safety of habitation - through an urban environment that protects dwellers from natural or man made disasters, disease and pollution.

4) Ensuring right of way, and access to urban mobility, for the sake of work and leisure.

5) Ensuring equitable access to opportunities offered by the city through an optimal use and distribution of land and resources

6) Evaluating and controlling environmental impacts, and a development that ensures a safe and sustainable urban future

7) The creation and facilitation of a diverse, inclusive, secular, and cosmopolitan public realm

1. Herbert Gans. J. 1963. 'Social and Physical Planning for the Elimination of Urban Poverty.' Wash

Our Approach

The habitat of a city dweller is not simply her dwelling unit - minimum area with walls and a roof - but a place that offers to her and her family opportunities of work, of leisure, of social interaction, health and safety, the freedom to shape their environment, the possibility of growth and improvement - in short, an institution for habitation, a place for well being. As physical infrastructure, it extends much beyond the isolated units provided by private developers or housing agencies. The city, the settlement district, the neighbourhood, the community, the street, the housing cluster and dwelling itself - all form a nested spatial structure, each ring dependent on and completing the one outside it, and completed in turn by the one inside.[8] The chapter on homes, as a result, finds a place only at the end of this report, our innermost ring, where the search for an enriched habitat culminates, but where the process of shaping it begins.

We intend to illustrate through this study one approach of planning for already existing high density low income settlements, with a range of options quite different from the existing models of "redevelopment" - slum rehabilitation and urban renewal on the one hand (the bulldozer approach), and the minimalist intervention of providing basic services on the other (the do-little or do-nothing approach). We propose a range of intermediate options, of improvements, readjustments, reorganisation and up-gradation, all of which could be undertaken by residents themselves, based on simple guidelines and principles that are described here. We intend to show that many run-down neighbourhoods or squatter settlements in the city have within them the seeds of a humanly scaled, vibrant environment that most often require nurturing and improvements as opposed to the mindless flattening and re-arranging approach of the bulldozer.

Our methods are, in significant ways, intellectually indebted to the ideas of the Scottish biologist turned geographer-sociologist, Patrick Geddes. Geddes worked in India in a period when urban improvement trusts were staffed by military engineers, who were obsessed with slum clearances, sanitation, and racial segregation. Battling the engineers and their ideas, he developed the concept of "conservative surgery," an approach that begins with the understanding of things as they exist on the ground, recognising the potentials, the working order and life in the "mohallas and bazaars." By improving these areas through "small removals, straightenings, openings, and replannings in detail," one can achieve "often pleasant...sometimes beautiful" results. Cheaper, less disruptive and more effective, the conservative method, he wrote,

"however, has its difficulties. It requires long and patient study. The work cannot be done in the office with ruler and parallels, for the plan must be sketched out on the spot, after wearying hours of perambulation commonly among sights and odours which neither Brahmin or Briton has generally schooled himself to endure. Even after a good deal of experience of the game, one constantly finds oneself...tempted, like the impatient chess-player, to sweep a fist through the pieces which stand in the way."[9]

The Geddesian approach requires a detailed study of existing conditions, an evaluation of the needs and priorities of resident and working people, a careful analysis of problems and constraints, and minimum intervention to achieve the best results. The "problem of city planning," he wrote,

"...as of chess, is to improve the situation by, as far as may be, turning its very difficulties into opportunities. Results thus obtained are both more economical and more interesting, even aesthetically, than those that are achieved by clearing the board and re-setting all the pieces."

Geddes made the study of cities a discipline in itself; his "civic survey" or the study of a region's natural environment, its historic development and its economic and social institutions ("diagnosis before treatment") have become commonplaces of planning. Planning must not be "place

8 Alexander, Christopher. A Pattern Language. Oxford University Press. 1977.

9 Hall, Peter. Cities of Tomorrow. 2002.

planning" or "work planning," but "folk planning"[10] - to work with people's interests, wishes and associations to create places where they can "really flourish." His famous triad of "place," "work" and "folk" may be understood as an analysis of everyday life into its three central components: the physical environment, productive activity, and social relations. Planning in this conception was more like gardening, the task of providing setting where the the work others may be completed. It is the building and gardening

'that studies the whole place as it stands, seeking out how it has grown to be what it is, and recognizing alike its advantages, its difficulties and its defects. [seeking] to undo as little as possible, while planning to increase the well being of the people at all levels, from the humblest to the highest.'[11]

Naturally, the approach of conservative surgery needs to be adapted to the conditions prevalent in our cities today, that are in some respects similar in others quite different from what they were like when Geddes planned for them. The principles that this approach is based on can be summarised in three points:

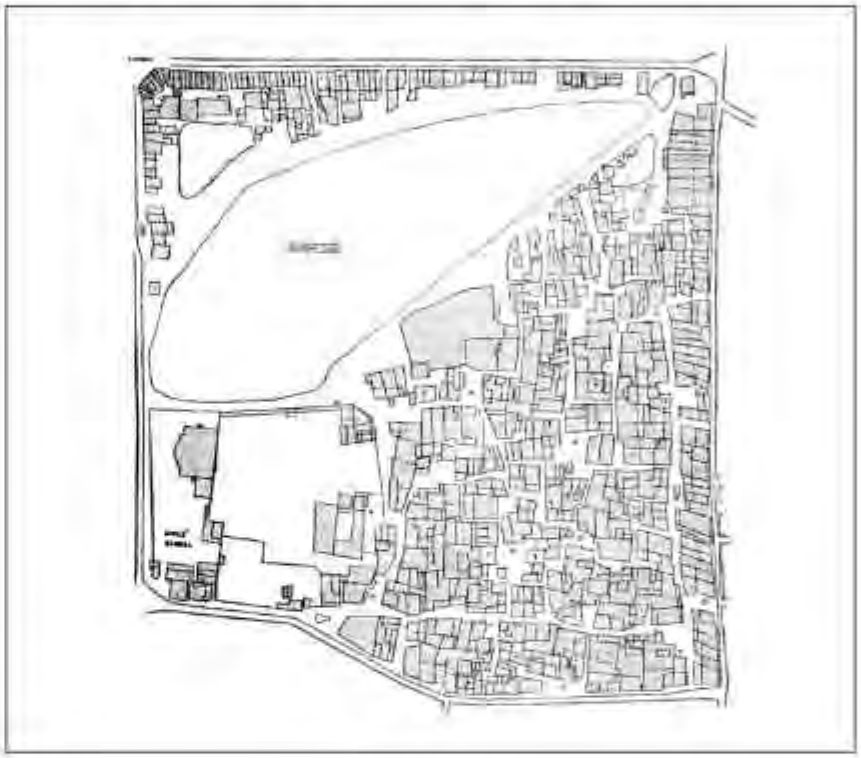
1) That the historical and formative circumstances, the socio-spatial order and the investment in time and effort of urban dwellers in the shaping of their environment be built upon and enhanced with by intervention rather than destroyed by clearing away or resetting.

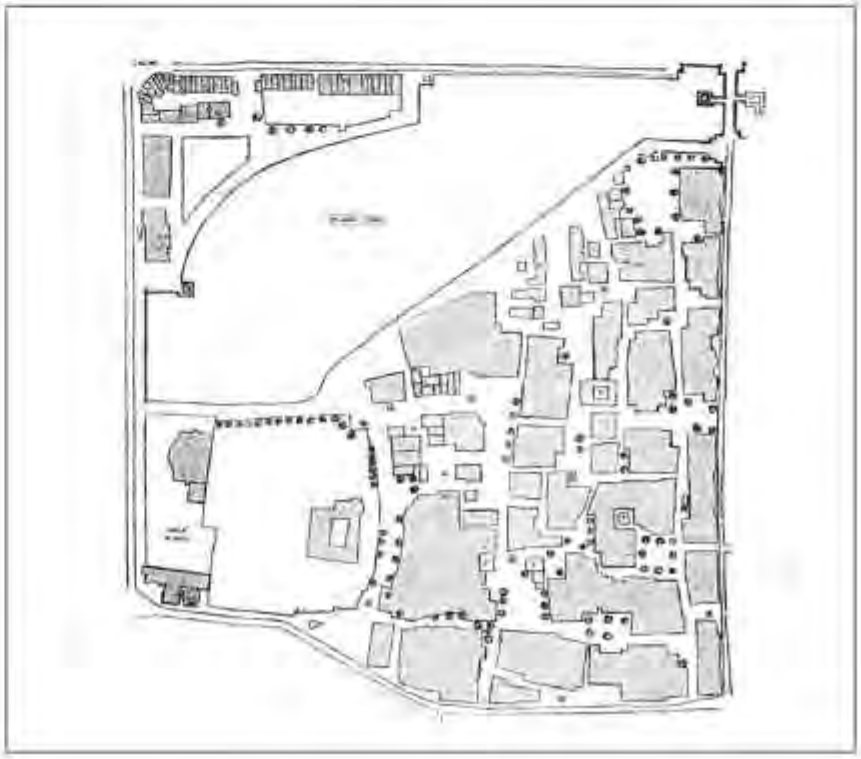
2) That the cheapest, most effective and least disruptive means be employed for this purpose

3) That dwellers be understood as agents as opposed to recipients of change and development - and what follows, remain agents of any future change.

When applied to the context of poorly serviced, often informal, high-density-low-income urban settlements, these principles become the basic approach and framework towards the planning for such settlements:

1) As will become evident in the report, most informal settlements are mixed use with no clear separation between residential, commercial,





Drawings of the proposed improvement of Bairampur by Patrick Geddes from Tyrwhitt, Jaqueline. "Patrick Geddes in India". Lund Humphries 1947 p.50-51

10. Jaqueline Tyrwhitt, 1947 Patrick Geddes in India. Lund Humphries

11. Jaqueline Tyrwhitt, 1947 Patrick Geddes in India. Lund Humphries

industrial and social functions. This nature of informal settlements needs to be understood, specifically, before any interventions are planned for them. Building typologies and schemes need to be developed that can enhance and improve the live and work patterns of the urban poor.

2) In a market society where the price of land determines the form of development, the urban poor are condemned to live higher (in high rises), closer (high densities) and farther (away from the city) – all of which are indirect costs. Improvement measures must be aimed at creating affordable environments that ensure a decent standard of living, but with adequate safeguards against gentrification.

3) The deficiencies of these settlements - in terms of basic urban services and accessible, affordable social infrastructure (health, education, cultural and recreational facilities) need to be provided, for the existing dwellers, through careful re-adjustments and up gradation.

4) Improvements to these settlements can only be successful if the transformation is authored and undertaken by dwellers. Self development maintains the control that the residents of informal settlements exercise over their built environment, a crucial aspect and strength of informal settlements that must be preserved and developed.

5) An incremental, piecemeal and conservative transformation responds better to the needs of dwellers and their capacities, complementing the best efforts of communities along with the best that planned development can facilitate.

The People's Vision Document

The People's Vision Document (PVD) is a collective vision statement for the city of Mumbai authored jointly by more than a hundred grassroots organisations, Non Governmental Organisations, Community Based Organisations, activists, experts and academics.[12] This document was released in October 2013, and handed over to the MCGM before it came out with its own vision and objectives in the "Preparatory Studies Report." The authors of the PVD have come together in the form of a campaign that has been in continuous dialogue with the city government, and played a very important role in the demand for and debates within the consultative workshops that were organised by the MCGM in January and February of 2014.[13] What follows is a summary of recommendations from the PVD:

Proposals for Housing:

The peoples vision document promotes "housing for one and all" and the Government needs to play a more proactive role to provide for the poor rather than producing housing for profiteering and relying on and facilitating the "market."

1. Reserve lands occupied by existing informal settlements for Public Housing
2. Slum improvement and providing adequate services and amenities for slum and pavement dwellers
3. Reservation of 60 % for EWS and LIG in any Housing development in Mumbai
4. Slum redevelopment to be undertaken by state agency as against private developers.

Proposals for Education:

The right to education being one of the fundamental rights in our country, the severe shortfall and unequal distribution of schools, high dropout rates, poor infrastructural standards and privatization of education system in the city requires that State run school mechanisms be strengthened to ensure access to education to the most marginal and vulnerable groups.

1. Reservations for both primary and secondary schools in the DP at least 2797 as against the present 1249 primary and 49 secondary schools with requisite infrastructure, facilities and safety standards.
2. Primary and secondary schools to be within 1 and 3 Km walking radius respectively.
3. There should reservation for schools in informal settlements which should not be left out of the educational system.

Proposals for Health:

Considering the present skewed and non equitable distribution of health services in the city, privatization and and low standards for the lower rung of health care facilities which are able to reach only 30% of the poor, the DP should be based on the principle of universal access to health care regardless of income levels, social status, gender etc. Moreover, a comprehensive range of curative, symptomatic, preventive, promotive health services should be made available at the primary, secondary and tertiary levels of health care.

1. 1500 dispensaries are to be provided as against the current 340 in the city and Swasthiya chowkies to be provided in informal settlements having a population more than 10,000.
2. According to standards, 250 UHC's need to be provided as against the presently existing 4.
3. According to standards there should be 300 maternity homes as opposed to 28 which currently exist.

Proposals for transport

In Mumbai more than 85% of people commuting in the city use public transport. Hence it is imperative that immediate actions are undertaken to strengthen the existing overstretched public transport system as opposed to merely proposing new infrastructure for private vehicles such as sealinks and coastal roads which often require huge investments and environmental costs and are then under-utilised benefiting less than

12. For a detailed discussion and critique, see Hussain Indorewala and Shweta Wagh 2013 'People's Participation in Mumbai's Development Plan?', Kafila

13http://mcgm.gov.in/irj/portal/anonymous/qlCWorkshop

1% percent of the population, apart from adding to congestion and pollution levels in the city and incurring severe environmental and social impacts on coastal ecologies and communities

1. Adopting Transit Oriented Development and initiating BRTS (Bus Rapid Transit System) to reduce the road traffic considerably and increase pedestrian friendly transit areas. DCR's needs to be altered and policy recommendations to be made to study and promote TOD in Mumbai.

2. DCRs that promote parking and car usage, by promoting free parking spaces for additional FSI, e.g. DCR 33(24) and DCR 33(36) need to be scrapped and DCR's for parking requirements should be altered to de-promote car usage as is being implemented in cities like New York and Hong Kong.

3. To ensure safe and convenient walk ability to pedestrians: connectivity of pedestrian infrastructure to major origin and destination locations must be studied and implemented with amendment of DCR's to include the pavement and street guidelines.

Proposals for waste management

One of the most visible problems in the city is the mishandling of waste as only a fraction of the waste gets segregated and recycled, whatever little is made possible by an invisible set of people working in unorganised and hazardous conditions - "the waste-pickers" who are disadvantaged, exploited by middle-men and looked down upon by citizens and the state. There is a need to look to for planning solutions and alternative to the unsustainable, centralized system employed by the BMC in the city and the introduction of decentralised systems focussed on recycling and reuse where waste is considered a resource in an effort to move towards a more sustainable eco-productive city.

1. Provision of decentralized waste sorting, composting units, community urban farms and biogas plants and reservations to be made for these in the D.P. Some area within existing open spaces in the city to be reserved for composting and regeneration of soil

2. To allot at least 2000 sq m area for sorting sheds in every administrative ward.

3. Formalization of the workforce: To run the above mentioned system, waste picker organizations should be looped in. This system will be able to accommodate all the current informal waste-pickers, assure them better pay, and better working conditions and move towards a better and more dignified alternative livelihood

Proposals for open spaces

Mumbai has an average of around 1.1 sq m or 0.03 acre of open space per 1000 persons which is far less than the ideal ratio of open spaces suggested by the The National Commission on Urbanisation (1988) (i.e. 4 acres per 1,000 persons), but the problem lies not only in the percentage of available open space as in the access to these limited available spaces which in the recent past are increasingly becoming privatized and exclusive to the upper classes. The proposed DP should ensure improvement in access to open spaces and formulate policies to maximize the optimum use of the scarce open space that the city has.

1. ELU to be corrected: at least 973 acres of the mangroves, forests and other ecologically sensitive areas mapped wrongly in the ELU survey, and ambiguity in the categorization of land-uses can result in opening up the land to various forms of development.

2. A clear distinction needs to be made in the DP between natural areas and open spaces. Open spaces are meant for public use and recreation. Though beaches also have public access they are natural areas and need to be marked as a separate category. The beaches in front of kolivadas which are used for fishing and ancillary activities related to coastal livelihoods needs to be safeguarded for this use and reserved for primary activity.

3. Mapping of private and public open spaces clearly and a policy to open the private elite clubs and gymkhanas to the public.

4. The city needs to have a set hierarchy of open spaces and each have different degrees of accessibility at the local, ward and city levels. And while making reservations the hierarchy has to be maintained and reservations have to be made at every level.

Child – Friendly City

The concept of "child friendly cities" ensures that city governments consistently make decisions in the best interests of children and that the city is a place where children's rights to a healthy, caring, protective, educative, stimulating, non-discriminating, inclusive, culturally rich environment is taken care. India is UNCRC signatory and it has not initiated any steps in formulating guidelines for local bodies to frame laws and guidelines in ensuring the participation of children in local planning process. We believe that the DP revision process can be one of the right spaces to frame such guidelines making Mumbai a child friendly city.

1. Reservation and implementation of ICDS centre within informal settlement to provide immunization, supplementary diet and educational needs of children.
2. As per the Juvenile Justice Act 2000 the functioning of Observation home, Children Home, Shelter Home (Day Night) should be undertaken by the BMC along with providing one shelter and one children home per ward.
3. The DP needs to consider the space for child learning centres (CLC's) where they can explore their skills. These centers will also implement the component like evening meal for children which are not considered in ICDS. Such centers can be there in every community of 10,000 people.

Youth – Friendly City

The Youth which constitutes 40.6% of the total population, is emotionally and psychologically vulnerable and comprises of a large number of economically and socially underprivileged, homeless, migrant, unemployed, school or college dropouts. To ensure physical, mental and psychological well-being and to improve their overall socio economic condition the D.P should adequately provide basic amenities for their education, employment, livelihood, shelter, health, safety, cultural and recreational activities to ensure equal access and opportunities to all.

1. Provision of training centres for vocational training, opportunities for self employment, and employment exchanges and information centres in every ward.
2. Provision of shelters for youth who are homeless, HIV positive or Eunuchs and adequate health facilities and counselling centres with easy access.
3. Provision of affordable rental housing, youth hostels and shelters for street children,
4. Provision basic facilities to ensure safety of youth in the unorganized sector and young women.

Woman – Friendly City

Women constitute about half of the city's population and therefore the Development plan needs to incorporate recommendations from a gendered perspective of the city with an analysis of women's access (or the lack of it) to the city as students, workers homemakers eetc.. Inclusion and access to all including women is heavily dependent on aspects such as safety in public spaces, availability of transport, ease of mobility, access to housing, amenities and livelihood and these relationships should inform the planning process.

1. Provision of basic services for all modes of livelihoods including women's livelihoods and informal livelihoods
2. Provision of hostels for working women, centers for training and up gradation of skills.
3. Provision of adequate public transport, and the creation of contiguous spaces for walking, and pedestrian routes in different parts of the city, (near stations, through slums etc.) with mixed use, shops and hawkers to ensure women's safety.
4. Provision of night shelters for women at major transport hubs such as interstate bus stops and railway stations.

Differently Abled – Friendly City

Differently abled citizens in the city form at least 10% of the city's population. The Development Plan revision process is the right space to assert the rights of the differently abled to have equal access to the

various facilities and public spaces in the city so that the neglected 10% of the city can speak for their demands in the coming future.

1. At least 75 integrated schools in Mumbai, and their demarcation in the coming DP.

2. The present number of special schools run by the government is only 20 and that too only for Intellectual Disability (ID) and Cerebral palsy (CP) and therefore the provision of 50 more special schools are urgently recommended for other differently abled groups.

3. To make Mumbai Barrier free: BMC should appoint a committee that formulates design specifications and issues guidelines, and expert advice on making Mumbai Barrier free. And for such a task it will be recommended that BMC reserves a certain budget to make Mumbai barrier-free.

Inclusion of hawkers

Hawkers, are an inseparable component in urban centres providers of cheap vegetables and subsidised food items that even a poor man on the street can afford and it is through them that the majority of Mumbaikar's are able to buy their daily requirements at cheap rates but the city and the state refuse to acknowledge them. There are about 3 lakh hawkers in Mumbai yet like Mumbai and their contribution in making the city has to be recognized without which they will be left without any plausible share in the city's development plan.

1. After a comprehensive ELU mapping, the BMC in its ESA and vision document should recognize and notify that there exists an informal layer of hawking zones and livelihood areas which need to be safeguarded and included in the Development plan.

2. Planning for hawkers: To have a clear spatial strategy to accommodate all the Hawkers presently in the city, and to form norms and design guidelines for Hawking zones in the form of markets, pedestrianised or pedestrian friendly streets with hawkers, night bazaars, hawkers on skywalks, Khau gallis or food streets, weekly markets on designated areas and other underused spaces.

3. To allocate hawking spaces in any new plans of residential or commercial complexes, to provide hawkers to the ratio of number of shops, bus stops and other public amenities.

Inclusion of Koliwadas

Koliwadas and Urban fishing settlements are under threat due to several reasons such as environmental destruction, loss of public access to common lands and resources, disruption of coastal livelihoods, encroachments, displacement and gentrification. Certain guidelines and provisions for the protection and development of urban fishing villages in Mumbai need to be articulated in the development plan and development control regulations in order to protect the fishing community's traditional rights to housing, land, livelihood and the village commons.

1. Demarcation of the exact boundaries of the urban fishing villages to be designated as CRZ III in accordance with the CRZ 2011 notification with participation of local communities. CRZIII to include: settlements and dwelling units of fisher-folk and other coastal communities; areas which constitute the coastal commons, community spaces, social amenities and public infrastructure and open lands either owned or used by the local communities.

2. Formulation of guidelines for self development of Urban fishing villages, which include provision of long term housing needs, amenities and infrastructure. These provisions and guidelines should include aspects such as village boundaries, permissible land uses and control over land, urban form controls, terms of sale, transfer of ownership, provision of infrastructure and amenities etc..

3. Provision for gaothan expansion and the reservation of nearby vacant lands or government lands in the D.P for Koli housing

4. Provisions for fishing related infrastructure including foreshore facilities such as fishing jetty, fish drying yards, net mending yards, fish processing facilities, areas for fish and net-drying, boat building yards, ice plants, cold storage facilities, boat repairs, boat storage, boat repairs and servicing, storage of fuel etc..

Homeless as city makers

At least 1.5 lakh homeless city-makers who contribute to their cities with cheap labour but do not have a roof over their heads remain criminalized and marginalized by the state and the society alike and the state refuses to recognize their numbers in the city. The D.P. Should recognize the homeless as city makers and treat the issue of shelters and affordable housing for the homeless as a Human right.

Some important recommendations:

1. To Ensure that the ELU and ESA, maps the existing facilities and the number of Homeless city-makers in Mumbai and the process is participatory.

2. Provision of at least 135 homeless shelters in the city according to the Supreme Court order.

3. Provision of a special housing scheme (like the Mahatma Gandhi Path Kranti Yojna (MGPKY) for Pavement dwellers), thus ensuring that Homeless City-makers are not fated to live in Homeless shelters for their whole life and a lower category housing below the EWS to allow affordable housing to the Homeless City- makers.

4. To emulate Delhi Master Plan and ensure that enough provisions and recognition of homeless residents are institutionalized in the map making procedure.

People's Partcipation

Inducing People's Participation in Mumbai Development Plan process: Essay by Aravind Unni

Until a few years ago People's Participation, especially in the context of urban planning was viewed with cynicism from all sides. The planners, experts and the state believe that the unskilled and sometimes illiterate populace cannot contribute much to the planning processes in cities. The people in turn, internalize the hegemonic status quo and deemed better to the leave the 'technicalities' to the experts and the state. In the post millennial urban India, witnessing a slew of urban 'developmental' projects - 'Participatory planning' is now a very fashionable term. All state policies and directives are laced with participatory planning rhetoric and strewn with terms like 'stakeholder consultations'.[1] Usually such exercises remain on paper or even if they are exercised to any degree, it is merely tokenistic and thus ensures that unequal structures of power are not even addressed, leave alone being challenged.[2] Participation of the kind that actually engages the people, employs their knowledge, inculcates their priorities leading to real empowerment is rarely seen. The collective failures of 74th constitutional amendments to be implemented in spirit, the disconnected urban populace, and the detached (from the ground realities and complexities) urban planning have led our urbans to a crisis. Our cities - now increasingly viewed as "engines of growth" and "financial magnets"- without any participatory spaces, (re)centralized governance and ineffectual planning have become epitomes of inequality and unsustainability.

The case of Mumbai – where 'visions' supersede 'plans'

Mumbai and its myriad planning agencies, state power structures, over-lapping jurisdictions, powerful builder-real-estate lobby and the ineffectual implementation of urban planning in public gaze have painted Development Plan(s) (DP) (or Master Plans as they are known otherwise) as "just another plan" amongst many. Having failed to meet the expectations of the citizen's needs and aspirations, equated as being rigid, simplistic in approach and tenure, and argued to act against the spirit of (contemporary) urban planning.[3] Many civil society organizations in collaboration with various planning agencies had at the turn of the century - taking responsibility of making Mumbai world-class - floated 'strategic vision plans' for the betterment of Mumbai. Thereby arguing for dilution of DPs and espouse a preference for strategic vision plans for the city. Such imaginations about urban planning vis-à-vis DPs being a useless-ineffective tool has been strengthened with the hitherto top-heavy bureaucratic making and implementation of plans, and complete distancing of the people from the planning process.

The last plan for instance, initiated in the 1981, and took more than 10 years in the making.[4] Being irrelevant by the time it was ratified. All the decisions, the consultations and the finalizations that culminated in 1994 were highly opaque in nature and non-participatory. Leaving aside the process, more fundamentally the Maharashtra Regional Town Planning

1. Cooke, Bill & Kothari, Uma "Participation: The New Tyranny?", 2001

2. "A Ladder of Citizen Participation" by Sherry Arstien 1969

3. Nallathinga, Ramakrishna "From Master Plan to the Vision Plan: The changing Role of Plans and Plan making in City development (with reference to Mumbai)", Theoretical and Empirical Researches in Urban Management. Number 4(13)/ November 2009

4. Baliga, Linah, "Municipal Corporations to prepare development plans: MRTP act", Times of India – Mumbai Edition, November 23, 2012

Act (MRTP) that guides the DP formulation and implementation in Maharashtra is essentially in opposition to the decentralization and devolution of administrative powers as specified in the 74th constitutional amendment. The only space for 'formal participation' is the sixty day stipulated suggestion–objection period after the draft land-use is published.[5] And even when made, like the last DP, it is State Government and its Urban Development ministry that made the most crucial planning decisions in the city. The most powerful parastatals – like the SRA (Slum Rehabilitation Authority), the MMRDA (Mumbai Metropolitan Region Development Authority), MHADA (Maharashtra Housing and Area Development Authority) overlap and superseding the functioning of ULBs. Our cities and Mumbai especially, are rife with stories of how DP reservations and Development Control Regulations (DCRs) have become political tools and not planning tools. The 'classic' case being the mill land redevelopment saga, the Dharavi redevelopment plan, and numerous other Special Planning Areas (SPAs) – all have emerged outside of the purview of development plans formulated by the Mumbai Municipal Corporation (MCGM);[6] all highlighting the failures of development plans – as they are imagined now, within the current administrative structures. Our Urban Local Bodies, far away from being empowered Urban Local Governments as imagined in 74th amendment, are now reduced to maintenance agencies with hardly any strategic role in the determining the destiny of the city – even the Municipal Corporation of Greater Mumbai (MCGM) - the biggest and supposedly the most powerful Municipal Corporation of the country.

The context to the Development Plan campaign – the need for 'radical' imagination of decentralized participatory planning

YUVA's work over the past 30 years in the grass-roots with the working poor was always aimed at challenging the status quo and ensuring socio-economic justice. The fight for housing took a different turn after the neo-liberalization of early 1990s, as the state rather than being the provider of housing, morphed into a state-developer axis that usurped

5. MRTP act clause no: 26

6. Special Planning Authority (SPA) for developing certain notified areas – MRTP clause 40

the now high value land in (a global) Mumbai. Not with outwardly evictions, but under the grab of developmental politics over monetizing land that has lead to a gradual, yet systematic dispossession of working poor in Mumbai. Our consequent interventions with the people made us realize that even with some tangible socio-economic gains, we were losing out on bigger battles of spatial justice, which we were unable to address with the 'fire-fighting' mode of our campaigns. The 2004 – 05 demolitions that came immediately after the visions for "world-class-ness" were floated, strengthened our notion of urban planning and its imagery was being employed by the state-builder axis for the planned removal of the working poor from the cities.[7] It is then that many campaigns employed with the concept 'Right to the City' to challenge and attempt to alter the dominant planning discourse that favoured planning for 'visions', 'missions' and resulted (subtle) dispossessions.

It was in this context that in 2011 that revision of Mumbai's Development plan was announced and many like minded organizations agreed on the opportune space to stake our claims on the city. We, thus, wanted a complete re-imagination of how the development plans (DP) prepared by the ULBs, in this case the MCGM, should be viewed as a holistic legal apparatus that reserves and allocates the appropriate resources through urban planning to ensure the socio-economic and spatial justice for the working poor, and not just as "largely (and only) a spatial plan" as many believe it is.[8] We sought to empower planning with people's participation vis-à-vis DP, imagine it as a radical legal tool for equity building in this largely unequal city.

The evolution of the Development Plan campaign as "Hamara Shehar Vikas Niyiojan" (Our City Development Plan)

YUVA was very clear from the inception of the campaign that our efforts was to create a city wide force in tackling this issue of urban planning vis-à-vis the DP. The planning, intervention and participation has to be at the collective level of the city, for which a multi- pronged approach with many stages was imagined. That has unfolded in the last three years and lead to the formation of a campaign for a more inclusive, participatory and people centric development plan revision process in Mumbai. The DP campaign was initiated in 2011 by raising awareness through workshops and by creating an atmosphere conducive to the understanding of the DP processes. The awareness building workshops in the first stage focused on breaking down the concept of 'planning' and 'development', and also highlighting the hidden meanings that these terminologies have for the various classes in the city. The second step in the DP campaign was a "ground truth"-ing study that was carried out in the P/N ward with the aim of being a field-based research to find out how the 20 years of the last DP had fared for the poor. The exercise wanted to challenge the usual notions of the poor being the encroacher and benefactor of a lax state planning - the dominant narrative that fed into the world-class city visions. The study revealed planning and development plan, rather than being radically thought of as an empowering equity building legal provision was clearly contributing to the inequality and strengthening the segregation in the city landscape.[9]

7 Athiley, Joe & Patkar Medha. The Shanghai-fication of Mumbai. Countercurrets.org. August 11, 2005

8 Patel, Shirish. B. 'Why urban planning is humbug' Business Standard. May 1, 2014

9 Unni, Aravind & Khare Dhanraj. "Mumbai Development Plan-its Implementation and Biases", YUVA May 2012

Using the findings of the study, a set of concrete demands was raised from communities at the settlement level as well as the ward level. The demands were in the form of reservation of housing for the informal settlements, primary schools, secondary schools, health posts, dispensaries, maternity homes, hospitals, open spaces and other amenities required in the ward considering its population accordingly tallied with UDFPI (planning) norms; thus pushing for informal settlements to be recognized in the planning process and their landscape to be integrated with the city's infrastructure.[10]

In later part of 2012, the focus of the now emerging DP campaign shifted from not just awareness building, but also to verifying the Existing land Use (ELU) maps released by the MCGM with people's participation, thus starting an informal 'invented' participation process. The call was to verify the mapping of your and our communities and to contribute to the making of your city (plans). Many discrepancies in mapping were pointed out. Media intervention played a major role in bringing the issue up in the public gaze. Communities and experts rightly claimed that the results stemmed from non-participatory and technical approach at looking planning process. Also highlighting that ELU is the foundation for the DP revision, and needs to be without inaccuracies. With people's intervention in the verification drive of the ELU survey maps, the MCGM relented and opened up the maps for scrutiny, albeit in an exclusionary manner – as the maps were only available in English and on the internet on MCGM's portal.[11] The MCGM consequently, updated the ELU maps in the state (local) language, and as a symbolic step in decentralization, invited suggestions objections in the ELU stage with the display of ward level maps in ward offices. The process was very fruitful since our message now reached beyond the informal settlements and our network widened to comprise of fishing villages (Koliwadas), hawkers, rag-pickers, pavement dwellers and homeless - with whom the campaign spread beyond geographical ward limits but started to look at population groups. By then more than 25 NGOs/ CBOs v/e actively involved in the campaign.

10. For more details refer – http://www.yuvaurbanindia.org/data/DP%20implementation%20and%20its%20baises%20_%20book.pdf

11. For more details visit MCGM's web portal – www.mcgm.gov.in

Partners, who participated in the ELU campaign, felt that campaign should not stop at the initial ELU stage. The members decided to collectivize in an effort to delineate the demands and aspirations of different sections of Mumbai. And make an all encompassing, inclusive and progressive people's vision for mumbai as an alternative imagination to the other primarily neo-liberal schemas, detrimental for the working poor, laced with developmentalist rhetoric.[12] By October 2013, the informal coalition that had emerged from the ELU campaign and the drafting of People's Vision had come together with an informal consensus of working together for the collective benefit of Mumbai. Calling itself as Hamara Shahar, Hamara Vikas, Hamara Niyojan Abhiyan (Mumbai) (HSVN), translated into English as Our city, Our Development, Our Plan – campaign Mumbai. Making it very clear that people, their aspirations and demands are central to the planning process, and we cannot be ignored. It comprised of more than 100 CBOs, NGOs and institutes in the city. On 22nd October 2013, more than 1500 people converged at Azad Madan, Mumbai to discuss and envision an inclusive development for their city and released the People's Vision Document (PVD) for Mumbai's Development Plan (2014-34).[13]

In late 2013, after the release of People's Vision Document (PVD), the MCGM officially released the Preparatory studies report and hosted 'public' consultations under the chairmanship of Municipal Commissioner. It was for the first time in the history of urban planning in India that such planning consultations were organized prior to the making of DPs. The campaign actively participated and decided to take advantage of the new spaces of engagement with the state and raise its demands for not just participation, but other aspirations from various social groups that were elaborated in People's vision for Mumbai; some of them being very revolutionary and progressive made keeping in mind the majority (yet disparate needs of) poor in the city. Like for housing provision for different groups in city, right to tenure for informal settlements, inclusion of informal livelihoods, inclusion with controlled self-development of urban villages, and so on. We (HSVN)

12. For more details refer - http://www.yuvaurbanindia.org/data/People%27s%20Vision%20Document_Final.pdf

13. See Hussain Indorewala and Shweta Wagh 2013. "People's Participation in Mumbai's Development Plan?", Kafila

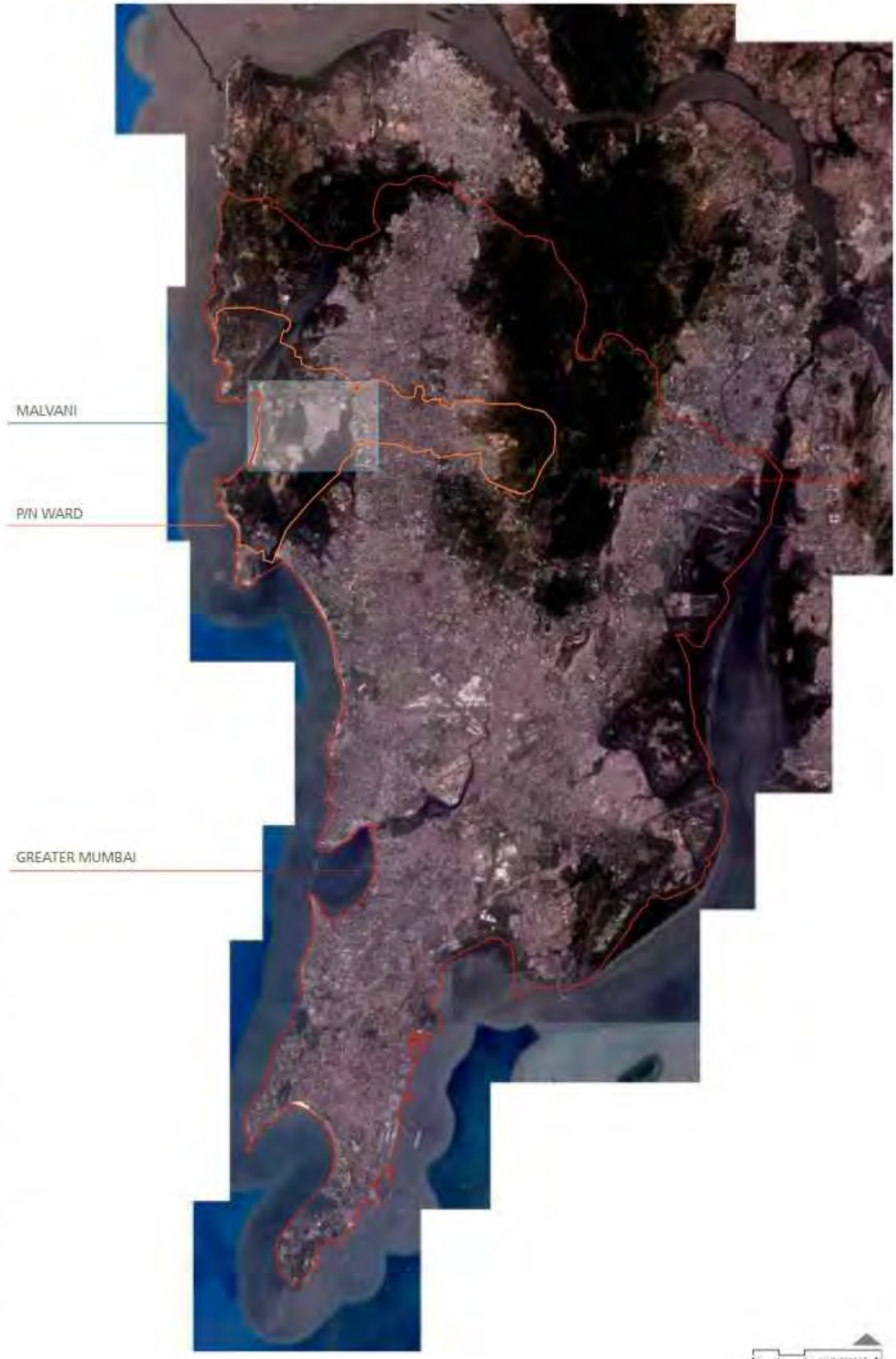
collectively with assistance from numerous experts in varied fields linked the societal aspirations (of 14 different groups in PVM) to urban planning and thus made studied claims for reservations and policy regulations in the DP. It is here that we also collectively decided on attempting to showcase a participatory plan to the MCGM as a model for the MCGM to replicate in the DP process, which until then was thought to be impractical. The aim was to prepare a Land Use Plan for Malvani, with an aim at (drastically) improving the living conditions in the communities. It was also an attempt, to plan for with the high-ideals of PVD, and prove that it is not just an aspirational document, but is implementable as well in the existing ground realities. It was hoped that such a plan will also give a more inclusionary framework and methodologies in making participatory plans and thereby address issues related to housing, livelihood and basic services in the city via the DP revision process.

Conclusion– the way forward

From the first public consultation in November 2013, the city now has witnessed city level consultations (in January 2014) and ward level consultations (in August 2014) and with commendable participation from all groups. It is hoped that these informal invented spaces of engagements get converted to formalized arrangements leading to alterations in the MRTP and activation of ward level planning spaces. Apart from that, the campaign has also resulted in a collectivization of a strong, diverse groups of individuals, organizations and communities who have come together to meaningfully engage and create spaces of participation to contribute to the making of Mumbai. The impact, some might argue has been minimal, but we believe the campaign has always been aiming for far more than the tangible benefits of how many 'demands' were met or addressed by the MCGM. The campaign has managed - at least to some extent - to (re)draw the attention on the forgotten Development Plan along with decentralized governance mechanisms, as a very important factor in alleviating poverty and means

to challenge the existing inequality and poverty in cities. And claim centrality of people's participation in the making of such plans. Malvani People's Plan is another stride in our attempt at reclaiming, and planning for our cities. It is hoped that other communities, other cities and resistances will take up the cause of engaging with urban planning in a similar way to envisage more just and equitable cities.

THE CONTEXT OF MALVANI



Greater Mumbai forms the core of the Mumbai agglomeration, also called the Mumbai Metropolitan Region (MMR). The peninsular city, that began as a group of islands and grew northwards, has to its western and south-eastern coast the Arabian sea, the Thane Creek to its east and the river Ulhas and a national park to its north. The area of Greater Mumbai extends between 18°3' to 19°20' N and 72°45' to 73°00' E, and it constitutes 0.2 % of the total land area of Maharashtra State. The city is divided into seven Zones and 24 administrative Wards. The land area of Greater Mumbai is 458.28 sq km, out of which 271.17 sq km (65%) of the total area is developed and has the MCGM as the Planning Authority.

Map of Malvani Area, Malad (West)

Malvani is situated in the north-western part of Greater Mumbai, west of Malad Creek, and close to the newly developed commercial district of Mindspace, which lies to the east of the Creek. The lands to the west of Malvani, along the coast belong to the Navy, that has its Base, *INS Hamla*, situated there. The dark area between Malvani and the Naval base as seen in the image below is the All India Radio station, and to the North of it are some urban villages including the Malvani Fishing Village, and Marve Village (top left corner). The road that runs across the map to the north of Malvani is Marve road, that meets a coastal road that leads to Gorai to the north and Aksa and Marve villages to the south. The Kharodi Marve road connects to Link road to the east. The closest railway station, Malad, is about 3-4 km away from the main entry point into Malvani, just opposite the Malvani Fire Station. Malvani is an area of 2.82 Sq Km (696 Acres) with a population of an estimated 395,000 persons.

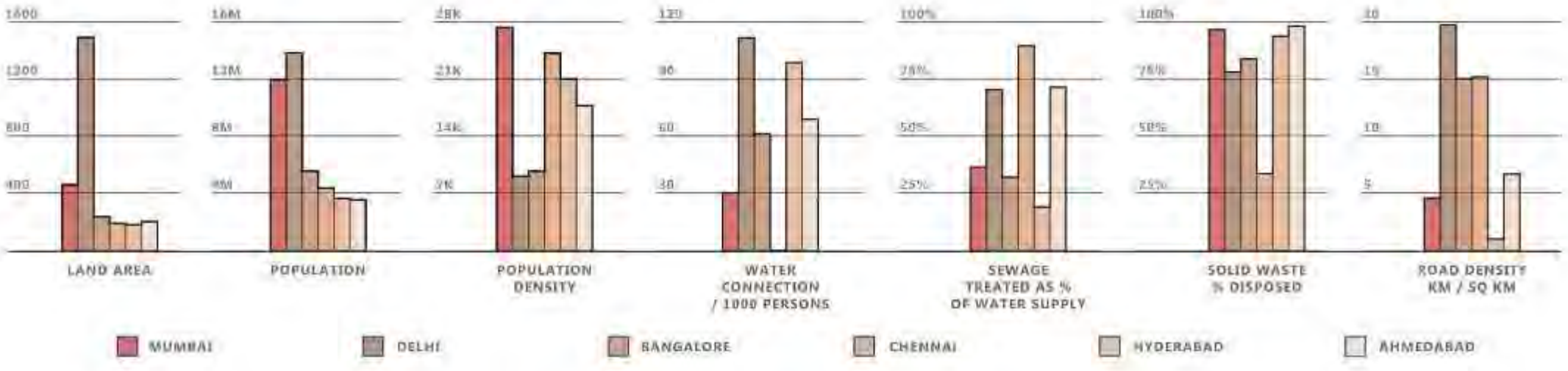
MUMBAI – HUMAN DEVELOPMENT INDICATORS

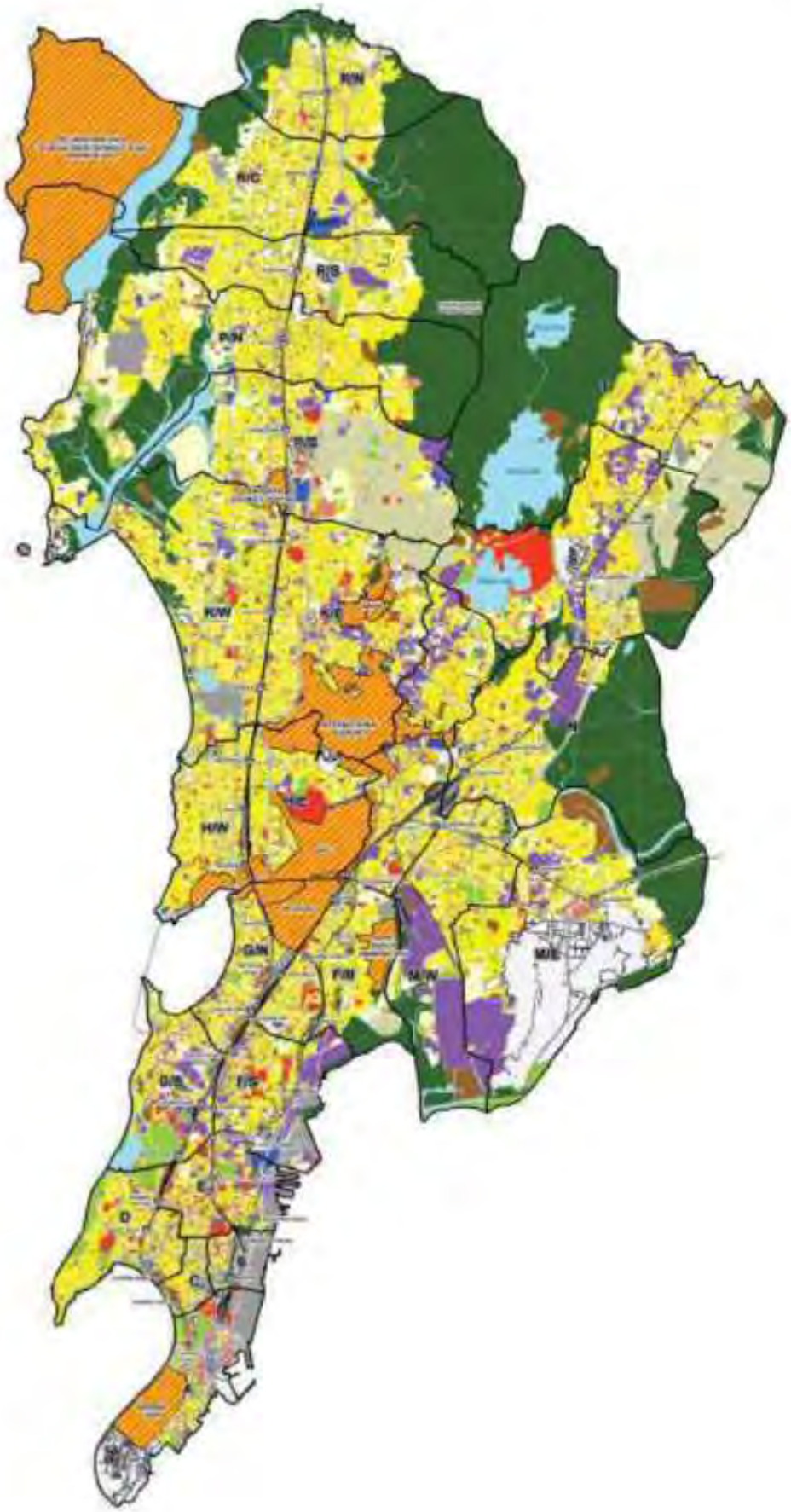
SR.NO	PARTICULARS	DETAILS
1	Population (2001)	14,544,465
2	Population Density (persons / sq km)	27,348
3	Females per thousand males	809
4	Total Slum Population	6,4/5,440
5	Non Slum Population	5,503,010
6	% slum population	54.06
7	Birth rate (2006)	13.76
8	Death rate (2006)	6.89
9	Child sex ratio	922
10	Sex Ratio (slum)	770
11	Sex Ratio (non slum)	859
12	Sanitation (Number of toilet blocks)	9,665
13	Sanitation (Number of seats)	77,526
14	Total Schools	2,254
15	Municipal Schools	1,162
16	Teachers	23,595
17	Total students	918,573
18	Infant mortality rates	34.57
19	Average age at death	52.16
20	Health Posts	168.00
21	Dispensaries	162.00
22	PPC	22.00
23	Private General Practitioners	4,663.00
24	Government Hospitals	13.00
25	Private / trust run hospitals	115.00
26	Nursing homes	1,258.00
27	Beds in Municipal Hospitals	10,147
28	Population per bed	1,309
29	Beds in Other Hospitals	27,272
30	Population per bed	487
31	Literacy levels percentage (male)	81.90
32	Literacy levels percentage (female)	71.90
33	Total literacy percentage	77.34
34	MCGM owned school buildings	423.00
35	HDI	0.56

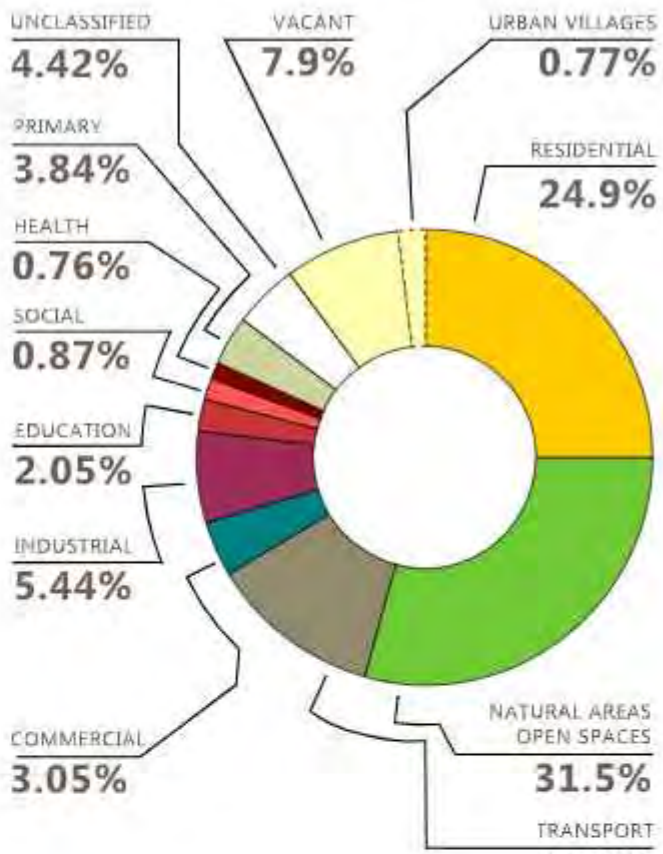
MUMBAI MUNICIPAL SERVICES – COMPARISION WITH OTHER CITIES

SR.NO	PARTICULARS		MUMBAI	DELHI*	BANGALORE*	CHENNAI*	HYDERABAD*	AHMEDABAD*
1	Area (Sq Km)		438	1,483	226	178	172	190
2	Population (2001)		11,978,396	13,850,507	5,685,884	4,344,000	3,633,000	3,520,085
3	Population Density (persons / sq Km)		27,348	9,340	10,135	24,700	21,122	18,445
4	WATER	Total water supply (MLD)	3,100	3,307	995	550	585	690
5		Average / capita water supply (LPCD)	259	360	73	90	162	143
6		Connection / 1000 population	31	112	62		103	76
7	SEWAGE SYSTEM	Sewer length (Km)	1,500	7,000			2,400	1,384
8		Sewage generated (MLD)	2,600	2,587	721		589	500
9		Sewage treated (MLD)	1,100	2,307	306	478	113	496
10		Sewage generated as % of water supply	83.87	108.47	72.46		100.68	72.46
11		Sewage treated as % of water supply	35.48	69.76	30.75	86.91	19.32	71.88
12	SOLID WASTE	Solid waste generated (MTPD)	7,025	7,700	3,395	3,400	2,240	2,095
13		Solid waste generated (Kg) / capita / day	0.59	0.56	0.60	0.78	0.62	0.60
14		Solid waste collected and disposed (MTPD)	6,600	6,000	2,715	1,000	2,038	2,053
15		% disposed of generated	93.95	77.92	79.97	29.41	90.98	98.00
16	STORM WATER DRAINAGE	Storm water drainage length (Km)	2,991	1,694			70	346
17		SWD as % of road length	154.18				30.00	26.11
18	ROAD NETWORK	Road length (Km)	1,940	28,500	3,500	2,780	235	1,325
19		Road density (Km / sq Km)	4.43	19.20	15.48	15.80	1.37	6.96
20		Road length (Mt) / 100,000 population	19.40	285.00	35.00	27.80	2.35	13.25
21		Tarred road length (Km)	1,940		2,800			1,256
22		Tarred road density (Km / sq Km)	4.43		12.38			6.60

* 2006 data







LAND USE	CODE	AREA (Ha)
RESIDENTIAL		10,333.4
COMMERCIAL		1,264.0
INDUSTRIAL		2,258.3
HEALTH		316.8
EDUCATION		852.3
SOCIO-CULTURAL		361.3
NATURAL & OPEN SPACES		13,075.6
TRANSPORT		5,319.6
UTILITIES		693.8
PRIMARY ACTIVITIES		1,594.8
URBAN VILLAGES		319.7
VACANT LANDS		3,280.6
UNCLASSIFIED		1,835.5
SPECIAL PLANNING AREAS (SPAs)		4,322.8

Mumbai's "Special Planning Authorities"

9.43% of the land area within Greater Mumbai, or 4,322.8 Ha are planned by government bureaucracies. These "Special Planning Authoritibes" such as the Mumbai Metropolitan Regional Development Authority (MMRDA) and the Slum Rehabilitation Authority (SRA). Areas such as Bandra Kurla Complex (BKC) and Dharavi are planned by these agencies. Apart from the absurdity of large areas that play a central role in the city's socio-economic and cultural sphere being taken away from its development plan, the public has very little say or influence in the development of areas under SPAs. The MCGM being the only elected planning authority, provides a tiny possibility for the public to influence the city's development plan.

Population Growth of Mumbai

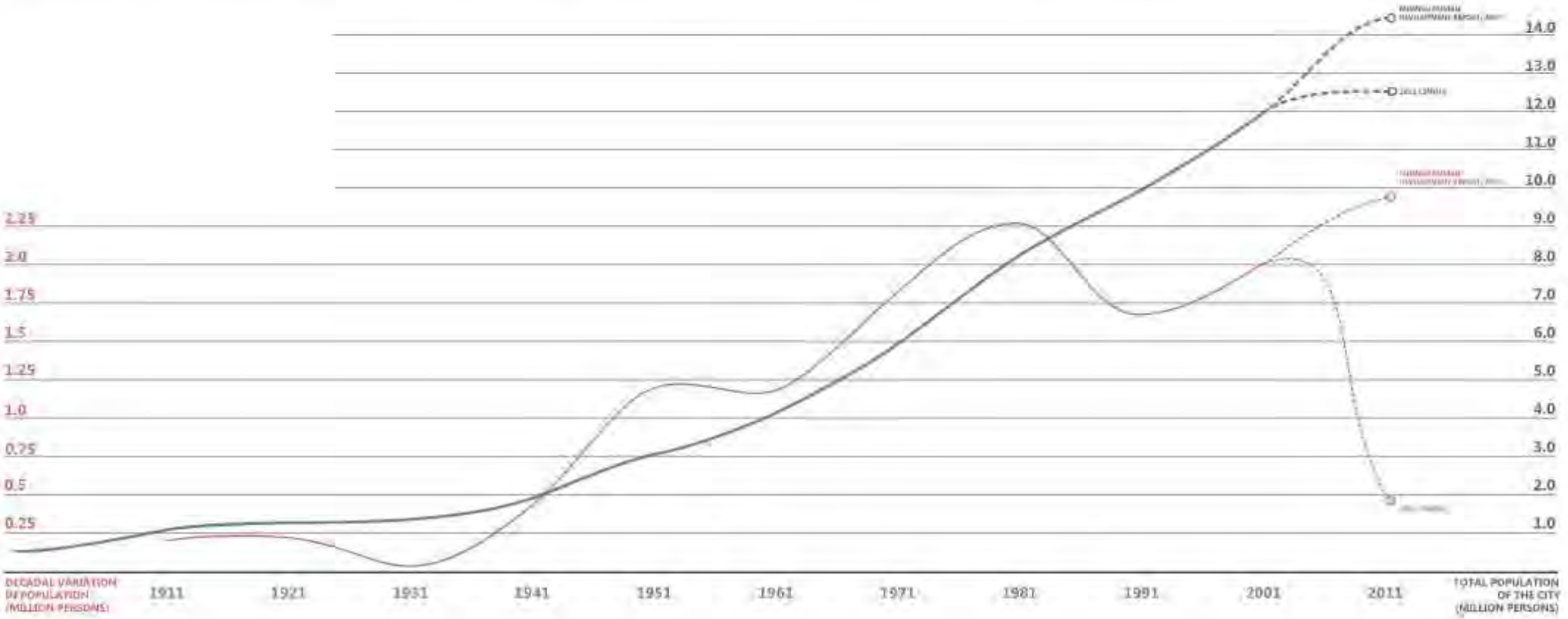
The graph below shows the population growth of Greater Mumbai (blue line) and the decadal variation in population (red line). According to 2011 Census as cited by the MCGM in its Preparatory Studies[1] for the Development Plan revision process of 2014, the present population of the city stands at 12.442 million, an increase of merely 0.46 million persons since 2001. Though in percentage terms (as illustrated by the Preparatory Studies) there is a clear trend of decline in decadal variation of population growth, if one looks at the number of people being added to the city's population every decade (as shown below), the decade of 2001-2011 has seen the greatest drop in population growth since the 1911 Census. Though the population of the city has still grown, for the first time since 1931, the growth rate seems to have stabilized.

However, according to the Mumbai Human Development Report (HDR) of 2009,[2] that used data from MCGM's Public Health Department and Epidemiology Cell (2008), more people seem to have been added to the city's population in the decade between 2001-2011 as compared to the decade between 1991-2001. The population of the city is 14.54 million according to the report, a difference of over 2 million persons. Population living in slums was estimated by the HDR to be 6,475,440 persons or 54% of the population. According to the 2011 Census, the slum population amounts to 41.3%, with 5,207,700 persons. This would mean that there is an *absolute* decline in slum population, which seems unlikely. The 2011 Census suggests that the slum population of ME ward has come down from 77% in 2001 (523,324) to 30% in 2011 (245,300), while the MCGM ward data suggests that the number of people living in slums in ME is about 1 million, almost twice as many as the 2001 Census figures.[3]

1. MCGM. Preparatory Studies for the Revision of Mumbai's 20 Year Development Plan, 2013

2. MCGM. 2009 Mumbai Human Development Report

3. http://www.mcgm.gov.in/irj/go/cm/docs/documents/MCGM%20Department%20List/Wards/RTI%20Manuals/Asst_Comm_ME_RTI_E02.pdf

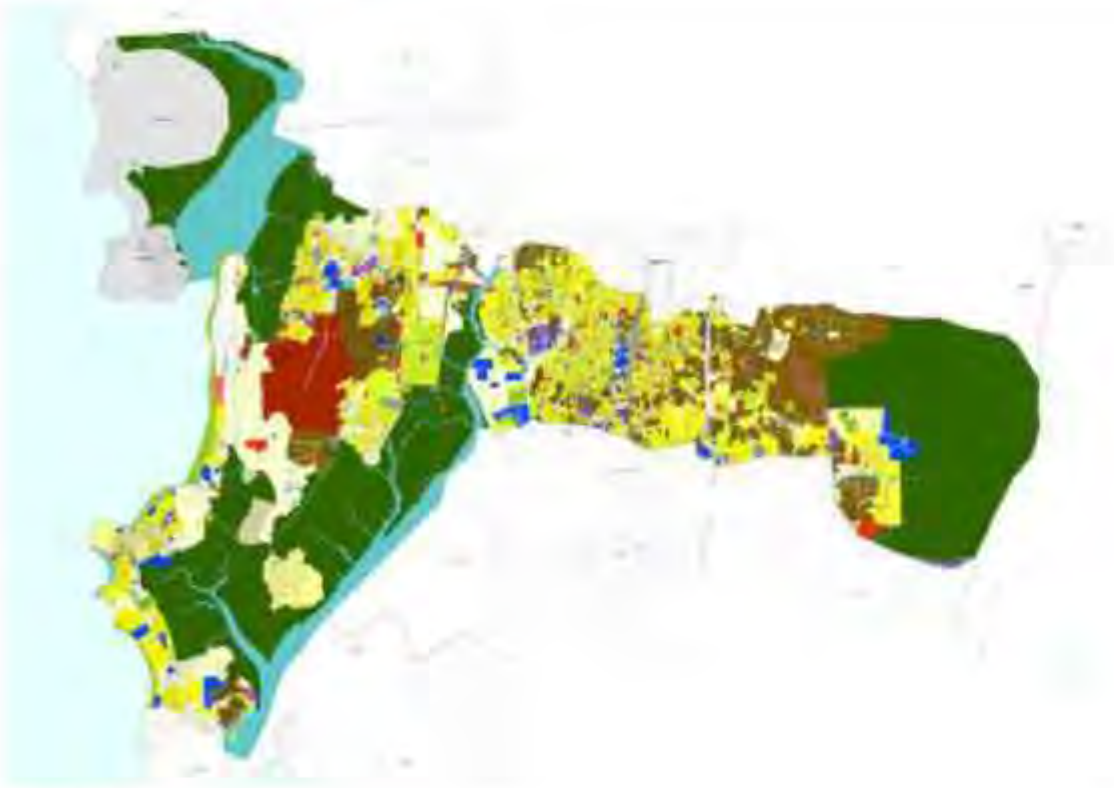


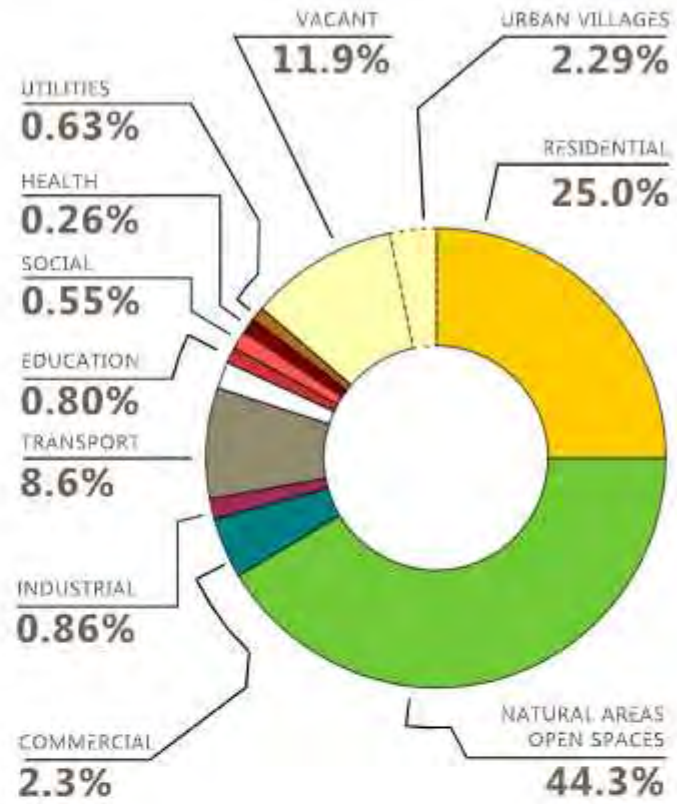
PN WARD – OVERVIEW

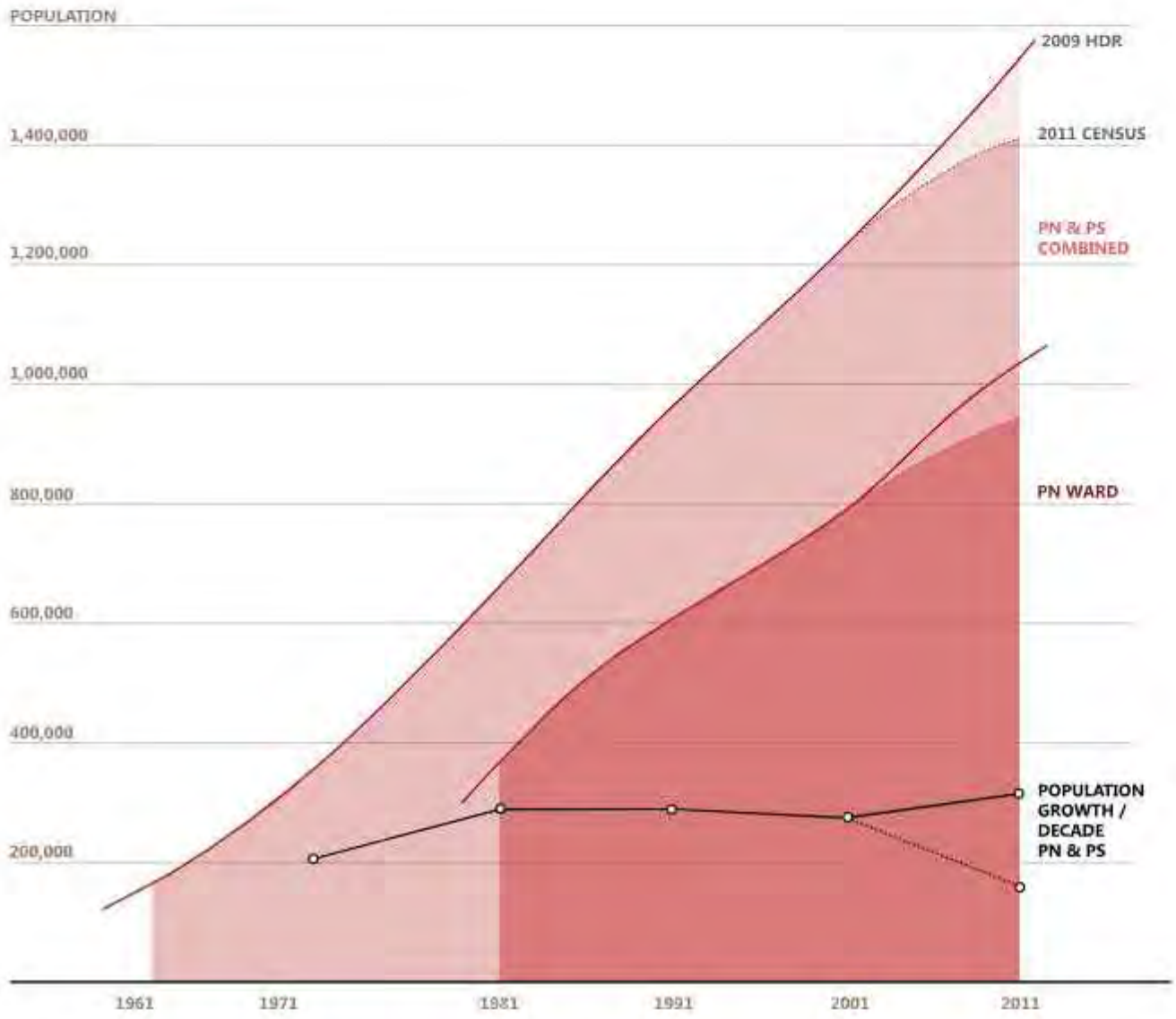
SR.NO	PARTICULARS	DETAILS
1	Area	41 sq Km
2	Railway Stations	1
3	Bus Depots	2
4	Police Stations	4
5	Municipal Hospitals	2
6	Municipal Maternity Homes	2
7	Municipal Dispensaries	9
8	Municipal Health Posts	10
9	Private hospitals and nursing homes	108
10	Cemeteries	3+5
11	Garbage generated per day	370 MT
12	Silt debris generated per day	140 MT
13	Major Nallahs	9
14	Minor Nallahs	32
15	Road side SWD in Kms	157
16	Major Roads	42
17	Minor Roads	155
18	Number of Councillors	16
19	Number of MLAs	2
20	Number of MPs	1

PN WARD – HUMAN DEVELOPMENT INDICATORS

SR.NO	PARTICULARS	DETAILS
1	Population	1,025,989
2	Population Density (persons / sq km)	25,024
3	Females per thousand males	813
4	Total Slum Population	508,435
5	Non Slum Population	290,340
6	% slum population	63.70
7	Birth rate (2006).	15.04
8	Death rate (2006)	5.51
9	Child sex ratio	925
10	Sex Ratio (slum)	775
11	Sex Ratio (non slum)	901
12	Sanitation (Number of toilet blocks)	721
13	Sanitation (Number of seats)	6,378
14	Total Schools	158
15	Municipal Schools	78
16	Teachers	1,708
17	Total students	68,643
18	Infant mortality rates	28.91
19	Average age at death	51.11
20	Health Posts	10
21	Dispensaries	5
22	PPC	2
23	Private General Practitioners	
24	Government Hospitals	2
25	Private / trust run hospitals	
26	Nursing homes	106
27	Beds in Municipal Hospitals (Western Suburbs)	2,059
28	Population per bed	2,763
29	Beds in Other Hospitals (Western Suburbs)	8,972
30	Population per bed	634
31	Literacy levels percentage (male)	80.50
32	Literacy levels percentage (female)	69.00
33	Total literacy percentage	75.30
34	MCGM owned school buildings	423.00
35	HDI	0.47







LAND USE	CODE	AREA (Ha)
RESIDENTIAL		1,027.2
COMMERCIAL		95.8
INDUSTRIAL		35.2
HEALTH		10.73
EDUCATION		33.0
SOCIO-CULTURAL		22.6
NATURAL & OPEN SPACES		1,819.3
TRANSPORT		353.1
UTILITIES		25.8
PRIMARY ACTIVITIES		27.3
URBAN VILLAGES		93.95
VACANT LANDS		490.5
UNCLASSIFIED		70.6
TOTAL		4105.2

Mumbai's Wards and Comparision of Land Areas[4]

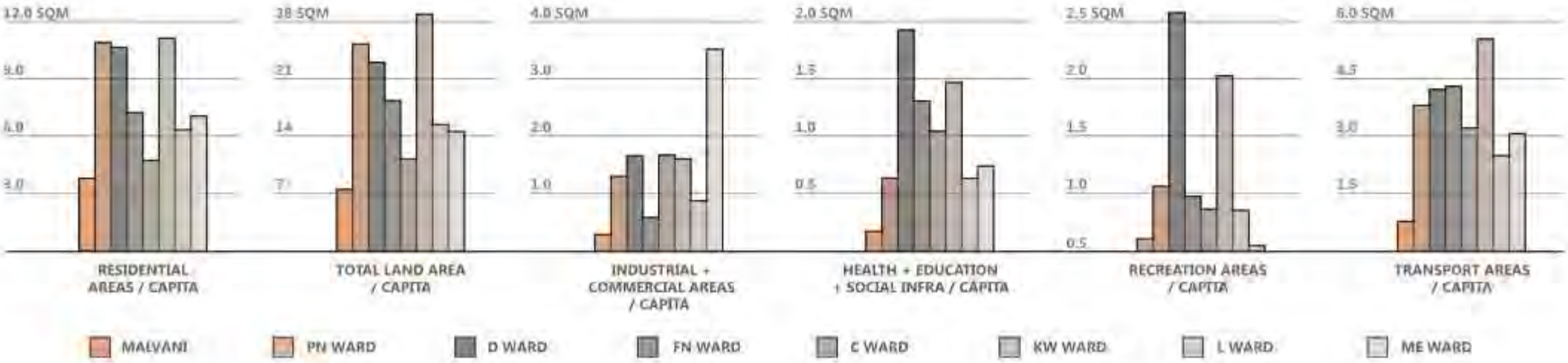
The table below and the graphic compare the land use areas of different wards in the city in percentage and per capita terms. It is seen that the D and KW wards do comparatively better than other wards in social infrastructure area and recreational areas in per capita terms. The urban district of Malvani has about one third the land area of D ward but has more people living in it. This is a good illustration of the socio-spatial disparities in the city - an average resident of Mavani has a little more than 3 sqm of residential land area as compared to a resident of D ward, who has more than 10. The total amenity area for a person living in Malvani is less than 0.2 sqm and open space is about 0.6 sqm, while it is about 2.0 and 2.6 for a person living in D ward. Naturally, not every resident of D ward has equal access to its amenities and open spaces, and the disparities are as much within wards as between them.

4 MCGM, Preparatory Studies for the Revision of Mumbai's 20 Year Development Plan 2013

MUMBAI WARDS - COMPARISION OF LAND USE AREAS AND PERCENTAGES

Sr. No.	Land Use	Malvani Total Area		PN Ward*		D Ward		FN Ward*		C Ward*		KW Ward*		L Ward*		ME Ward*	
		399,000		941,366.0		346,866.0		529,034.0		166,161		748,088.0		902,225.0		807,720.0	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
1	Residential	148.43	52.66	1,027.00	41.15	377.81	45.94	402.58	41.45	77.25	40.38	825.10	38.06	544.91	38.69	571.12	49.24
2	Commercial	2.03	0.72	95.79	3.84	46.85	5.70	18.77	1.93	28.70	15.00	88.58	4.09	60.32	4.28	12.25	1.06
3	Industrial	7.93	2.81	35.19	1.41	12.15	1.48	12.43	1.28	0.19	0.10	30.83	1.42	7.69	0.55	264.24	22.78
4	Health facilities	0.28	0.10	6.57	0.26	32.24	3.92	18.28	1.88	5.40	2.82	20.37	0.94	7.54	0.54	9.89	0.85
5	Educational facilities	5.18	1.84	33.03	1.32	17.83	2.17	39.86	4.10	2.74	1.43	58.46	2.70	34.88	2.48	23.31	2.01
6	Socio-cultural facilities	2.45	0.87	26.73	1.07	16.53	2.01	13.37	1.38	9.06	4.74	30.80	1.42	11.63	0.83	27.35	2.36
7	Recreational Areas	24.16	8.57	98.50	3.95	87.93	10.69	51.97	5.35	12.51	6.54	150.29	6.93	67.36	4.78	42.88	3.70
8	Public Utilities and Facilities	0.72	0.26	25.82	1.03	1.50	0.18	8.40	0.86	0.08	0.04	23.81	1.10	3.95	0.28	133.13	11.48
9	Transport and Communication	29.90	10.61	353.10	14.15	144.88	17.62	223.20	22.98	50.74	26.52	409.56	18.89	244.96	17.39	243.85	21.03
10	Primary Activity	1.76	0.62	27.34	1.10	0.64	0.08	42.31	4.36	0.28	0.15	19.22	0.89	12.03	0.85	0.60	0.05
11	Natural Areas + Water Bodies	3.53	1.25	110.48	4.43	63.09	7.67	33.15	3.41	0.00	0.00	410.46	18.93	58.96	4.19	4.03	0.35
12	Vacant / Abandoned	55.35	19.64	490.47	19.65	20.85	2.54	104.53	10.76	3.35	1.75	202.97	9.36	159.17	11.30	209.97	18.10
	TOTAL LAND AREA	281.85	100.00	2,495.50	100.00	822.34	100.00	971.20	100.00	191.30	100.00	2,168.10	100.00	1,408.25	100.00	1,159.77	100.00

* Areas Adjusted by keeping out significant undeveloped areas from the calculation

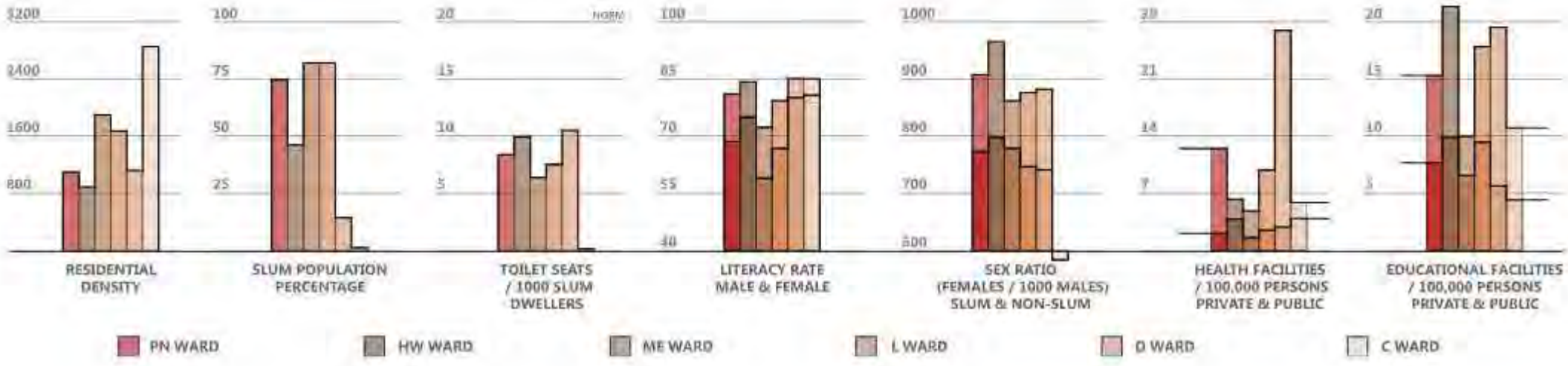


MUMBAI WARDS COMPARISION*

SR.NO	PARTICULARS	PN WARD	HW WARD	ME WARD	L WARD	D WARD	C WARD
		1,025,989	373,987	1,070,093	920,081	388,081	224,932
1	Area (Ha)	4,105	811	3308	1,408	822	191
2	Global density (Persons / Ha)	249.9	461.1	323.5	653.5	472.1	1175.8
3	Residential density (Persons / Ha)	998.8	886.8	1873.7	1688.5	1027.1	2911.7
4	Slum Population Percentage	75.1	44.7	80.0	80.0	17.4	0.0
5	Number of Toilet Seats	6,378	1,660	5,461	5,402	695	
6	Females / 1000 males	819	894	801	760	863	587
7	Sex Ration (Slum)	775	797	785	741	740	
8	Sex Ratio (Non-slum)	901	968	859	876	878	587
9	Literacy rate	75.3	81.0	66.1	73.5	82.4	83.3
10	Municipal Schools	78	37	73	88	22	10
11	Total Schools	158	81	106	164	76	24
12	Municipal Hospitals	2	1	1	1	0	0
13	Municipal Maternity Homes	2	0	2	1	0	1
14	Municipal Dispensaries	9	8	5	9	6	5
15	Municipal Health Posts	10	6	9	12	5	3
16	Private hospitals and nursing homes	108	9	36	67	94	4
17	Infant Mortality Rate	28.9	52.3	66.5	54.6	9.4	35.9
18	Average age at death	51.6	57.6	39.4	46.4	61.0	60.3
19	Literacy level (males)	80.5	84.4	72.3	78.7	85.2	85.1
20	Literacy level (females)	69.0	77.3	58.4	66.6	79.1	80.1
21	HDI	0.47	0.68	0.05	0.29	0.96	0.89

* Population data, slum population and other HDI indicators from MCGM, Mumbai Human Development Report, 2009

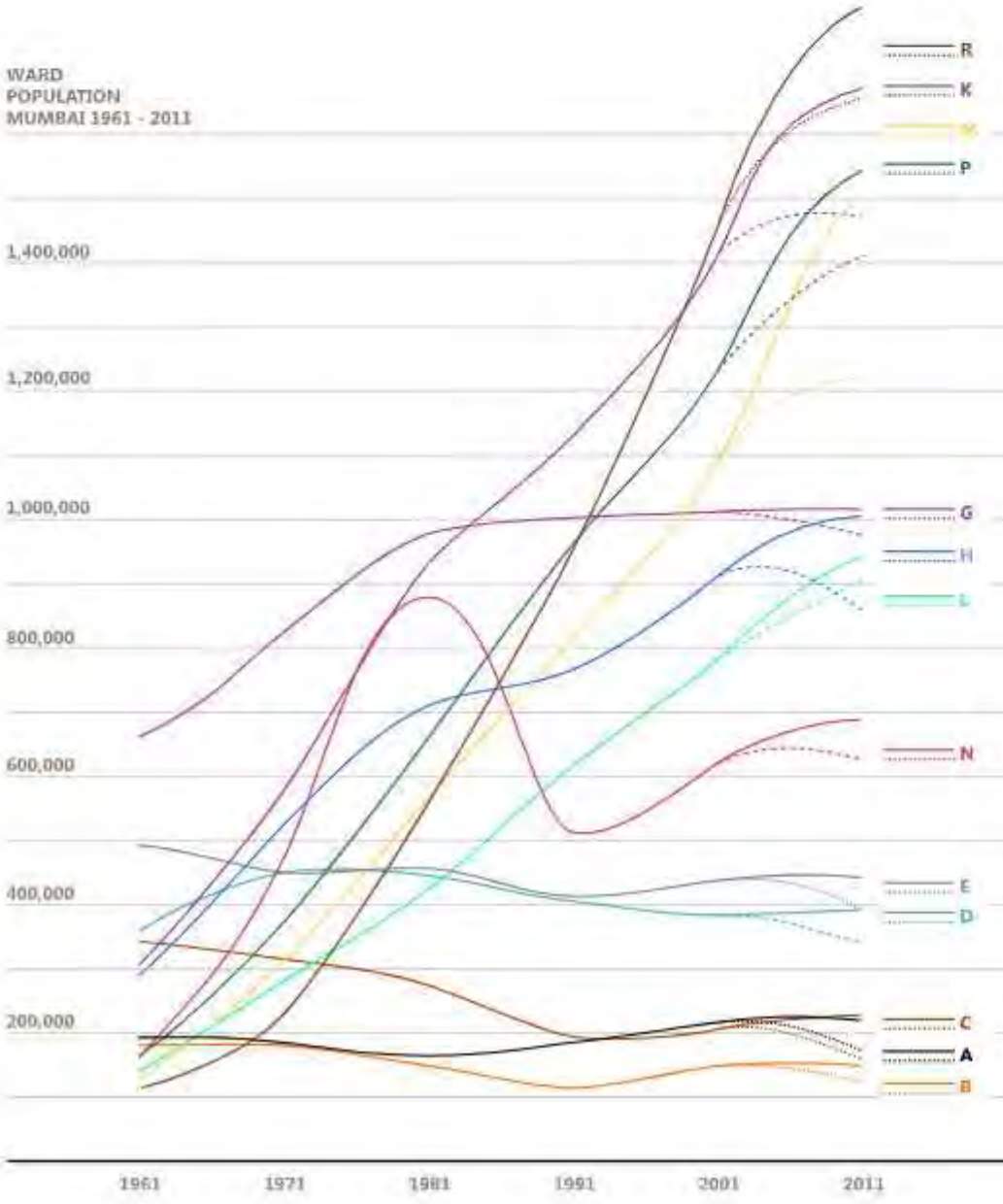
* Land use data from MCGM, Ward wise ELU Survey Reports, 2013

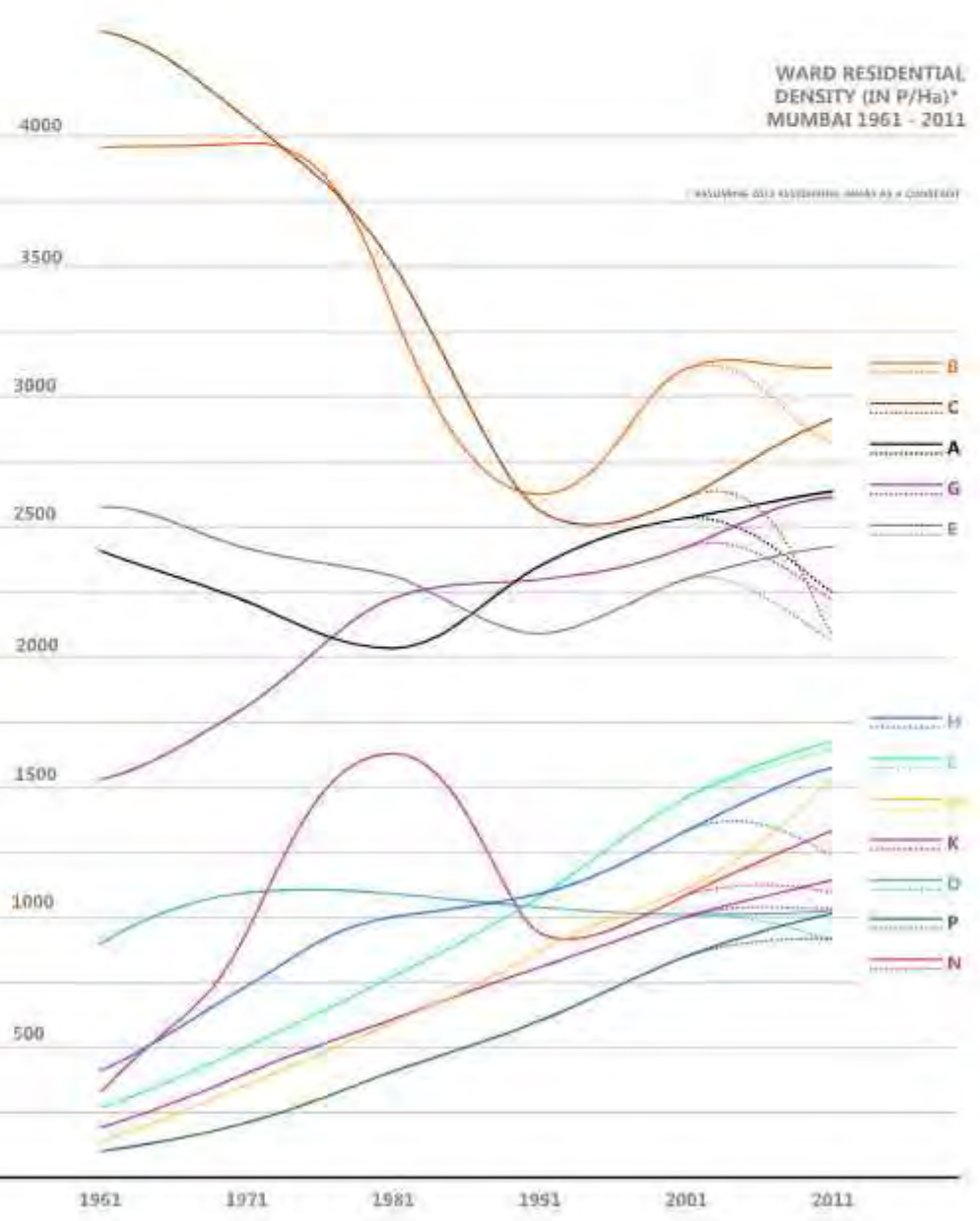


Mumbai ward population trends[5]

The graphic below shows, on the left, the population growth of different wards in the city since 1961, and the change in residential densities of these wards in the same period. The graph assumes that the amount of residential land area of the ward has remained constant at 2011 levels since 1961, and though this is misleading, it still reveals an interesting point. The population of the suburban wards of the city has grown rapidly since 1961 as seen below for P, M, K and R wards, and steadily in G, H and L wards. The population in the inner city wards has remained more or less constant through the last 50 years. On the other hand, the densities of the inner city wards have been high - ranging from 1500 p/ha to more than 4000 p/ha. D ward is an exception, its density remaining at suburban levels despite it being a ward in the Island City. More importantly however, many pockets in the suburban wards have densities comparable to inner city levels - Malvani for instance has a density of about 1800 p/ha. This suggests that there is much greater socio-spatial disparity in the suburbs, with low and very high density areas existing side by side.

5 Data from MCGM's Preparatory Studies for the Revision of Mumbai's 20 Year Development Plan 2013





MALVANI OVERVIEW

MALVANI – BRIEF OVERVIEW

SR.NO	PARTICULARS	DETAILS
1	Area (Ha)	282
2	Population	399,000
3	Gross population density (persons / sq km)	1,418
4	Municipal Hospitals	0
5	Municipal Maternity Homes	1
6	Municipal Dispensaries	1
7	Municipal Health Posts	2
8	Private / trust run hospitals	0
9	Public Schools	7
10	Total Schools	29
11	Municipal Markets	1
12	Street Markets	1
13	Police Stations	1
14	Police Chowkies	3
15	Bus Depots	1
16	Railway Stations	0
17	Cemeteries	0

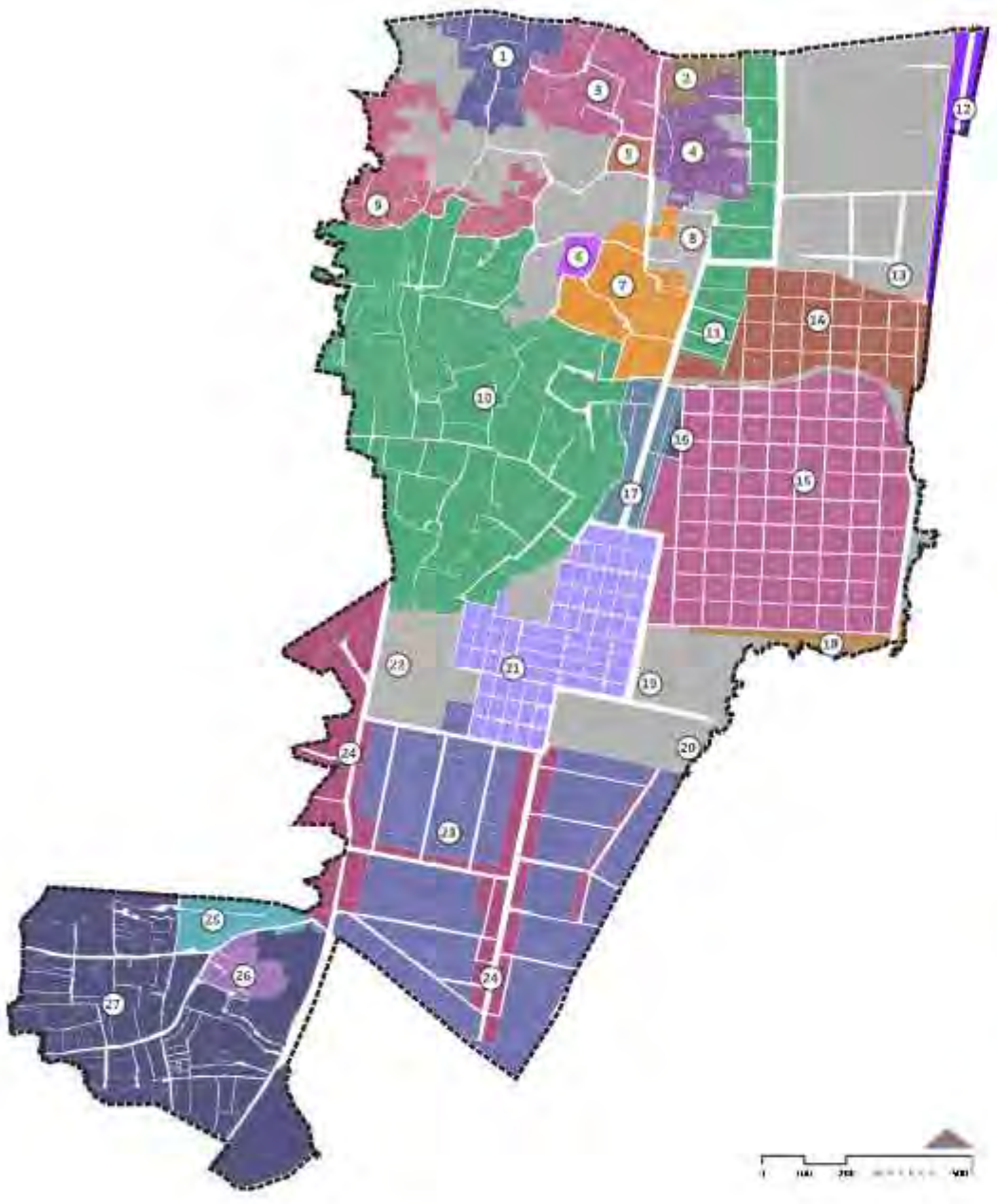
Overview of Malvani

A historical map of 1924 shows the area of Malvani as almost entirely being marshland, except the north eastern quarter which is marked as a "reserved forest." The area around Malvani is almost entirely marshland and forest, with a few villages scattered around - Malvani fishing village, Kharodi gaothan (called "kharodivadi"), Charkop, Marve, Erangal and Manori. A single road from Malad station connects Marve, as it does today. Within the present boundary of Malvani, salt pans are shown in an area that is now reserved for the staff of the Central Government - this land was once a common that was most probably used by the residents of nearby villages - the closest one being Kharodi. The area that is today Rathodi slum (see the Malvani Communities Map) above Azminagar was once a quarry for Malad Stone, the yellow-black basalt stone that was used in the construction of historic buildings of the colonial city. What are now ponds in Rathodi area are the result of quarrying, except for the Kharodi Lake just outside the site which is a natural pond.

Settlements began in the area since the 70s, most of which were planned re-settlement colonies. The 1981 Development Plan reserves large areas (except for what is Azminagar and Rathodi slum today) as 'public housing' and almost all of this land is still owned partly by the Central, Municipal and State governments. Much of the resettlement in this area was of the site and services type - small plots were given on lease to residents (often slum dwellers in the Inner city) and services in the form of common toilets were built nearby. Later, MHADA also developed a large area with low, middle and high income housing, and today this is called the Mhada Colony. Since the 90s, people started settling to the south east of MHADA colony in an area that is now called Ambojwadi, and to the north east in an area now called Azminagar. A large part of the settlement into Azminagar was after the 1992-93 riots in Mumbai, and the area has become one of the many Muslim ghettos in the city. Ambojwadi was completely bulldozed in the 2004-05 slum demolitions in the city - but slowly people returned to the area and rebuilt their homes. As a result, Ambojwadi looks and feels like a more recent settlement as compared to Azminagar, which is more consolidated. The map on the right shows the different communities in Malvani, the number of people living in them and the total land areas of the communities. The boundaries do not always coincide with reservations or ownerships - they are "community boundaries."

MALVANI COMMUNITY MAP

Showing communities / societies in Malvani, populations and land areas



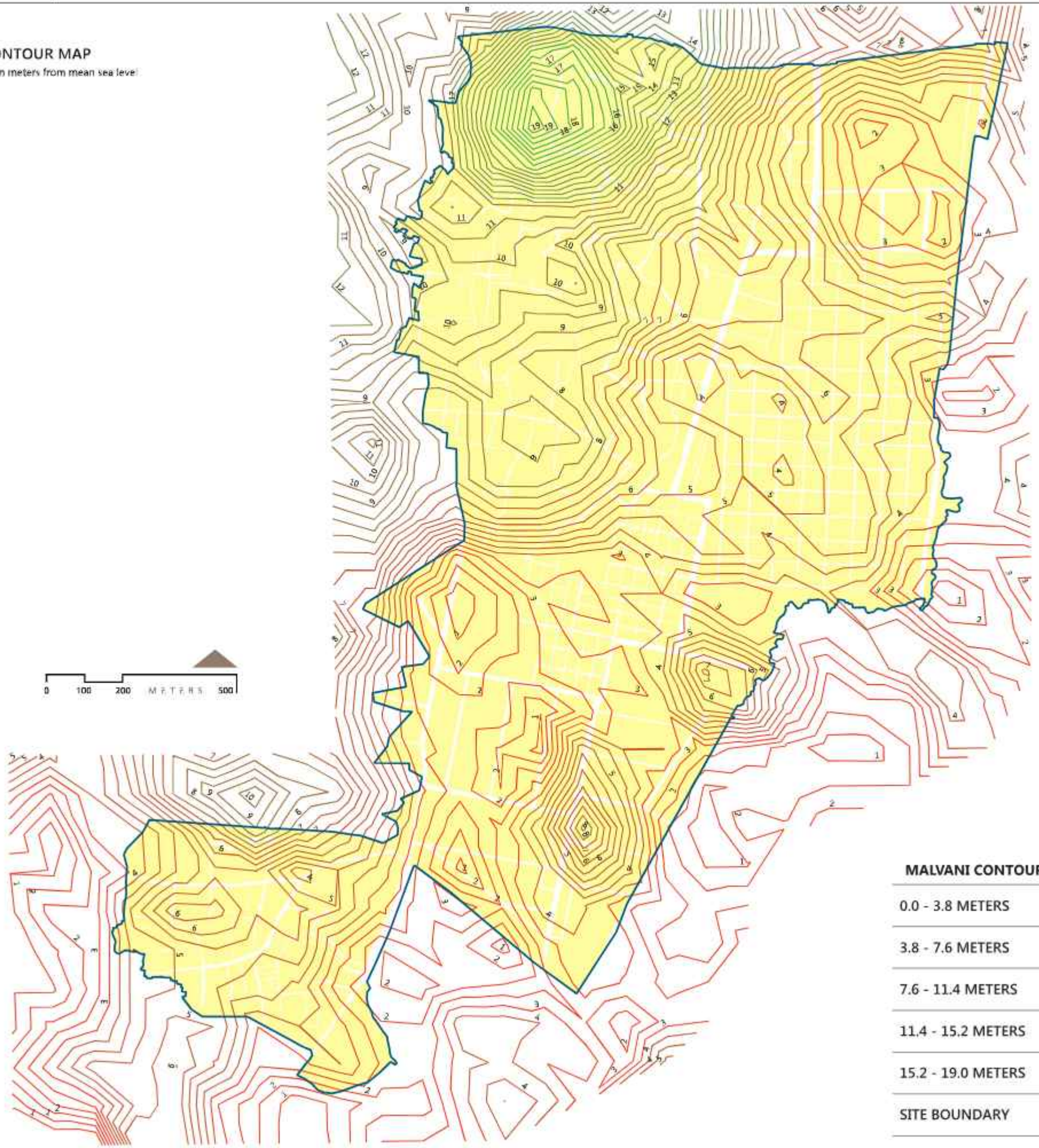
COLOR CODE	LABEL	COMMUNITY NAME	POPULATION	SETTLEMENT AREA (SQM)
	1	RATHODI VILLAGE	760	45,332
	2	KHARODI VILLAGE	200	10,605
	3	HINUSWADI	4,500	66,253
	4	WADARPADA	3,800	47,147
	5	HANUMAN NAGAR	1,500	7,218
	6	LAXMI NAGAR	2,500	7,364
	7	JULIUS WADI	2,000	63,859
	8	KHARODI OTHER	3,020	27,552
	9	RATHODI SLUM	8,000	63,748
	10	AZMI NAGAR	1,20,000	436,789
	11	BMC COLONY	12,500	66,277
	12	BUDDH NAGAR	4,000	24,421
	13	CENTRAL GOVT. QUARTERS	1,280	12,454
	14	OLD COLLECTOR COLONY	25,000	105,215
	15	NEW COLLECTOR COLONY	60,000	308,928
	16	BHIM NAGAR	2,500	2,492
	17	SQUATTERS COLONY	20,000	29,644
	18	KACCHA RAASTA	2,700	16,368
	19	SAMNA NAGAR	2,500	9,794
	20	BEST	640	3,535
	21	MAHARASHTRA HOUSING BOARD (MHB)	12,700	127,479
	22	POLICE QUARTERS	3,240	12,780
	23	MHADA LIG	15,540	315,892
	24	MHADA MIG + PRIVATE MIG APTS	15,270	137,961
	25	NEW BABREKARNAGAR	7,000	26,689
	26	PATRA CHAWL	2,500	18,225
	27	AMBOJWADI	60,000	221,117

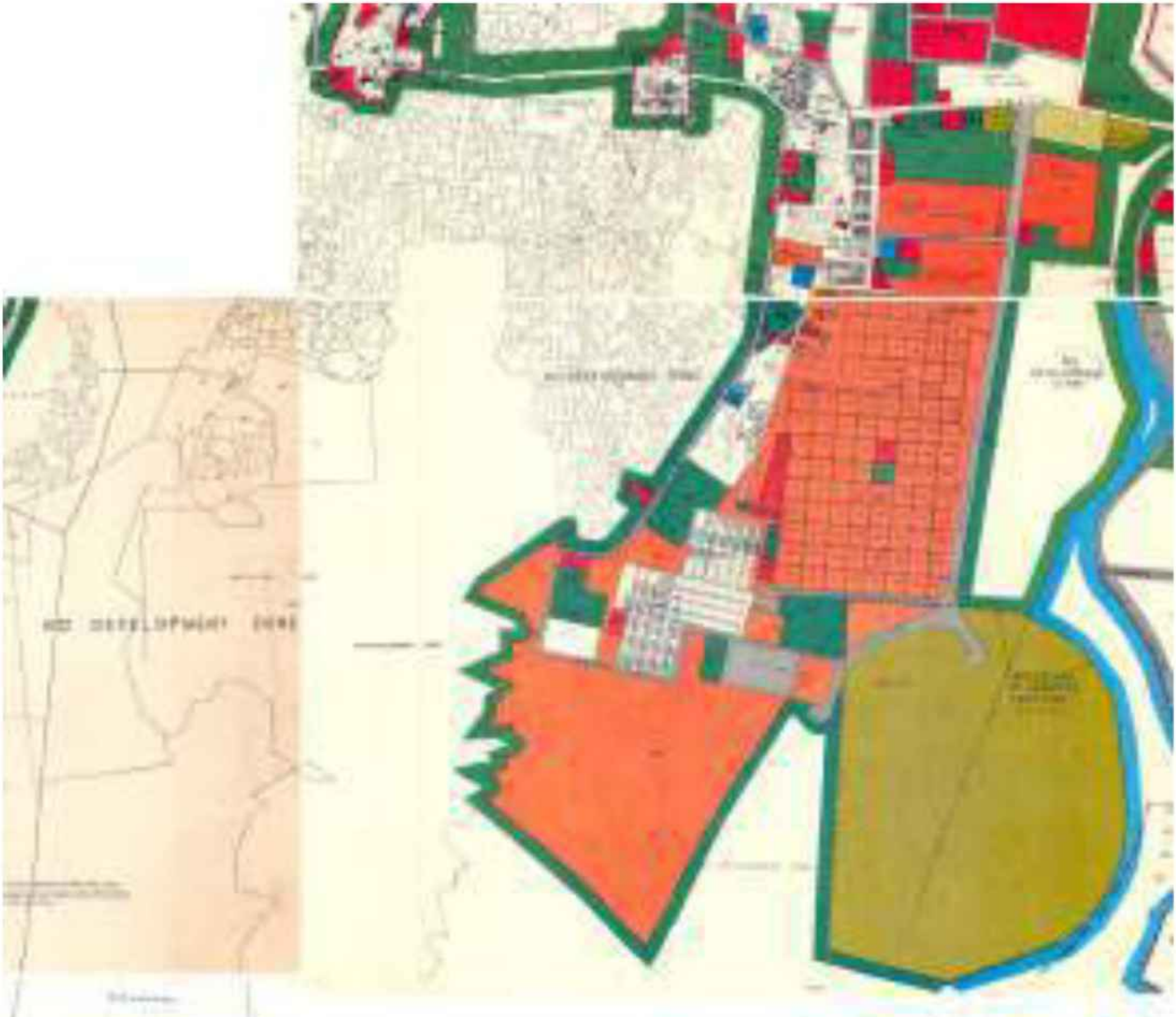
COLOR TYPE	DESCRIPTION
COLORED AREAS	Communities where Focused Group Discussions (FGDs) were undertaken on one or more occasions, in the survey, analysis and / or proposal formulation stages. Residents of 22 out of the 27 communities in Malvani participated in the discussions.
GREY AREAS	Communities where no Focused Group Discussions could be undertaken, for various reasons. These communities were : Miscellaneous areas in Kharodi Slum (Kharodi other), Central Government Staff Quarters just opposite Malvani Fire Station, Saamna Nagar (which is a MHADA low income housing colony), BEST housing behind the depot and Police Quarters (which is close to MHB and MHADA LIG colonies).


MALVANI NATURAL AREAS
A 1924 map showing natural areas in and around Malvani
Manori
Malvani
Kandivli
Malad
Chinchpokli
Kandivli
0.0
0.5
KILOMETERS
2.0
MAP SHOWING NATURAL AREAS
MALVANI SITE BOUNDARY

MALVANI CONTOUR MAP

Showing contours in meters from mean sea level

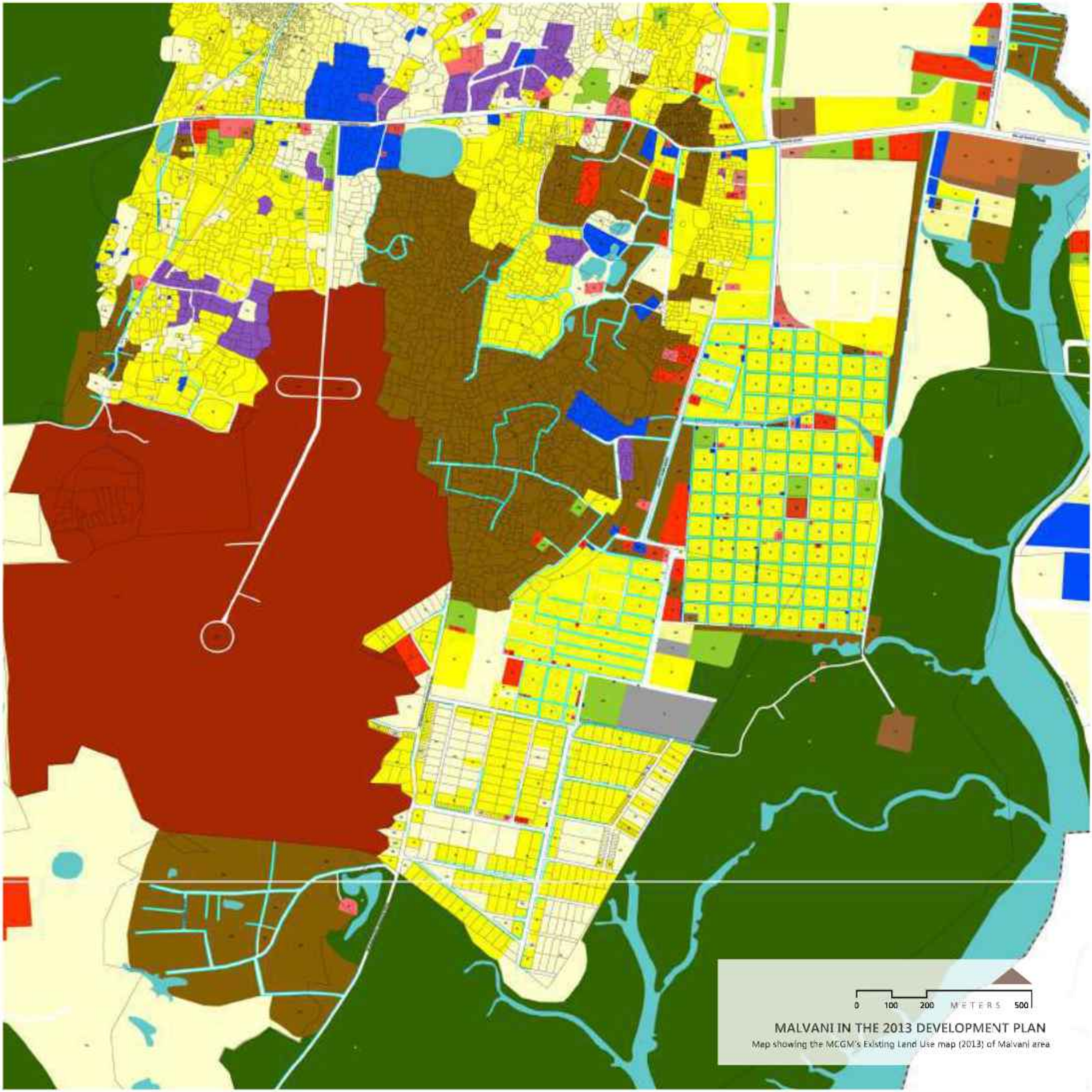




0 100 200 METERS 500

MALVANI IN THE 1981 DEVELOPMENT PLAN

Map showing the proposed land use plan (1981) of Malvani area

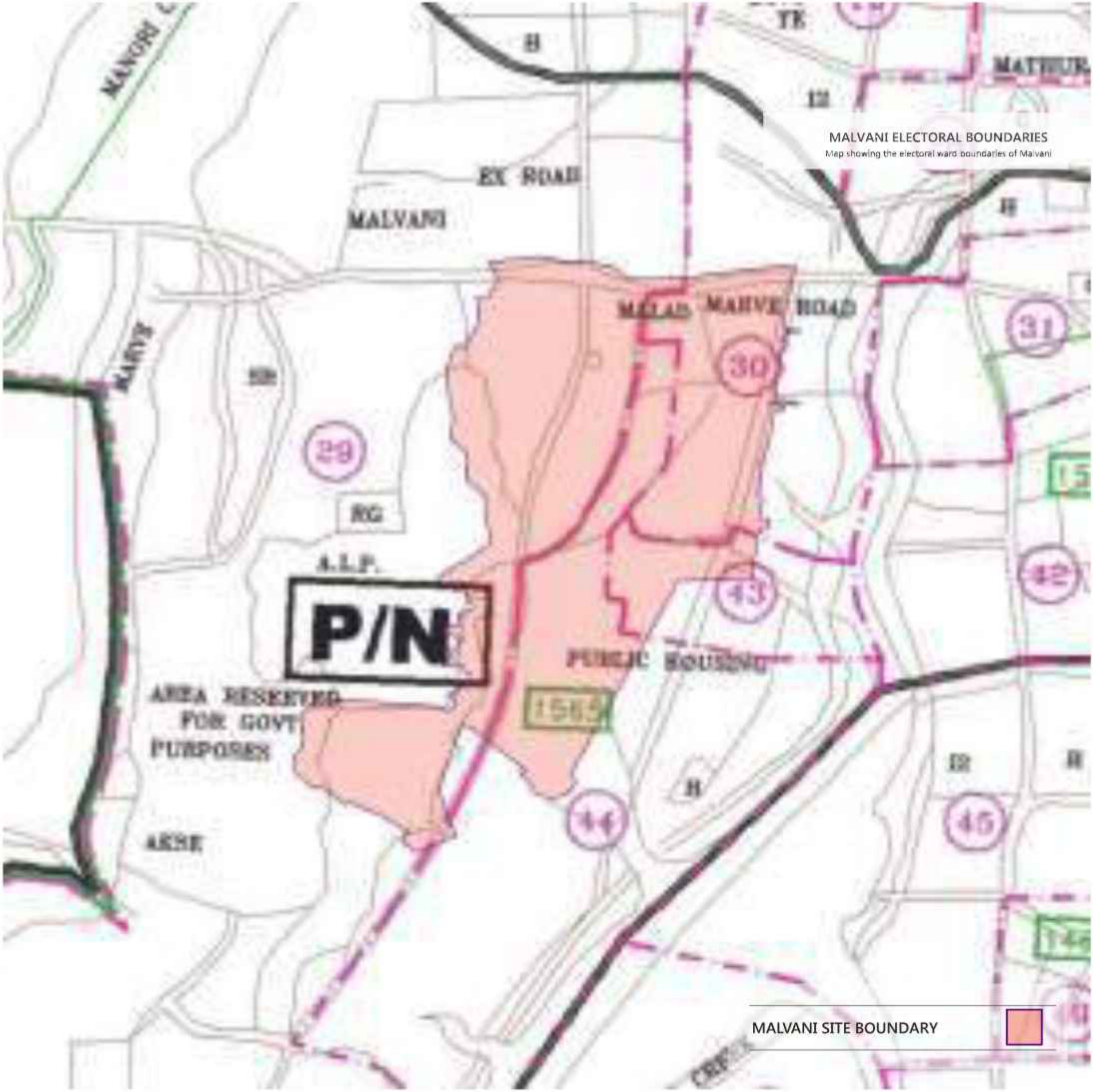


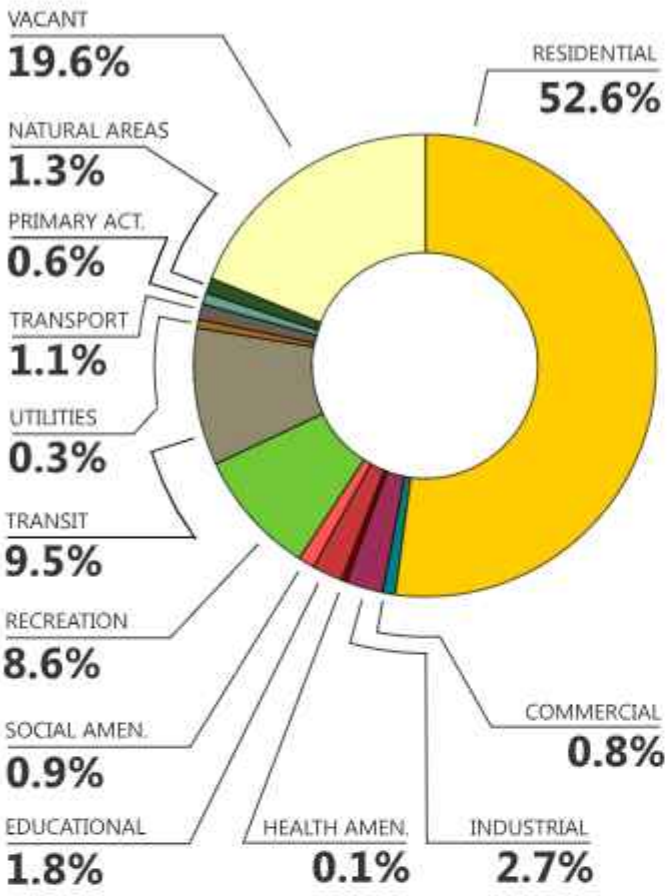
MALVANI IN THE 2013 DEVELOPMENT PLAN

Map showing the MCGM's Existing Land Use map (2013) of Malvani area

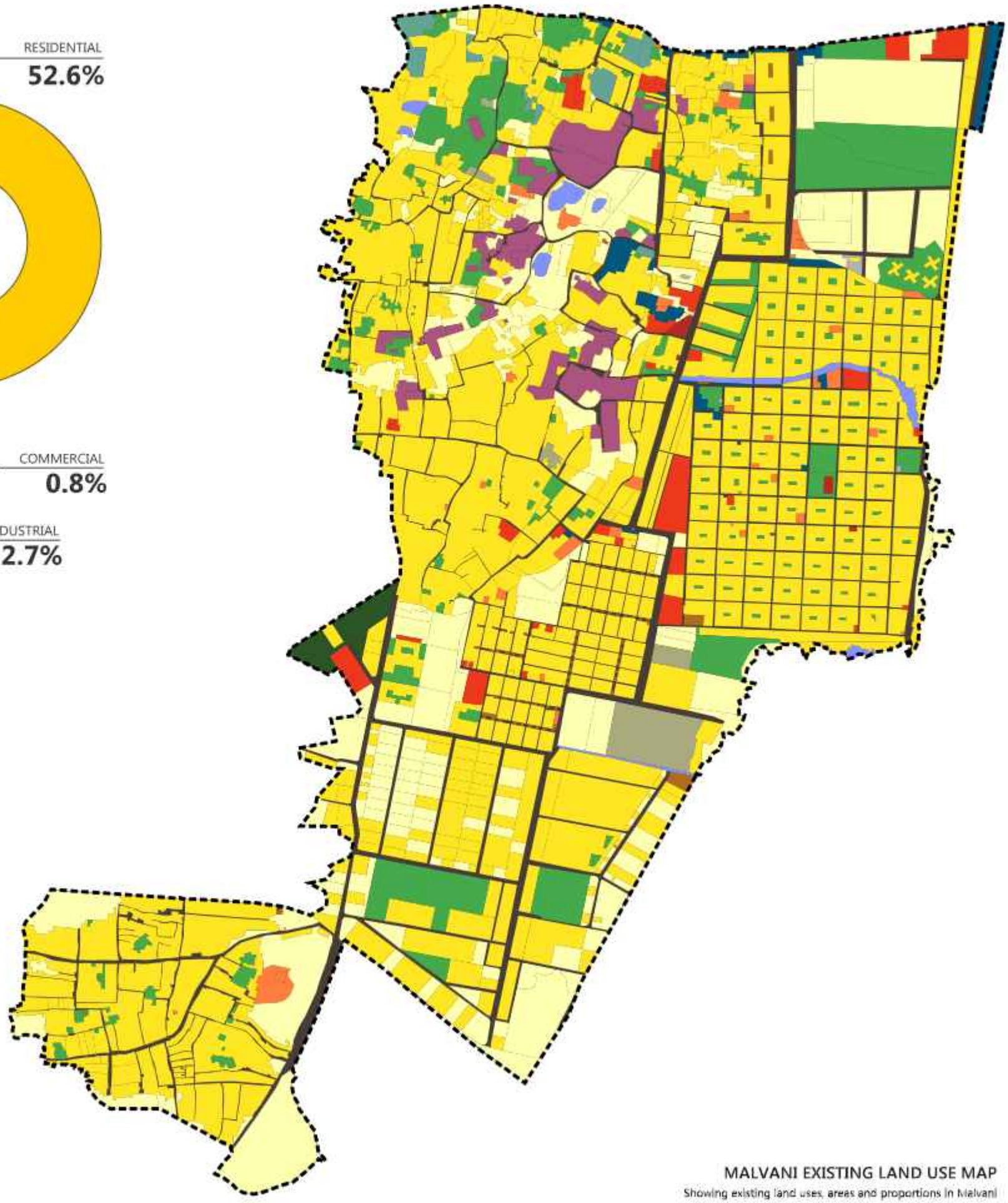
MALVANI ELECTORAL BOUNDARIES

Map showing the electoral ward boundaries of Malvani





LAND USE	AREA (Ha)	CODE
RESIDENTIAL	148.46	
COMMERCIAL	2.31	
INDUSTRIAL	7.64	
HEALTH	0.28	
EDUCATION	5.18	
SOCIAL	2.45	
RECREATION	24.16	
TRANSIT	26.76	
UTILITIES	0.72	
TRANSPORT	3.14	
PRIMARY ACT.	1.76	
NATURAL	3.53	
VACANT	55.29	



MALVANI EXISTING LAND USE MAP

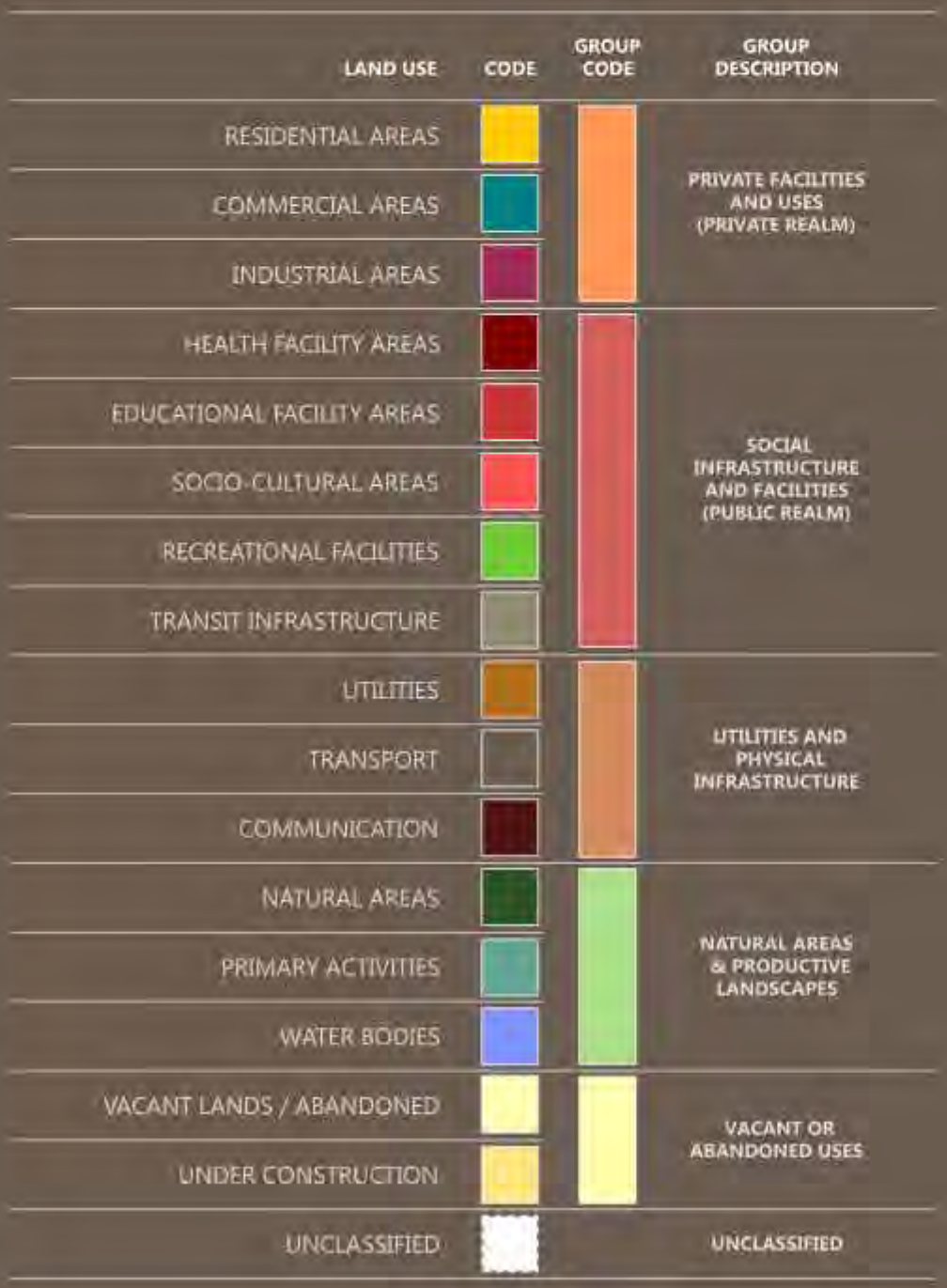
Showing existing land uses, areas and proportions in Malvani

UDPFI Guidelines and the Public and Private Realms

The chart below shows the percentage range of different areas of a metro as suggested by the UDPFI guidelines. 30-35% of developed land area for residential, about 16-19% for industrial and commercial combined, 14-16% for amenities and 20-25% for open spaces. If residential, industrial and commercial areas are considered 'private' uses while social infrastructure and open spaces are considered 'public uses' as described below, a percentage breakup for public and private uses in a metro can be drawn as shown in the pie chart, as per UDPFI guidelines.

This scheme is useful for comparing different spatial units in the city, though it must not be mistaken for being the ideal measure of a 'good city,' whatever that means. This scheme is employed to compare on the next page the city of Mumbai, P\ ward, D ward and the area of Malvani. Interestingly, D ward comes closest to the UDPFI scheme. However, not much of the open spaces in D ward or the amenities are enjoyed by the residents of D ward, as much of these amenities are privately run and open spaces are privately controlled, and an income based analysis must be undertaken to reveal the inequities in access.

1. Urban Development Plans formulation and Implementation Guidelines, 1996. Government of India



PERCENTAGE OF DEVELOPED AREA FOR METROS

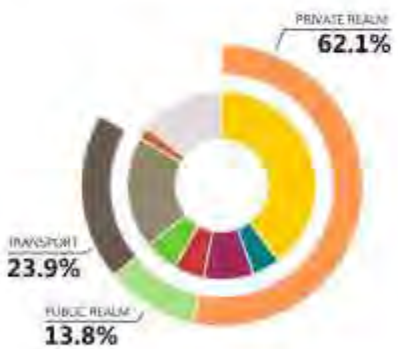
CATEGORY	UDPFI
RESIDENTIAL AREAS	35-40
COMMERCIAL AND OFFICE AREAS	04-05
INDUSTRIAL AREAS	12-14
PUBLIC & SEMI PUBLIC FACILITIES / INFRASTUCTURE	14-16
RECREATIONAL FACILITIES	20-25
TRANSPORT & COMMUNICATION	15-18
AGRICULTURE & WATER BODIES	BALANCE

GREATER MUMBAI

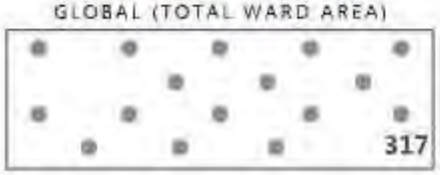
POPULATION
14,544,465*
12,442,373**

LAND AREA
45830 Ha

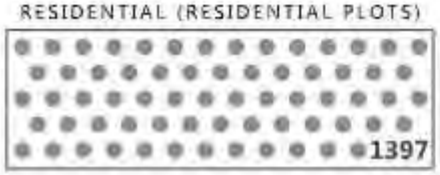
HDM
0.56



GLOBAL (TOTAL WARD AREA)



RESIDENTIAL (RESIDENTIAL PLOTS)

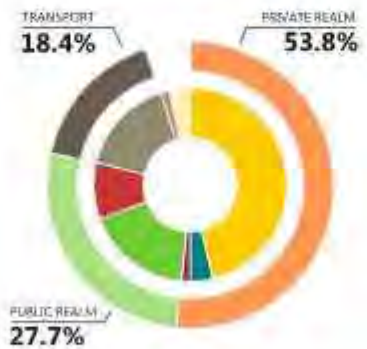


D WARD

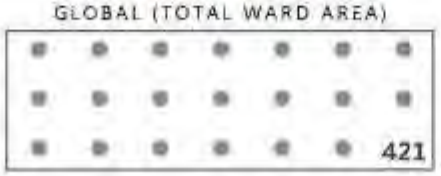
POPULATION
388,081*
346,866**

LAND AREA
822.3 Ha

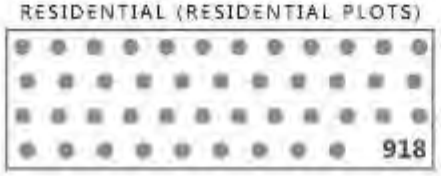
HDM
0.94



GLOBAL (TOTAL WARD AREA)



RESIDENTIAL (RESIDENTIAL PLOTS)

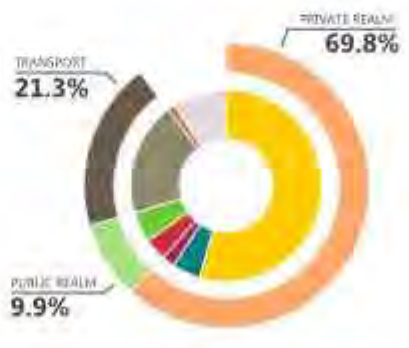


PN WARD

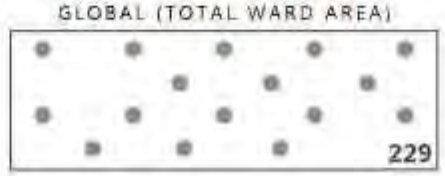
POPULATION
1,025,989*
941,366**

LAND AREA
2,495 Ha

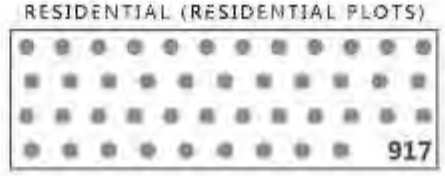
HDM
0.47



GLOBAL (TOTAL WARD AREA)



RESIDENTIAL (RESIDENTIAL PLOTS)

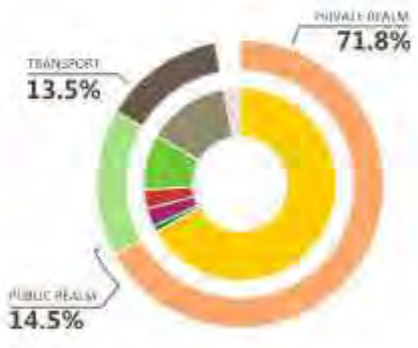


MALVANI

POPULATION
395,000

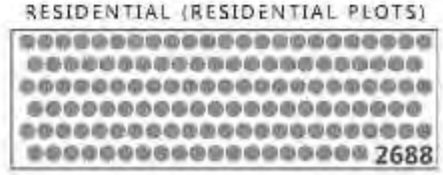
LAND AREA
281.85 Ha

HDM
0.47



GLOBAL (TOTAL WARD AREA)

RESIDENTIAL (RESIDENTIAL PLOTS)



SQUATTERS COLONY

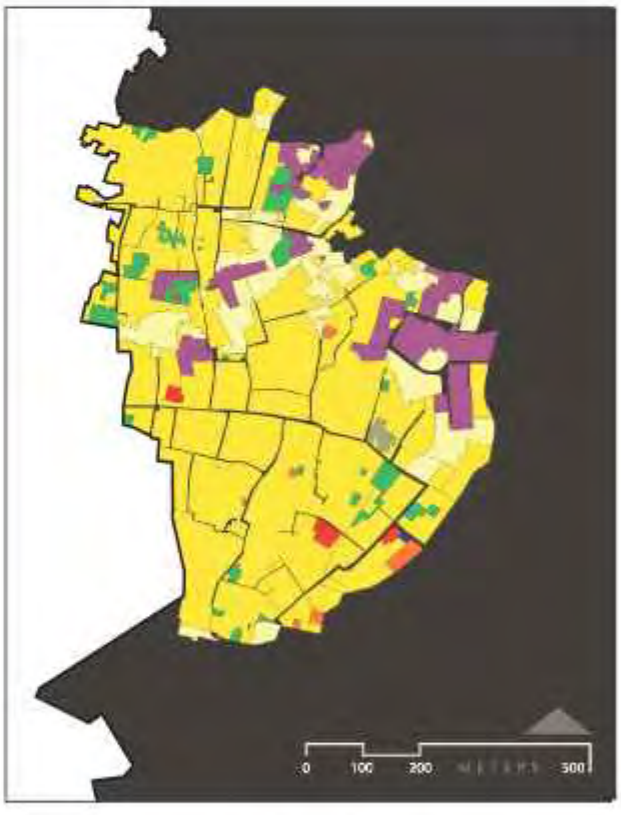
20,000 persons | 2.9 Ha

SQUATTERS COLONY

SR.NO	PARTICULARS	DETAILS
1	Land ownership	MCGM
2	Security of Tenure	Secure
3	House construction	Self-built
4	House condition	Pucca
5	Home ownership %	70
6	Home rental %	30
7	Monthly average household income	7,000 - 10,000

AZMI NAGAR

120,000 persons | 43.67 Ha



AZMI NAGAR

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Private
2	Security of Tenure	Insecure
3	House construction	Self-built
4	House condition	Kaccha to pucca
5	Home ownership %	50
6	Home rental %	50
7	Monthly average household income	7,000 – 10,000

AMBOOJWADI

60,000 persons | 22.11 Ha

AMBOJWADI

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Collector
2	Security of Tenure	Insecure
3	House construction	Self-built
4	House condition	Kuccha
5	Home ownership %	75
6	Home rental %	25
7	Monthly average household income	6,000

NEW BABREKARNAGAR

7,000 persons | 2.66 Ha

NEW BABREKARNAGAR

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Collector
2	Security of Tenure	Secure
3	House construction	Self-built
4	House condition	
5	Home ownership %	60
6	Home rental %	30
7	Monthly average household income	4,000 – 7,000

PATRA CHAWL

2,500 persons | 1.82 Ha

PATRA CHAWL

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Collector
2	Security of Tenure	Secure
3	House construction	Self-built
4	House condition	Semipucca to pucca
5	Home ownership %	60
6	Home rental %	40
7	Monthly average household income	7,500

MHADA LIG COLONY

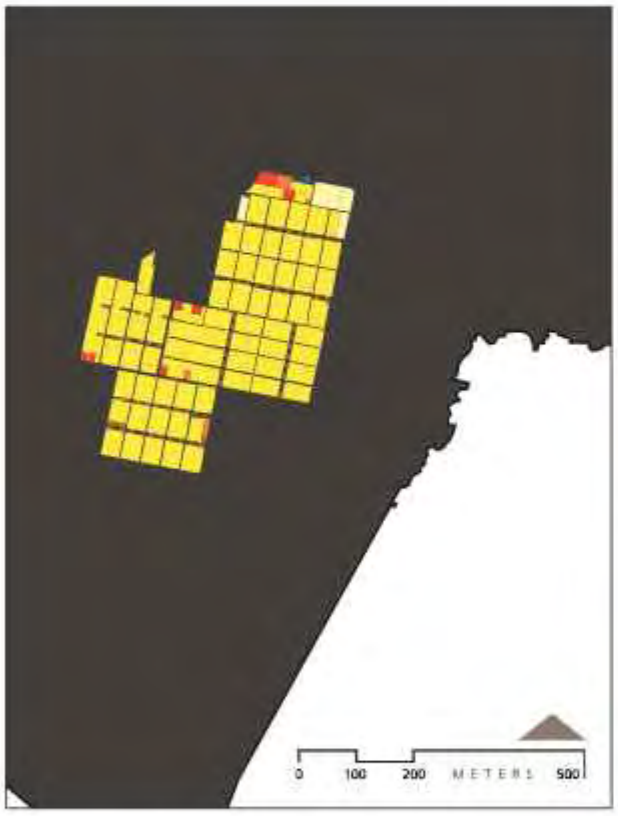
15,450 persons | 31.58 Ha

MHADA LIG

SR.NO	PARTICULARS	DETAILS
1	Land ownership	MHADA
2	Security of Tenure	Secure
3	House construction	Public
4	House condition	Pucca
5	Home ownership %	80
6	Home rental %	20
7	Monthly average household income	5,000 - 10,000

MHB COLONY

12,700 persons | 12.74 Ha

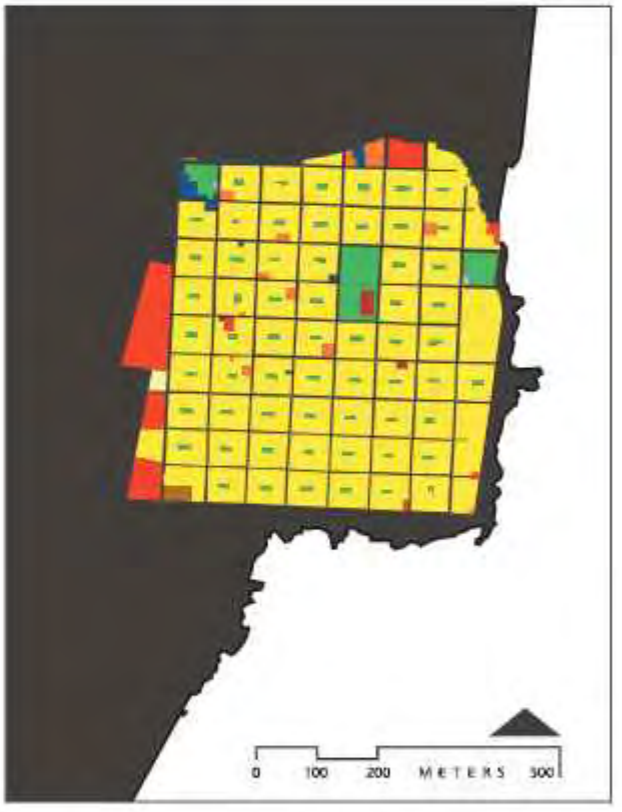


MAHARASHTRA HOUSING BOARD (MHB) COLONY

SR.NO	PARTICULARS	DETAILS
1	Land ownership	MHADA
2	Security of Tenure	Threatened
3	House construction	Public - extended
4	House condition	Pucca
5	Home ownership %	50
6	Home rental %	50
7	Monthly average household income	8,000 - 10,000

NEW COLLECTOR COLONY

60,000 persons | 30.9 Ha

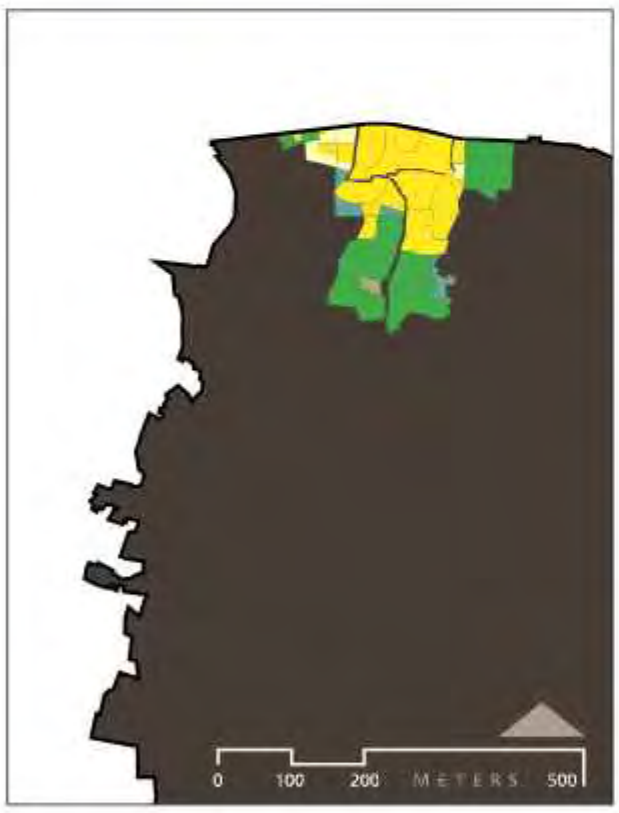


NEW COLLECTOR COMPOUND (NCC)

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Collector
2	Security of Tenure	Secure
3	House construction	Self built
4	House condition	Pucca
5	Home ownership %	80
6	Home rental %	20
7	Monthly average household income	3,000 – 7,000

RATHODI VILLAGE

760 persons | 4.5 Ha

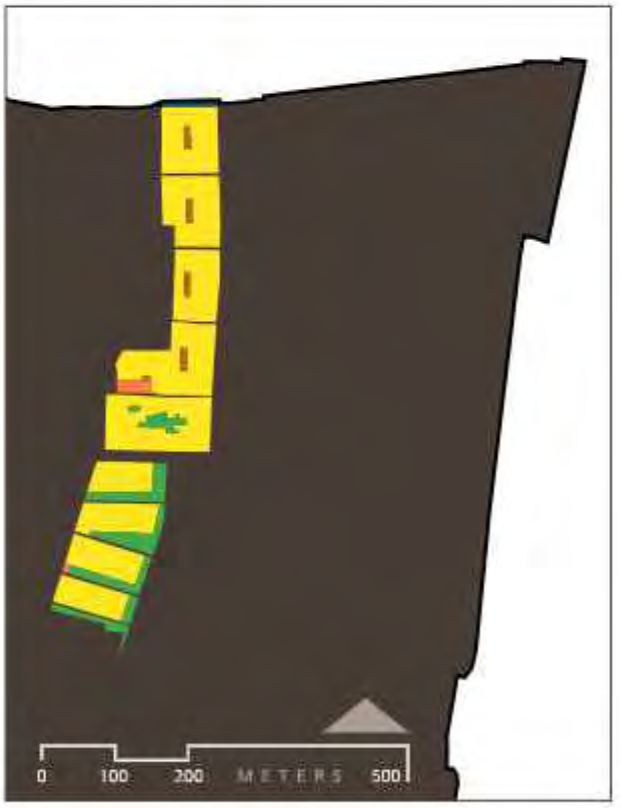


RATHODE GADHIAN

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Private
2	Security of Tenure	Secure
3	House construction	Self built
4	House condition	Pucca
5	Home ownership %	100
6	Home rental %	0
7	Monthly average household income	20,000 and over

BMC COLONY

12,500 persons | 6.62 Ha

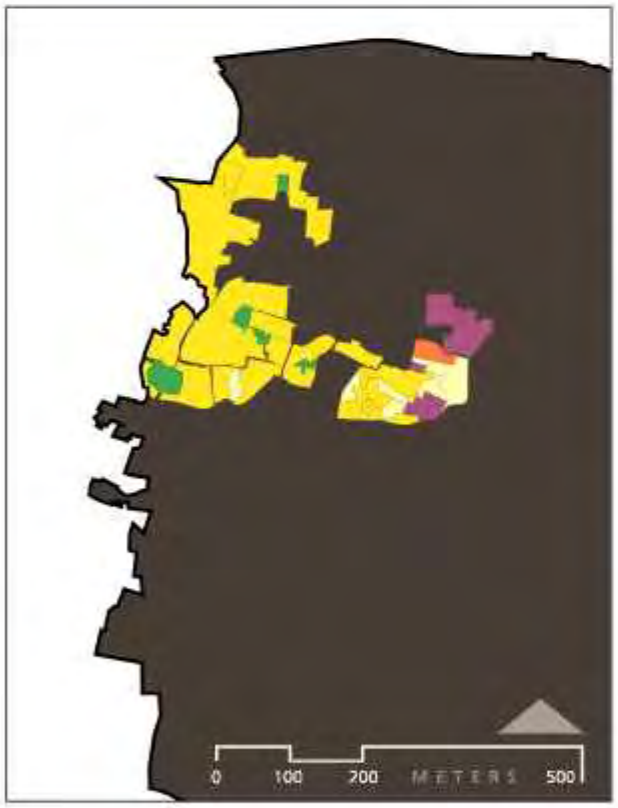


BMC COLONY

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Collector
2	Security of Tenure	Secure
3	House construction	Public
4	House condition	Pucca
5	Home ownership %	50
6	Home rental %	50
7	Monthly average household income	15,000 and over

RATHODI SLUM

8,000 persons | 6.4 Ha



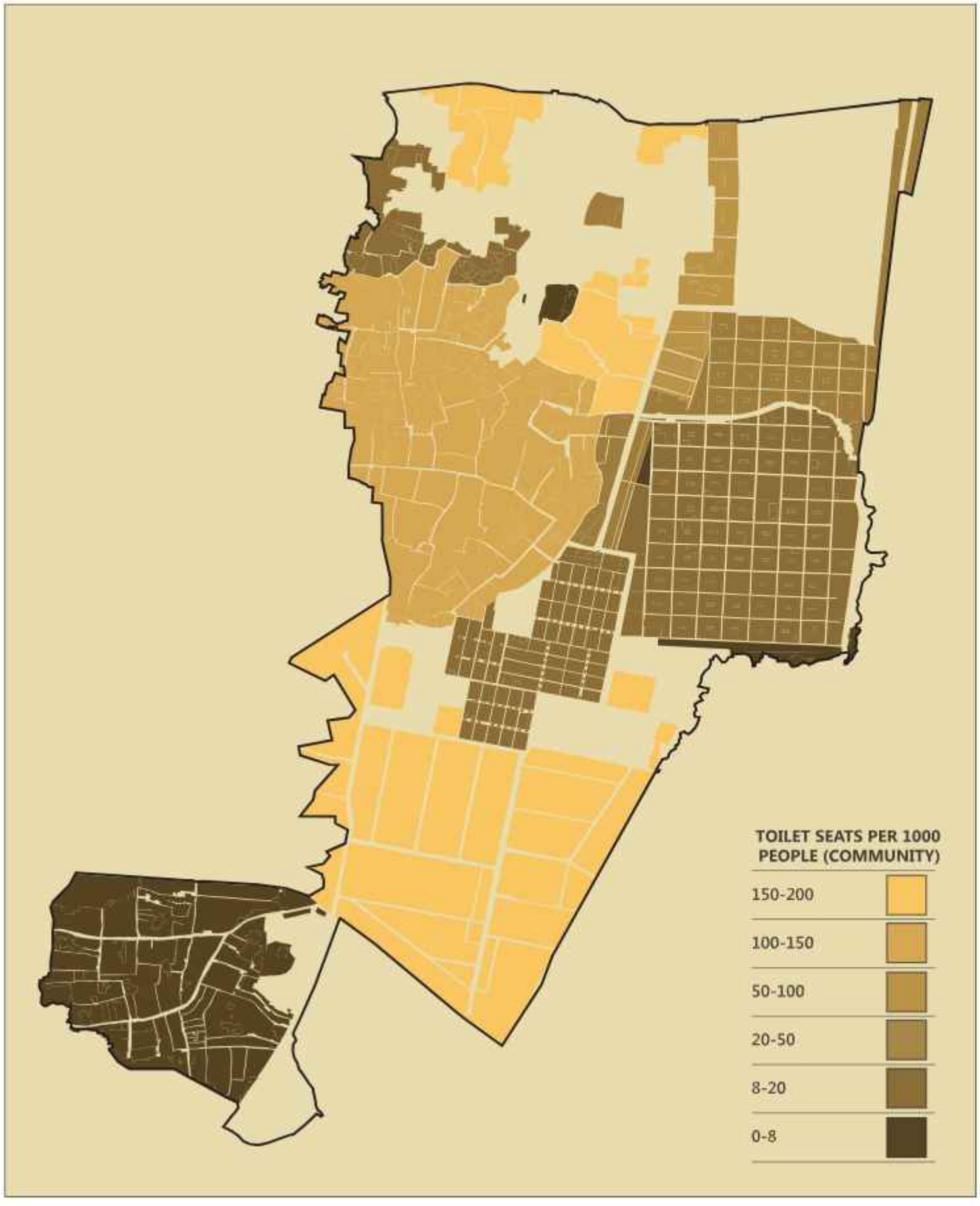
RATHODI SLUM

SR.NO	PARTICULARS	DETAILS
1	Land ownership	Private
2	Security of Tenure	Insecure
3	House construction	Self-built
4	House condition	Semi-pucca
5	Home ownership %	70
6	Home rental %	30
7	Monthly average household income	5,000 – 6,000

SOCIO-SPATIAL CONDITIONS

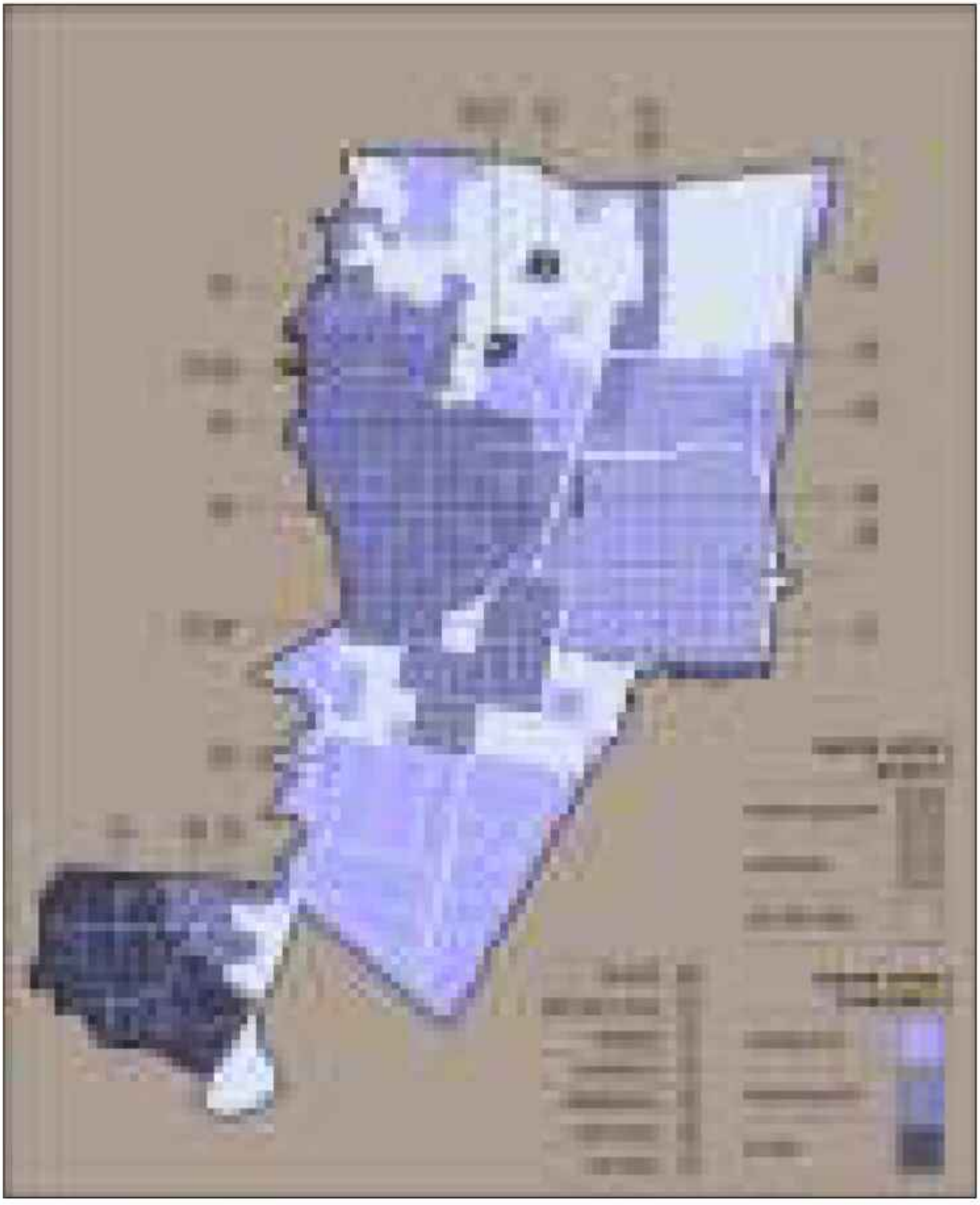
MALVANI SANITATION MAP

Showing number of toilet seats in each community / 1000 persons



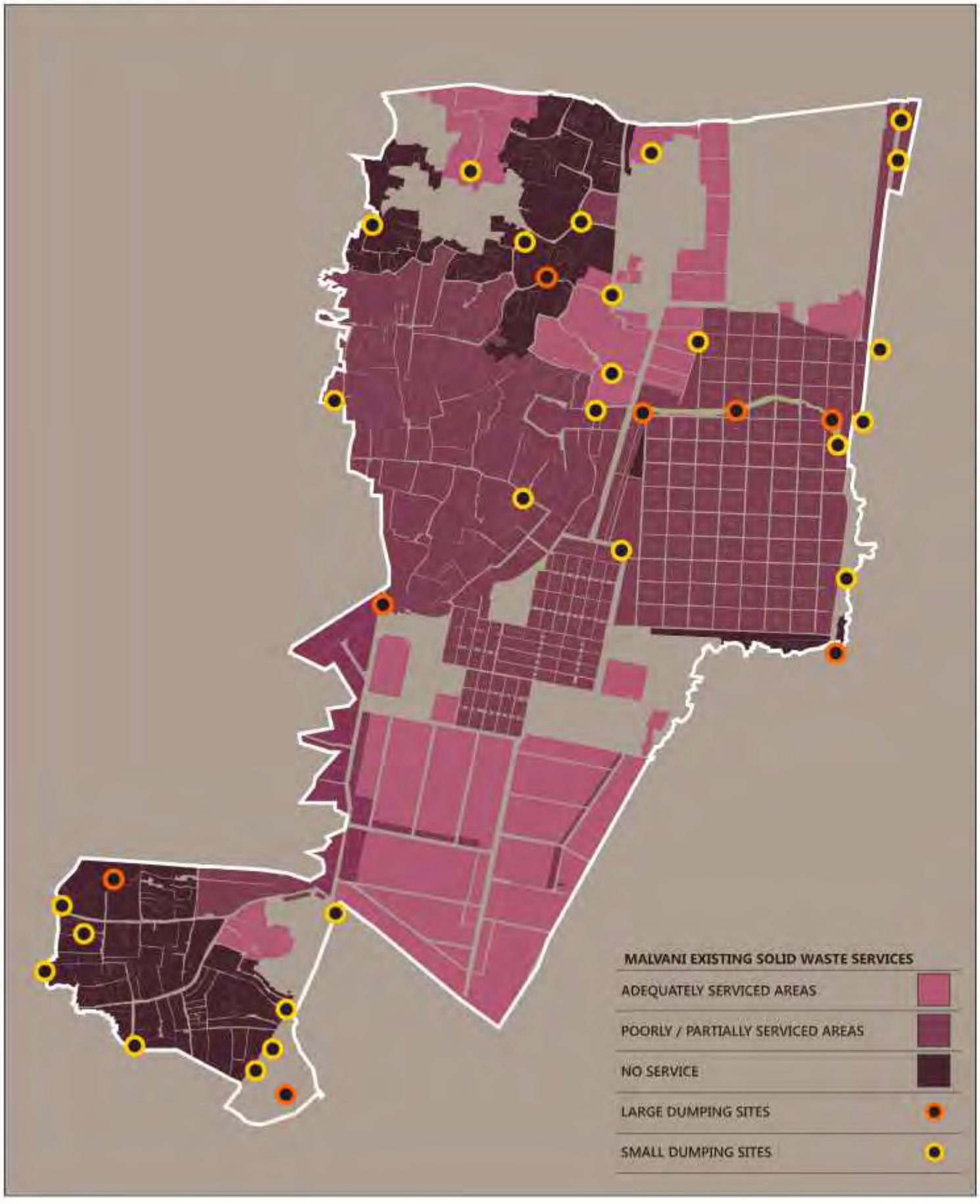
MALVANI WATER SUPPLY MAP

Showing availability, quality and source of water for various communities



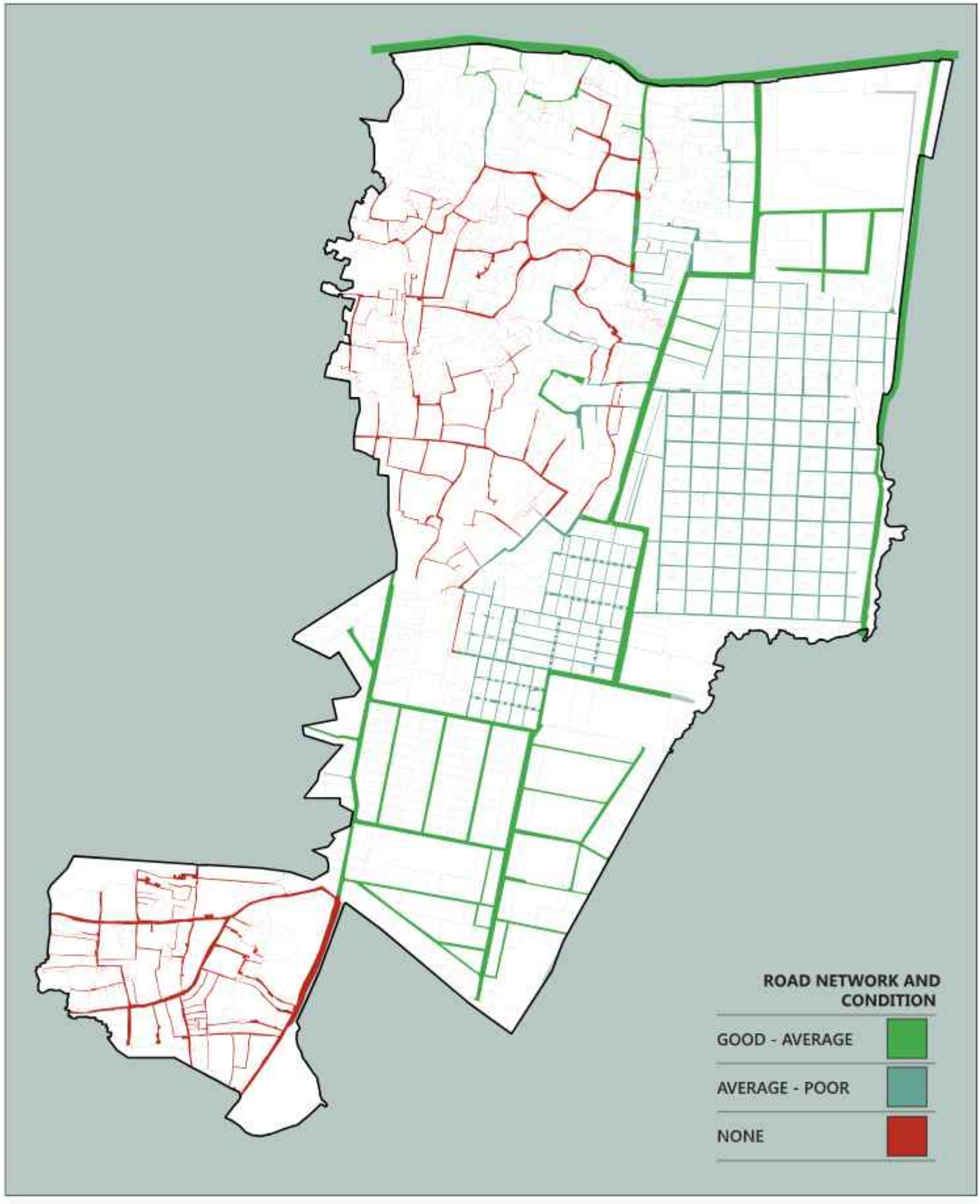
MALVANI SOLID WASTE MAP

Showing small and large dump sites in Malvani



MALVANI ROAD NETWORK MAP

Showing availability and quality of existing roads in Malvani



Almost every effort at improvement or redevelopment of informal settlements assume that the most pressing need of dwellers is "housing" - the "problem" of slums is conceived as a question of lack of affordable housing, even though what is often called slums is affordable housing that people build for themselves. It has been pointed out by many studies that slums provide an environment to urban poor groups where they can find either the means or access to a livelihood, a sense of community, and prospects for improvement and growth. What is destroyed by slum redevelopment and rehabilitation schemes is precisely these things, and in terms of physical infrastructure, these schemes demolish and re-provide (usually in worse conditions) something that the dwellers have already built for themselves - a dwelling unit. What slums and the various models for their "redevelopment" lack is the access to social infrastructure and services - health care, education, cultural facilities, recreational facilities - all of which are provided to the middle and upper income groups by public or private agencies. In fact, a minimum program for slum improvement could be simply the provision of basic services (sanitation, waste management, roads, street lights) and accessible social infrastructure, leaving the building of a home to the cooperative or individual initiative of the slum dwellers. This would be the classic conservative surgery approach, providing only what is lacking in an urban environment, improving what is deficient, and retaining what is already good.

However, this requires a much more sophisticated methods of mapping and analysis of urban communities as compared to what is done today. For instance, slums are often simply demarcated as "slum" on government maps, and detailed surveys are not carried out in them. The problem is that the term "slum" is more useful as a descriptive rather than as an analytic concept, and the scale, intensity and nature of deficiencies in various urban areas are not considered. Many areas of the city that are not considered slums also require planned interventions, but the absence of a systematic method to understand urban conditions has contributed to the inability to address diverse environments.

In the earlier pages, we have presented maps of municipal infrastructure and service provision in various communities in Malvani. It is useful for policy and planning to produce maps based on specific social indicators, and socio-spatial mapping of neighborhoods and precincts based on literacy levels, health coverage, mortality rates, average age, income levels, sanitation conditions (toilet seats per capita), accessible and usable open space, per capita residential space, male-female sex ratios, occupations (formal / informal, primary, secondary, tertiary), access to infrastructure, etc. can easily be done across the city to provide a clearer picture of the socio-economic geography of the city. In what follows, the availability and access to social infrastructure in the area of Malvani will be mapped and analysed.[1]

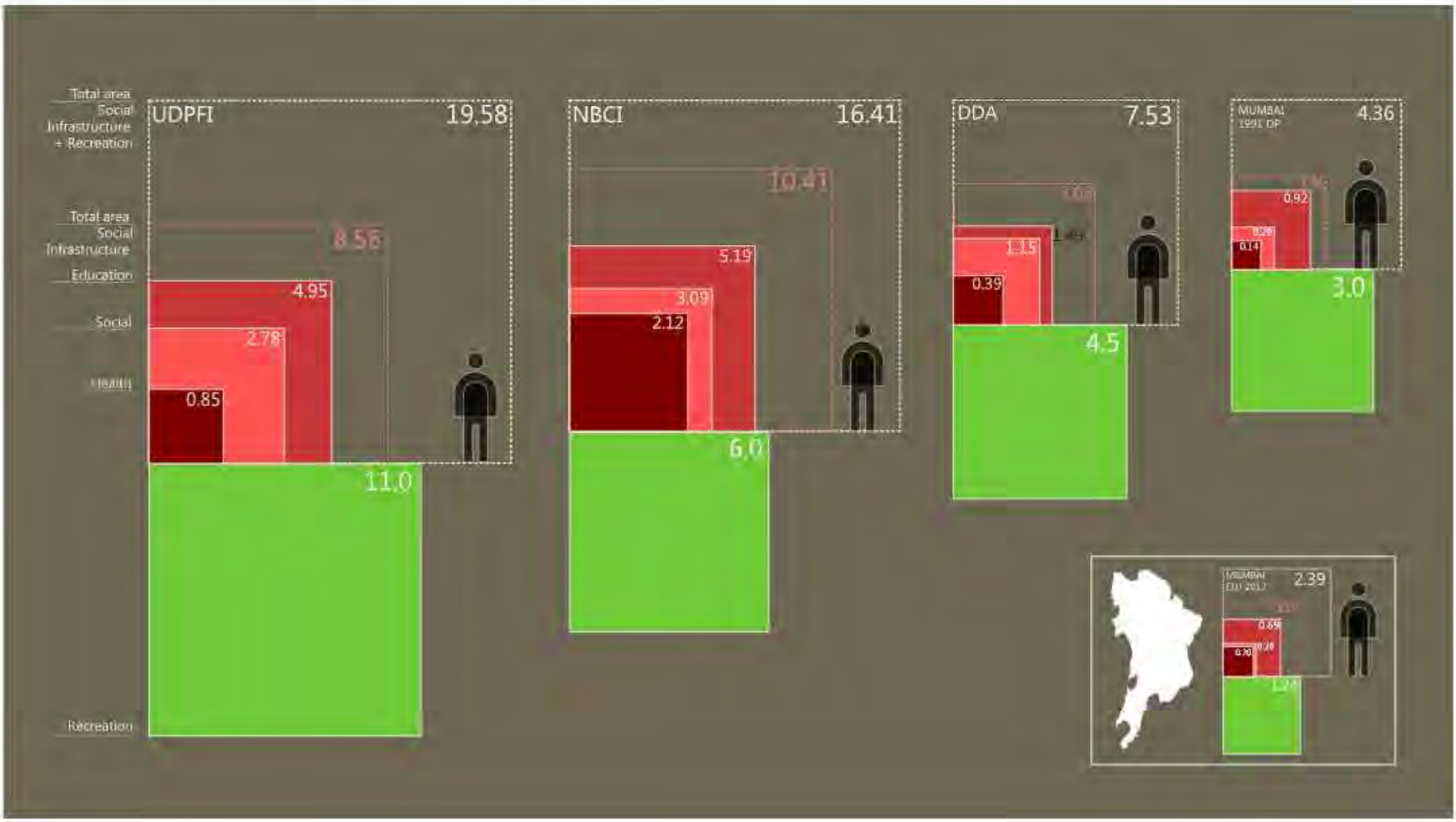
There are various standards for urban development in India. The Urban Development Plan Formulation and Implementation guidelines (UDPFI), the National Building Code of India (NBCI), the Delhi Development Authority's norms, City Industrial Development Corporation (CIDCO) have developed guidelines for urban development. The 1991 Development plan of Mumbai had its own benchmarks, that it considered suitable to the realities of a city like Mumbai.

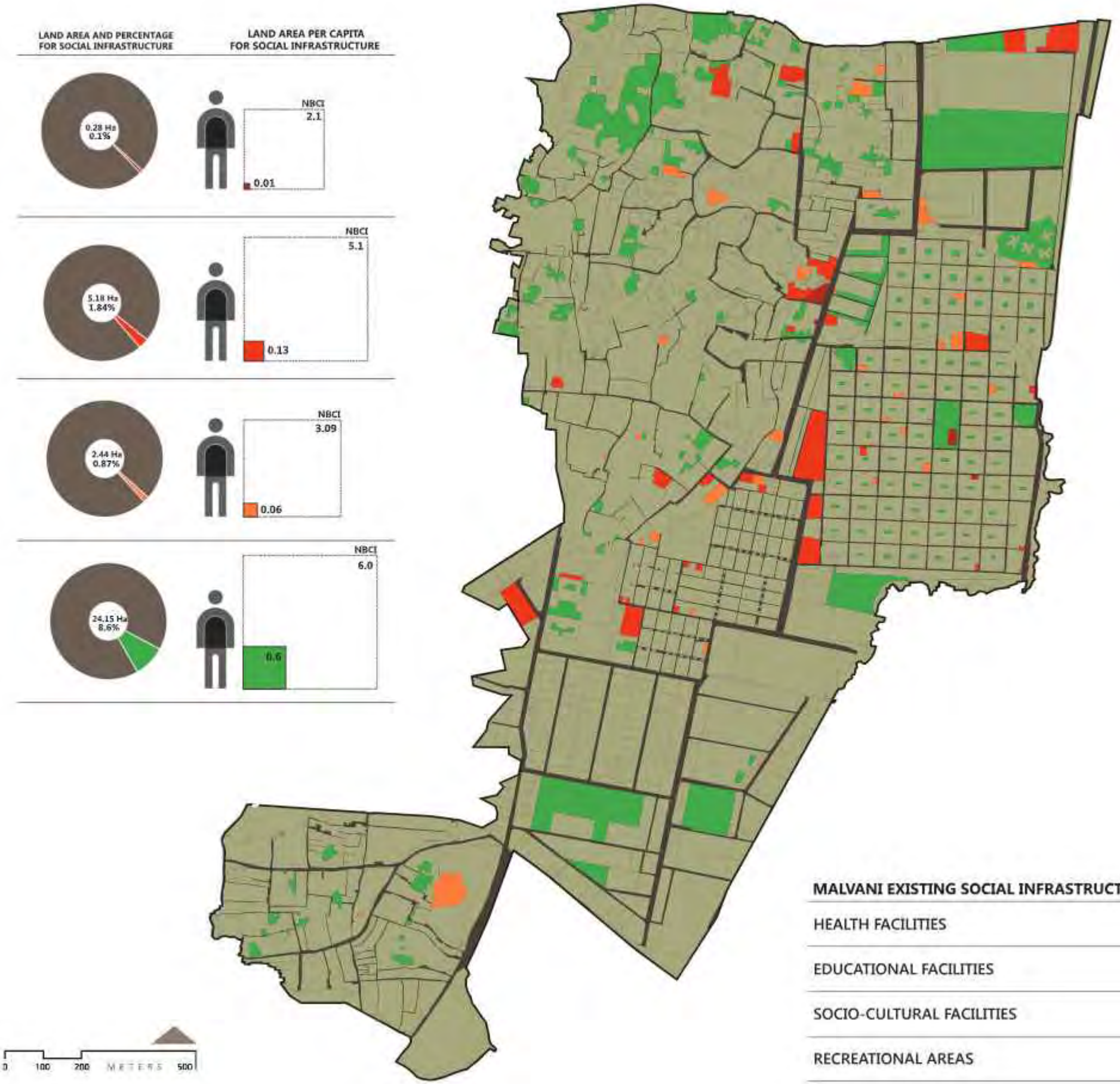
There have been two kinds of criticisms leveled against planning norms - one that says that norms such as UDPFI and NBCI are unrealistic and

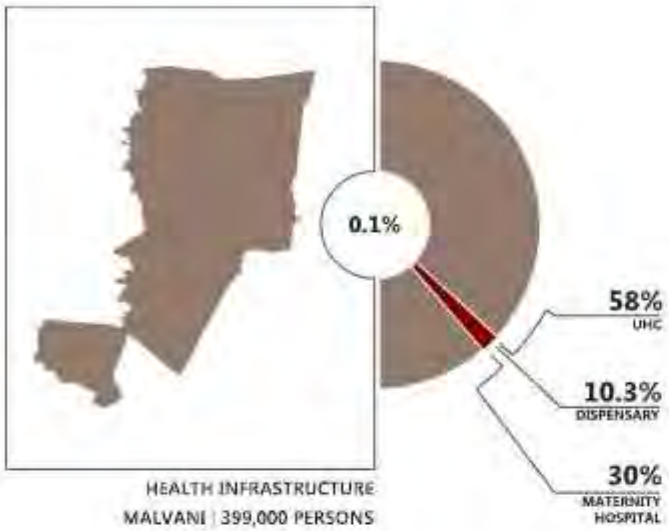
1 See the Comments on the MCGM's Preparatory Studies by the Hamara Shehar Vikas Niyojan.
http://mumbai-dp-campaign.blogspot.in/2014/02/mumbai-dp-campaigns-comments-on.html

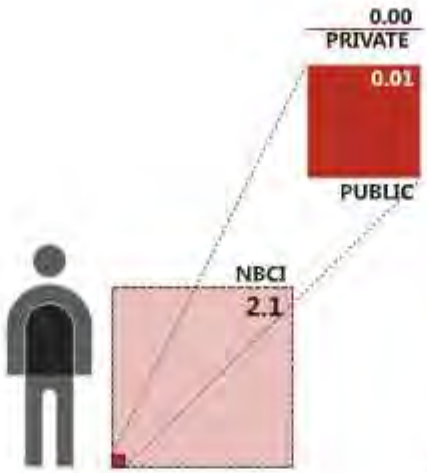
cannot be achieved in high density urban environments like ours, and hence standards must be made more "realistic." The second says that standards place restrictions on urban diversity and growth (acting as a kind of "carrying capacity" restriction) and are a way of indirectly controlling the natural workings of cities, hence must be done away with. The first criticism has to do with the *unviability* of existing standards, the second has to do with the *concept of norms* itself, as they are liable to being misused. There is merit in both these views; however, norms ought to be criticized from another perspective which we consider more important - most of these norms presuppose a middle class lifestyle and though they pretend to be "objective" they are based on a certain standard of living often unsuited to our context. Nevertheless, as a tool, norms are absolutely vital as a way of ensuring some degree of equity in urban environments, and minimum standards are necessary to ensure that people - especially vulnerable groups - have access to humane living conditions.

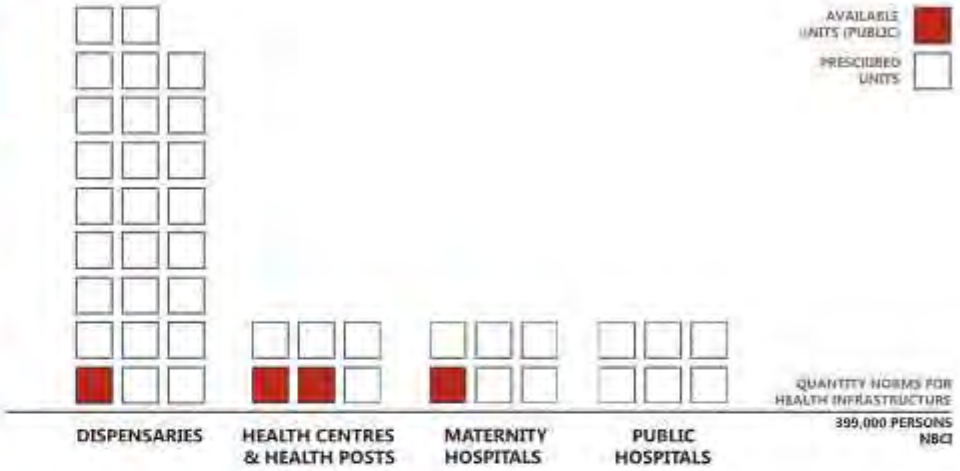
We shall use the UDPFI and NBCI norms in this report, often critiquing and their inadequacy in some sectors and exessive generosity in others. Although these norms are impossible to achieve in Malvani, an attempt will be made to find innovative ways to maximise social infrastructure creation given the constraints. This approach poses interesting challenges, and seems to be more constructive for plan making approach as opposed to reducing them to "achievable" levels or doing away with them altogether.



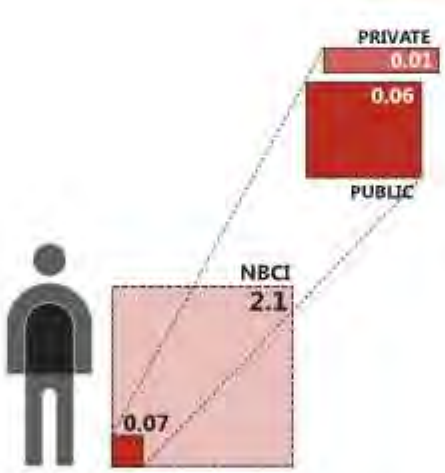

LAND AREA AND PERCENTAGE FOR SOCIAL INFRASTRUCTURE
LAND AREA PER CAPITA FOR SOCIAL INFRASTRUCTURE
0.28 Ha 0.1%
NBCI 2.1
0.01
5.18 Ha 1.84%
NBCI 5.1
0.13
2.44 Ha 0.87%
NBCI 3.09
0.06
24.15 Ha 8.6%
NBCI 6.0
0.6
0 100 200 METERS 500
MALVANI EXISTING SOCIAL INFRASTRUCTURE
HEALTH FACILITIES
EDUCATIONAL FACILITIES
SOCIO-CULTURAL FACILITIES
RECREATIONAL AREAS

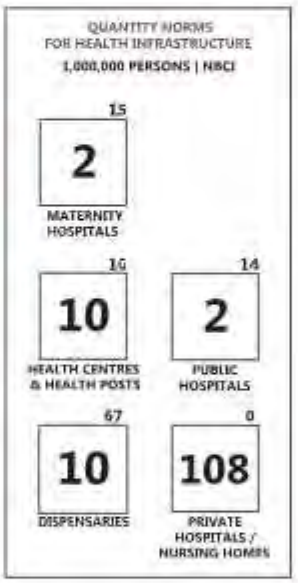

0.1%
58%
UHC
10.3%
DISPENSARY
30%
MATERNITY HOSPITAL
HEALTH INFRASTRUCTURE
MALVANI | 399,000 PERSONS


0.00
PRIVATE
0.01
PUBLIC
NBCI
2.1

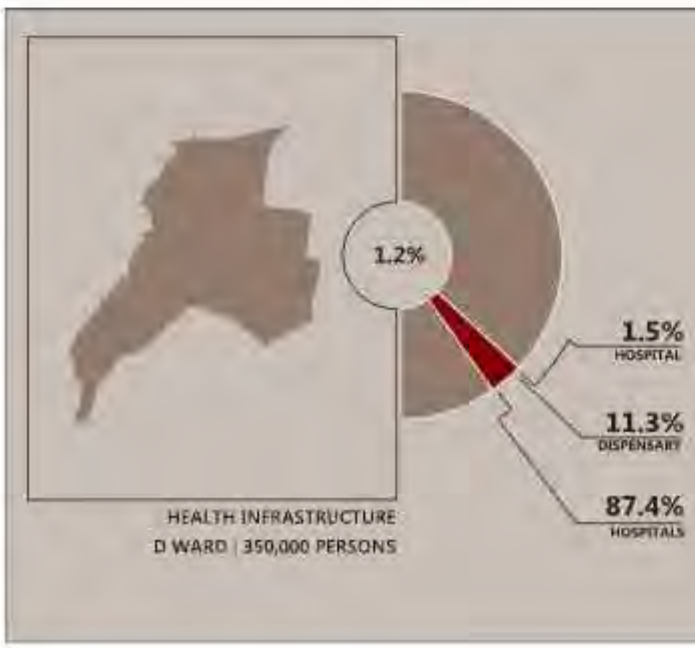

AVAILABLE UNITS (PUBLIC)
PRESCRIBED UNITS
DISPENSARIES
HEALTH CENTRES & HEALTH POSTS
MATERNITY HOSPITALS
PUBLIC HOSPITALS
QUANTITY NORMS FOR HEALTH INFRASTRUCTURE
399,000 PERSONS
NBCI

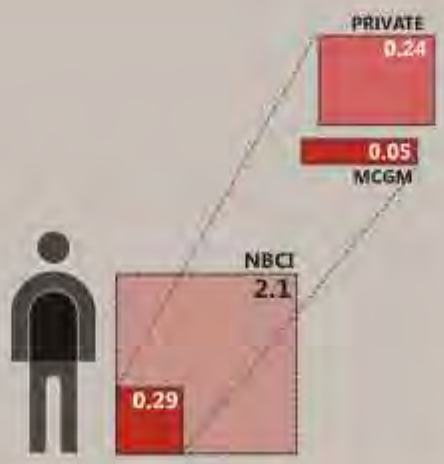

0.25%
85%
HOSPITAL
6.8%
DISPENSARY
5%
MATERNITY HOSPITAL
HEALTH INFRASTRUCTURE
PN WARD | 1,000,000 PERSONS

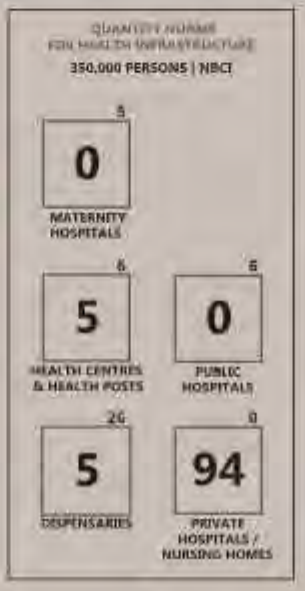

PRIVATE
0.01
0.06
PUBLIC
NBCI
2.1
0.07


QUANTITY NORMS FOR HEALTH INFRASTRUCTURE
1,000,000 PERSONS | NBCI
15
2
MATERNITY HOSPITALS
10
10
HEALTH CENTRES & HEALTH POSTS
14
2
PUBLIC HOSPITALS
67
10
DISPENSARIES
0
108
PRIVATE HOSPITALS / NURSING HOMES

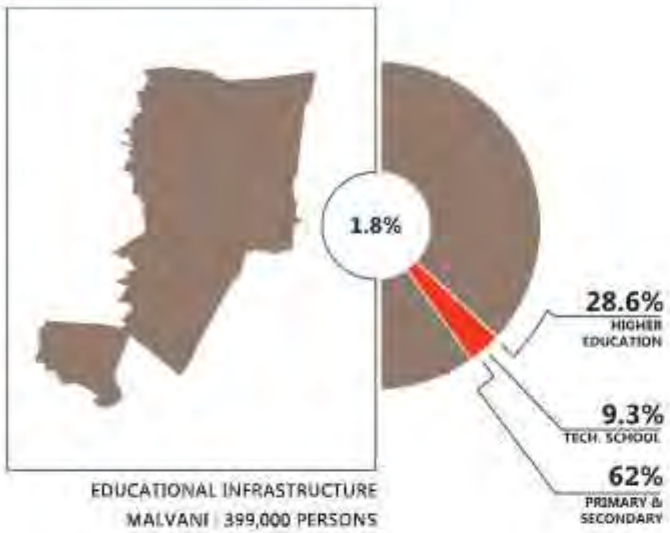

INCOME BASED DISTRIBUTION (FOR PN WARD)
MID + HIGH INCOME (60%)
LOW INCOME (40%)
2.1
0.5
60%
2.1
0.04
40%


1.2%
1.5%
HOSPITAL
11.3%
DISPENSARY
87.4%
HOSPITALS
HEALTH INFRASTRUCTURE
D WARD | 350,000 PERSONS

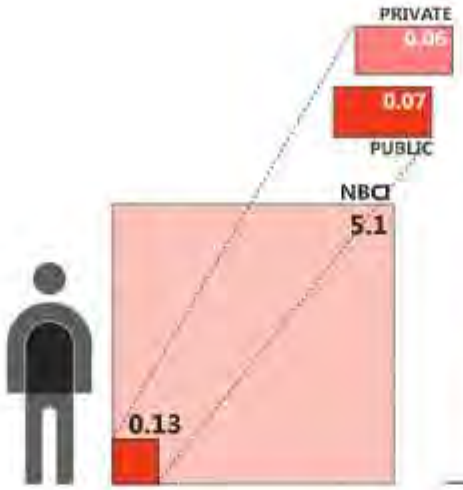

PRIVATE
0.24
0.05
MCGM
NBCI
2.1
0.29

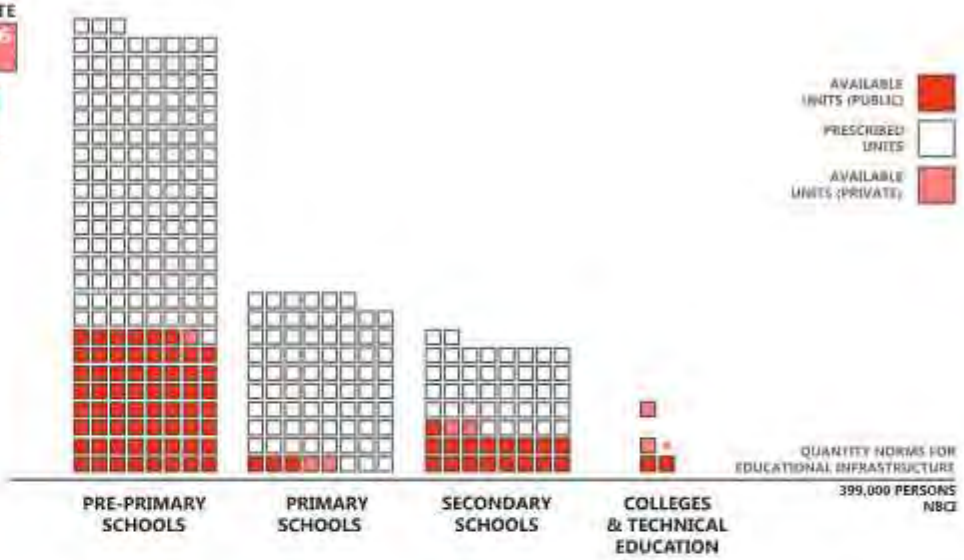

QUANTITY NORMS FOR HEALTH INFRASTRUCTURE
350,000 PERSONS | NBCI
5
0
MATERNITY HOSPITALS
6
5
HEALTH CENTRES & HEALTH POSTS
6
0
PUBLIC HOSPITALS
26
5
DISPENSARIES
0
94
PRIVATE HOSPITALS / NURSING HOMES

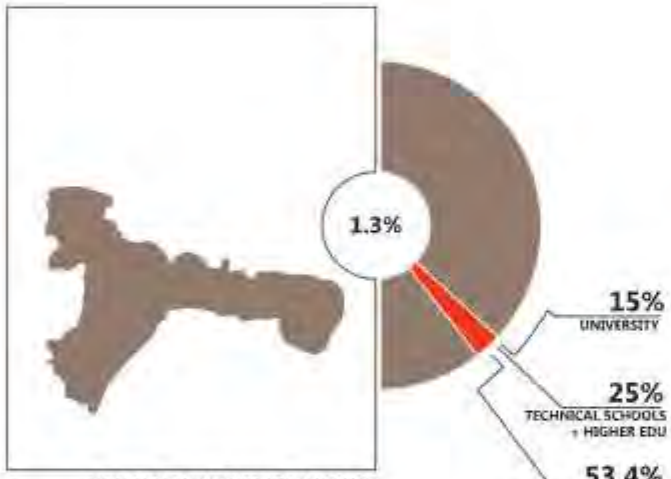

INCOME BASED DISTRIBUTION (FOR D WARD)
MID + HIGH INCOME (60%)
LOW INCOME (40%)
2.1
0.5
60%
2.1
0.07
40%



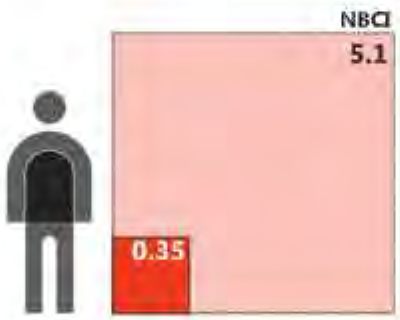
EDUCATIONAL INFRASTRUCTURE
MALVANI | 399,000 PERSONS

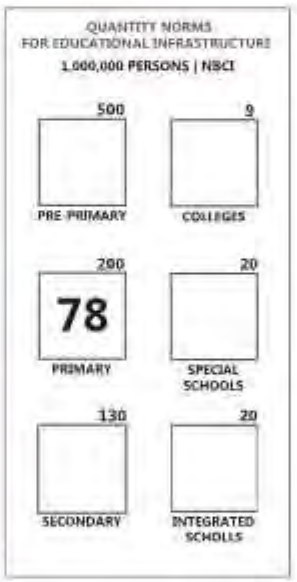


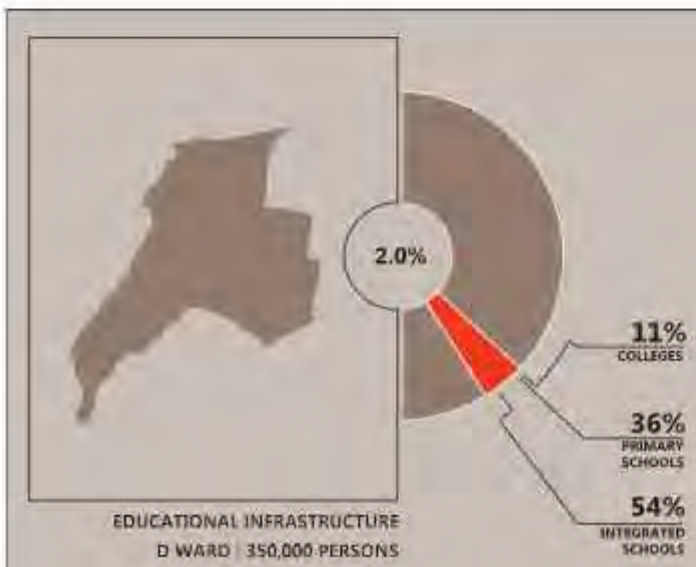




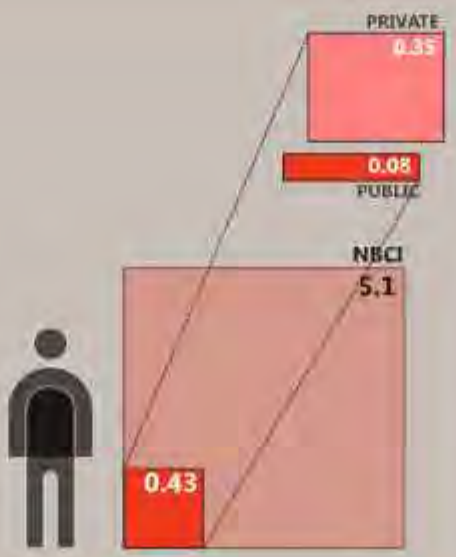
EDUCATIONAL INFRASTRUCTURE
PN WARD | 1,000,000 PERSONS



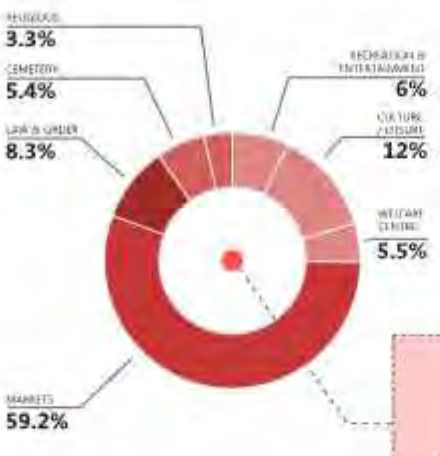


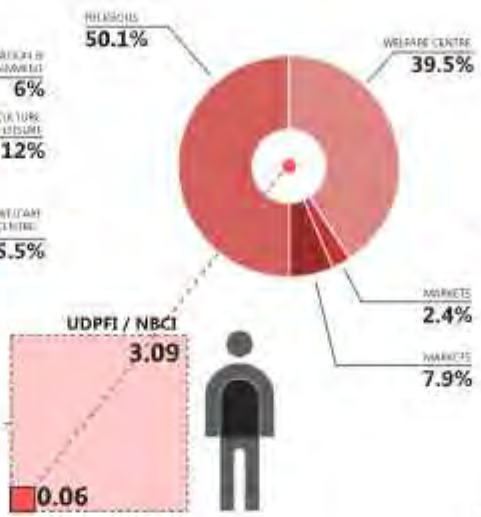


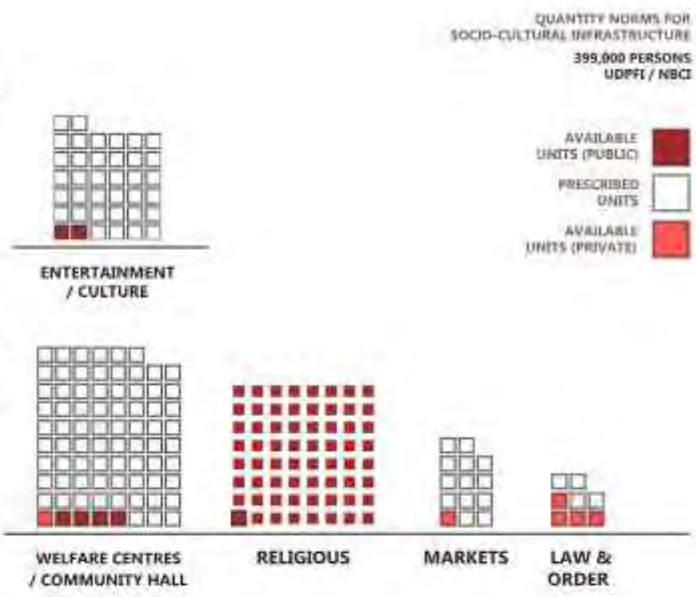
EDUCATIONAL INFRASTRUCTURE
D WARD | 350,000 PERSONS



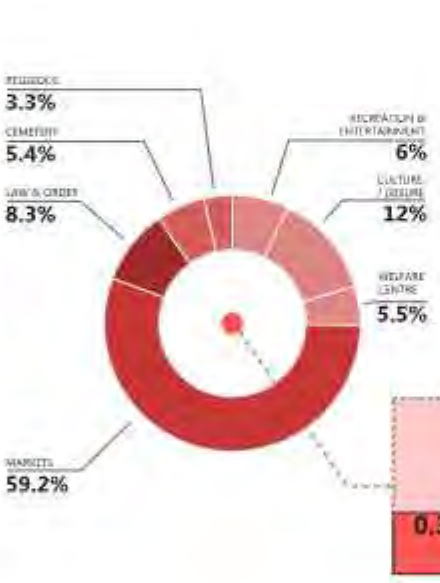
SOCIO-CULTURAL INFRASTRUCTURE
MALVANI | 399,000 PERSONS

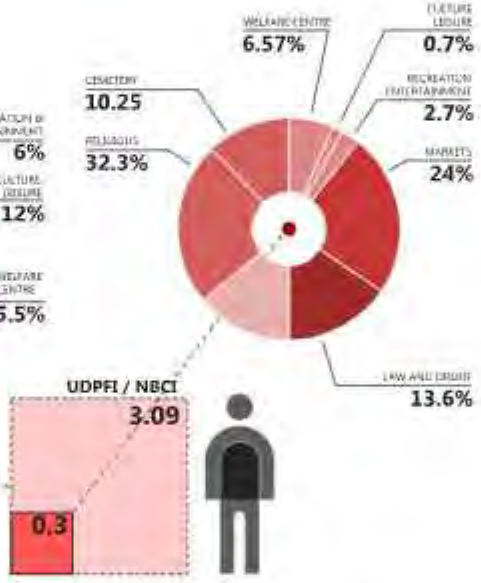


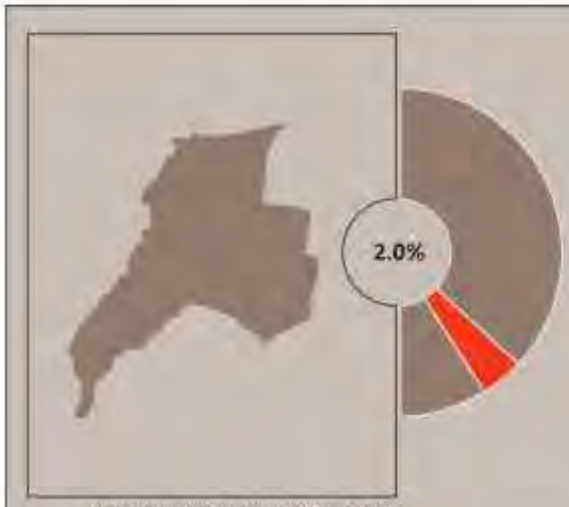




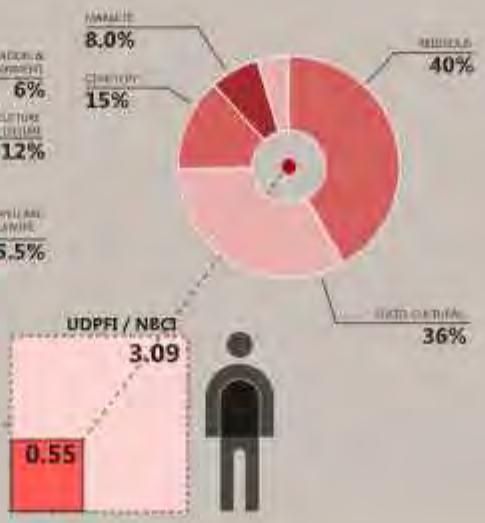
SOCIO-CULTURAL INFRASTRUCTURE
PN WARD | 1,000,000 PERSONS

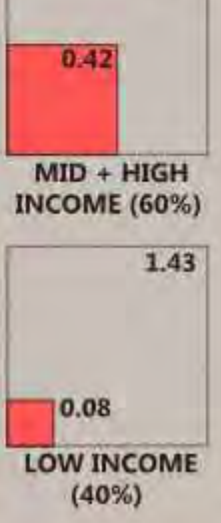




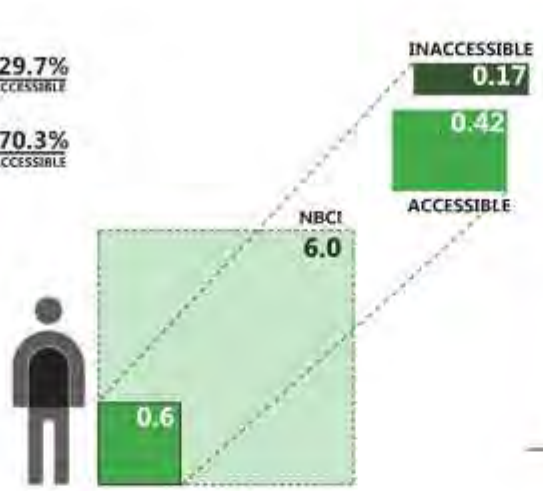


SOCIO-CULTURAL INFRASTRUCTURE
D WARD | 350,000 PERSONS






8.6%
29.7%
INACCESSIBLE
70.3%
ACCESSIBLE
RECREATIONAL INFRASTRUCTURE
MALVANI | 399,000 PERSONS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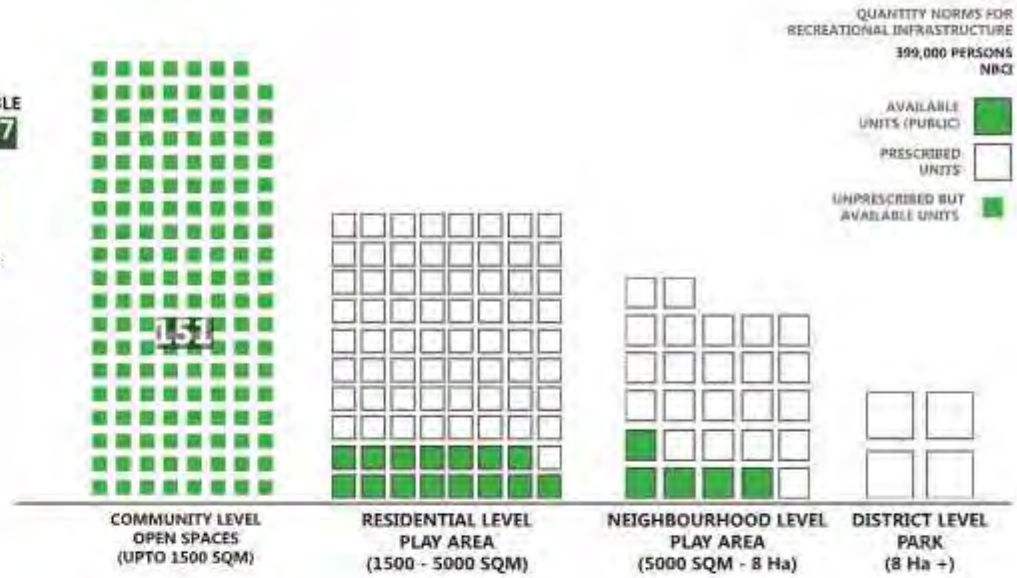
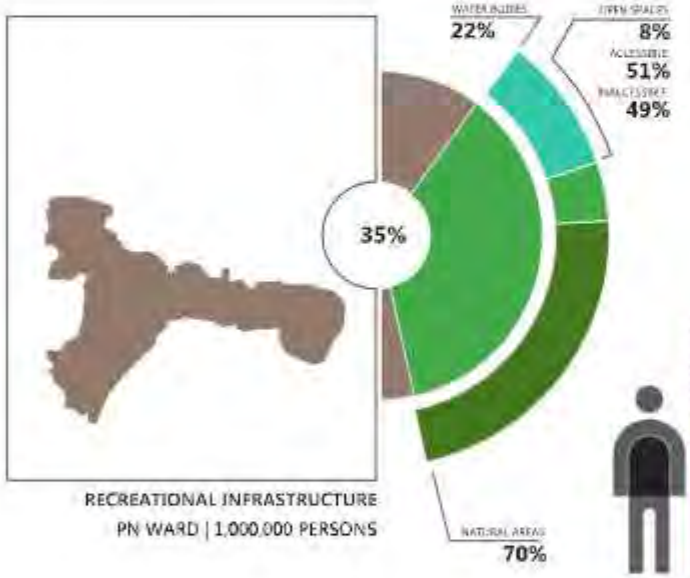
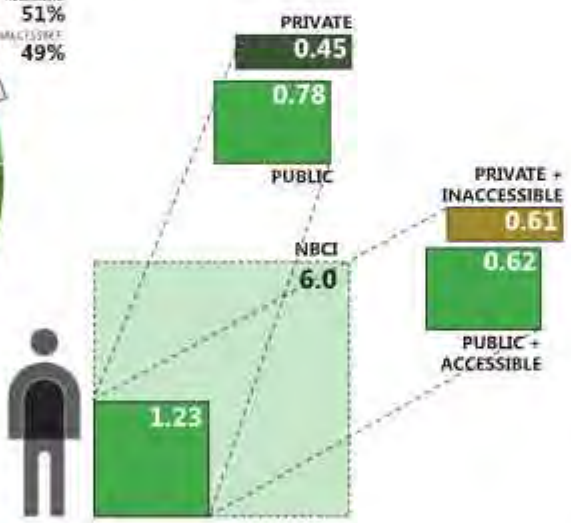
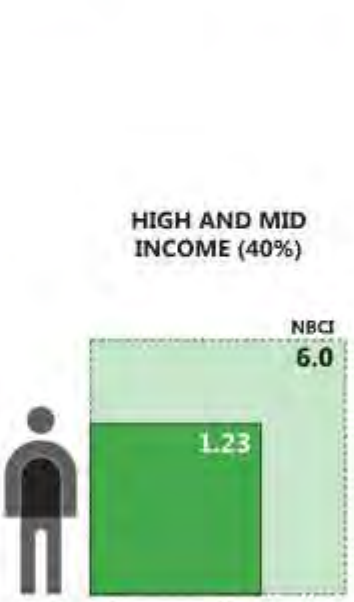
0.17
0.42
ACCESSIBLE
NBCI
6.0
0.6

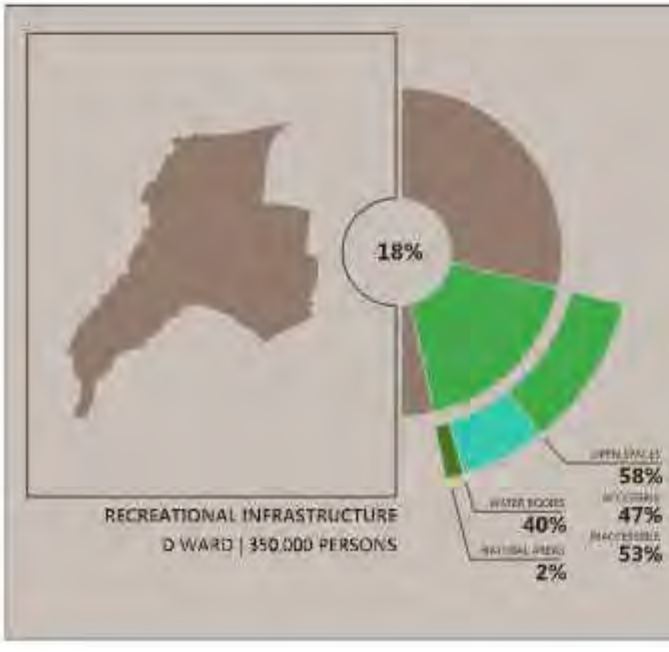

QUANTITY NORMS FOR RECREATIONAL INFRASTRUCTURE
399,000 PERSONS
NBCI
AVAILABLE UNITS (PUBLIC)
PRESCRIBED UNITS
UNPRESCRIBED BUT AVAILABLE UNITS
151
COMMUNITY LEVEL OPEN SPACES (UPTO 1500 SQM)
RESIDENTIAL LEVEL PLAY AREA (1500 - 5000 SQM)
NEIGHBOURHOOD LEVEL PLAY AREA (5000 SQM - 8 Ha)
DISTRICT LEVEL PARK (8 Ha +)

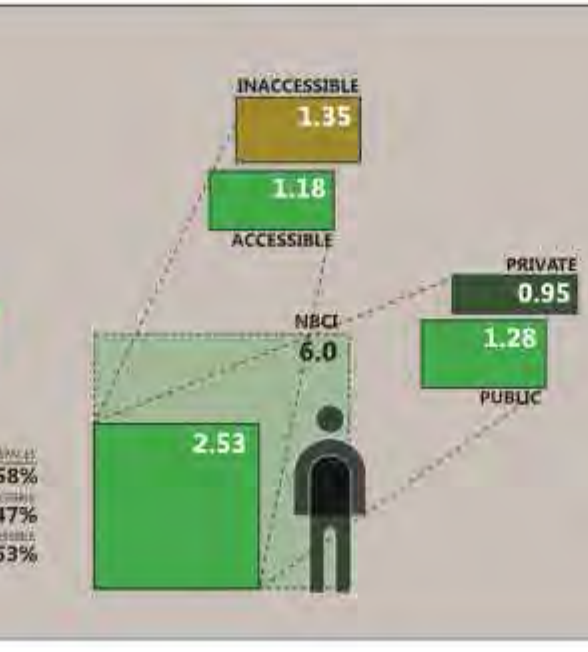

22%
8%
51%
49%
35%
70%
RECREATIONAL INFRASTRUCTURE
PN WARD | 1,000,000 PERSONS

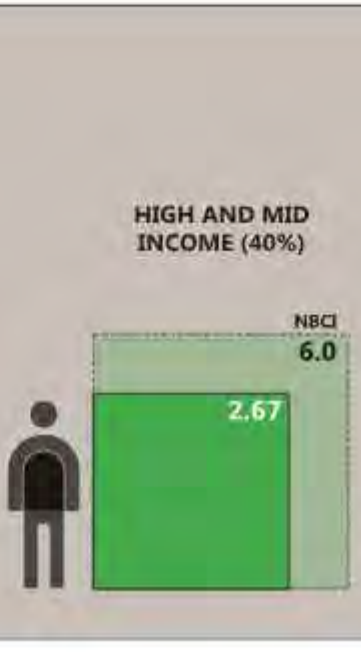

PRIVATE
0.45
0.78
PUBLIC
PRIVATE + INACCESSIBLE
0.61
0.62
PUBLIC + ACCESSIBLE
NBCI
6.0
1.23


HIGH AND MID INCOME (40%)
NBCI
6.0
1.23


LOW INCOME (60%)
NBCI
6.0
1.23


18%
58%
47%
53%
40%
2%
RECREATIONAL INFRASTRUCTURE
D WARD | 350,000 PERSONS


INACCESSIBLE
1.35
1.18
ACCESSIBLE
PRIVATE
0.95
1.28
PUBLIC
NBCI
6.0
2.53


HIGH AND MID INCOME (40%)
NBCI
6.0
2.67


LOW INCOME (60%)
NBCI
6.0
0.62

EDUCATIONAL AREAS AND PERCENTAGES – NORMS AND EXISTING (PUBLIC AND PRIVATE)

Sr. No.	Category*	Ward Level (PN)		Site Level (Malvani)			
		1,000,000 Persons		390,000 Persons		Provider	
		Norms*	Available	Norms*	Available	Public	Private
1	Pre primary	32.00	na	12.5			
2	Primary, Secondary and Integrated Schools	363.00	17.60	141.6	3.215	1.472	1.743
2	Special Schools	11.00	0.10	4.3			
3	Technical Schools	8.00	4.29	3.1	0.483		0.483
4	Higher Education	32.00	4.19	12.5	1.485	1.251	0.234
6	Professional Education	42.00	1.63	16.4			
7	University	7.00	5.12	2.7			
	TOTAL	495.00	32.93	193.1	5.18	2.72	2.46

HEALTH AREAS AND PERCENTAGES – NORMS AND EXISTING (PUBLIC AND PRIVATE)

Sr. No.	Category*	Ward Level (PN)		Site Level (Malvani)			
		1,000,000 Persons		400,000 Persons		Provider	
		Norms*	Available	Norms*	Available	Public	Private
1	Vaccination Centre	na	na	na			
2	UHC / Post	na	na	na	0.164	0.164	
2	Dispensary	7.00	0.45	2.7	0.029	0.029	
3	General Hospital	24.00	5.58	9.4			
4	Speciality Hospital	127.00	na	49.5			
6	Other Hospitals	49.00	na	19.1			
7	Maternity / Nursing Home	5.00	0.31	2.0	0.084	0.084	
	TOTAL	212.00	6.34	82.7	0.28	0.28	0.00

SOCIAL AMENITIES AREAS AND PERCENTAGES - NORMS AND EXISTING

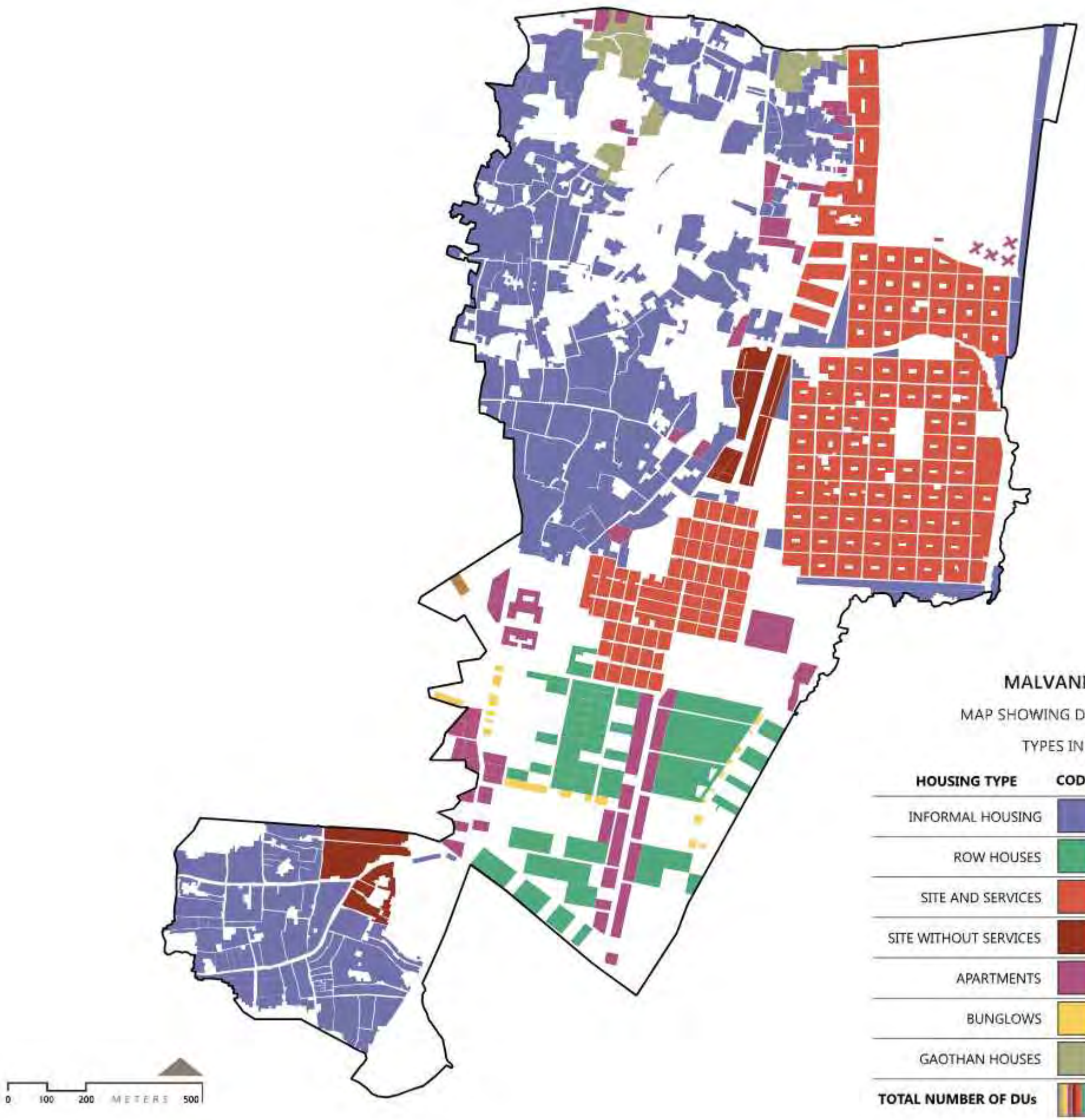
Sr. No.	Category*	UDPFI / NBCI		Ward Level (PN)		Site Level (Malvani)	
		1,000,000 Persons		1,000,000 Persons		400,000 Persons	
		Area (Ha)	%	Area (Ha)	%	Area (sqm)	%
1	Welfare / Community Centre	13.20	5.47	2.66	6.57	9,665.9	39.51
2	Culture and Leisure	29.00	12.02	0.28	0.69		
2	Recreation and Entertainment	15.00	6.22	1.09	2.69	0.0	0.00
3	Markets**	143.00	59.29	9.55	23.58	597.2	2.44
4	Law and Order	20.00	8.29	5.51	13.60	1,946.9	7.96
6	Cemetery**	13.00	5.39	4.15	10.25		
7	Religious	8.00	3.32	13.07	32.27	12,256.5	50.10
8	Other	0.00	0.00	4.19	10.35	0.0	0.00
	TOTAL	241.20	100	40.50	100	24,466.5	100

* based on NBCI and UDPFI guidelines, which ever is lower
** NBCI (includes private, informal and municipal markets)

The diagrams in the previous pages show the existing social infrastructure availability and ratios in Malvani, and compares these with the PN ward and D ward. The map of social infrastructure (on page ....) shows the per capita availability of health, education, socio-cultural and recreational areas in Malvani, and the percentage of land area used in the provision of these amenities. In the pages that follow, these per capita areas have been detailed, and a break up is illustrated, both in terms of the type of amenity as well as whether these are publicly provided or privately built and managed. The number of amenity units (quanity norms) presecribed are indicated and the actually available units are shown in comparision.

To the right of these pages is are diagrams showing income based access to social infrastructure for PN and D wards, and the methology for this calculation is as follows. First, it is assumed that publicly provided social infrastructure is accessible to all income groups, while private amenities are accessible to only middle and upper income groups. Second, in the absence of income data, it is assumed that 40% of the population is middle and upper income while 60% is low income (this ratio is for PN ward and Malvani, it is reversed for the D ward). Finally, all the public amenities are divided up among the entire population while all the private ones are divided only among the middle and upper income groups - the results for each income group are added to provide the per capita access to amenities based on income.

What is evident through these diagrams is the lack of social infrastructure across the city, but the dangerously low levels in poorer areas of the city such as Malvani. In the socio-cultural infrastructure, most of the social infrastructure in the city seems to be religious amenities while norms recommend a greater proportion of markets, welfare centres and cultural facilities. Apart from the fact that these indicate ghettoisation and religious polarisation, these facilities are almost always built by people, and it is the responsibility of the state to build secular socio-cultural institutions to foster and nurture a secular public realm.

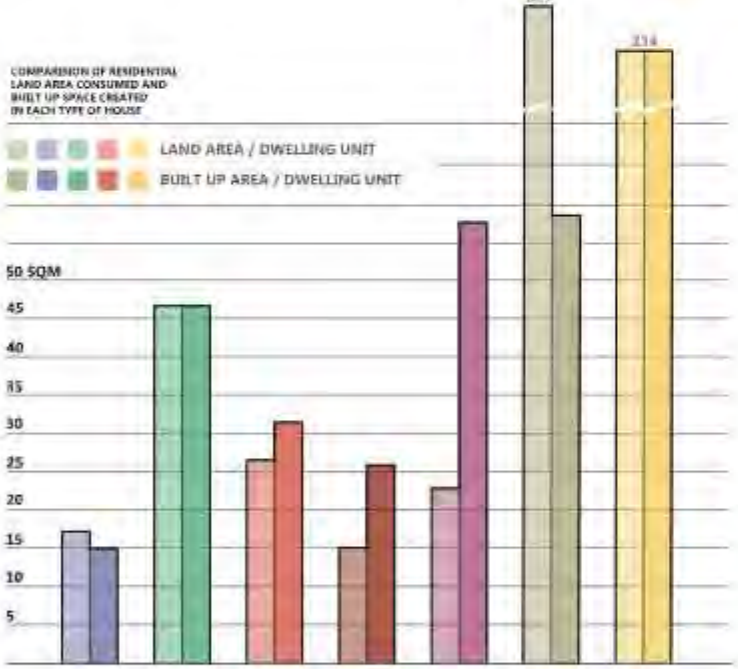


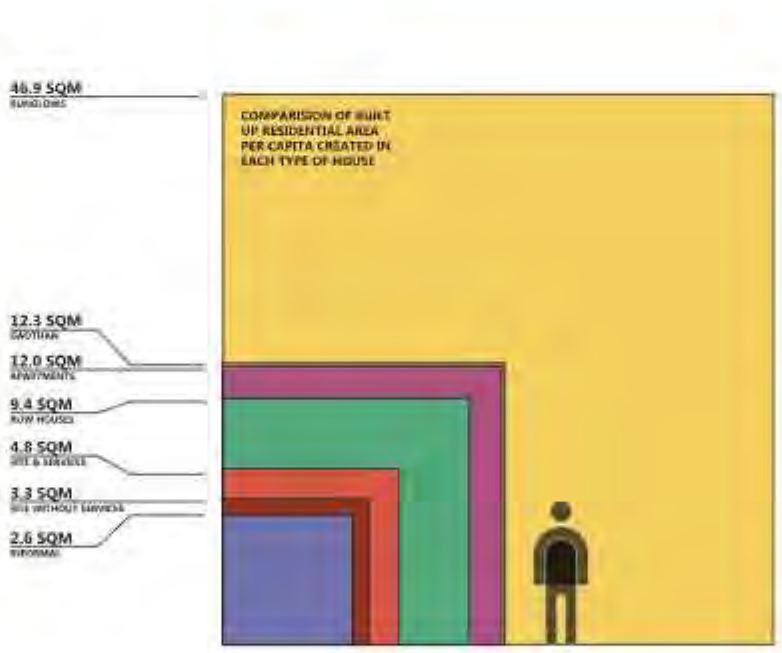
MALVANI HOUSING MAP

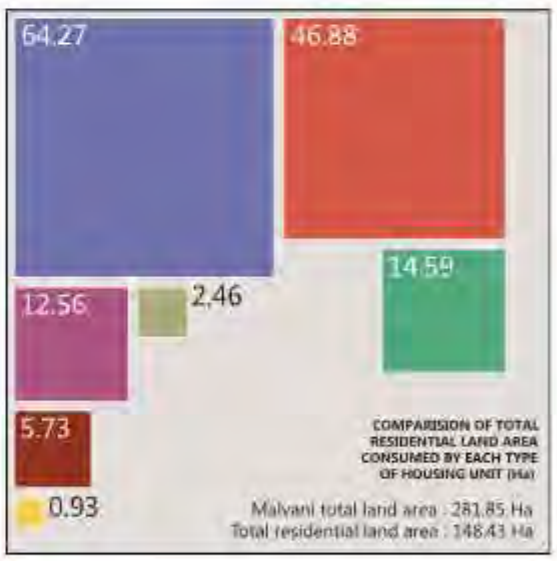
MAP SHOWING DIFFERENT HOUSING TYPES IN MALVANI DISTRICT

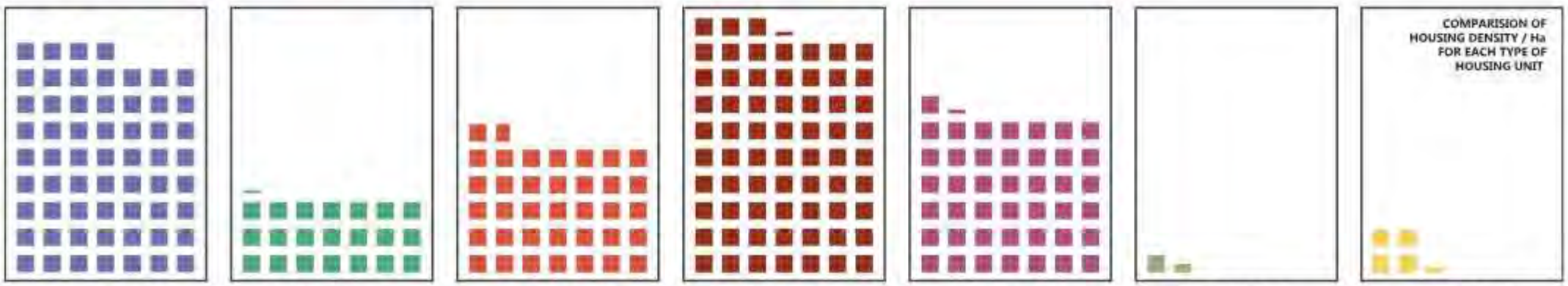
HOUSING TYPE	CODE	NUMBER OF DU
INFORMAL HOUSING		37,260
ROW HOUSES		3,090
SITE AND SERVICES		17,276
SITE WITHOUT SERVICES		3,800
APARTMENTS		5,432
BUNGLOWS		40
GAOTHAN HOUSES		40
TOTAL NUMBER OF DUs		**66,938**

The map to the left shows the locations of the housing types in Malvani district. Typologies are a result of a combination of income levels, land tenure, development control regulations, delivery models and the design and use of the building. In Malvani we could identify about seven house typologies, which we have called (1) informal, (2) site without services, (3) site and services, (4) row houses, (5) apartments, (6) bunglows and (7) gaothan houses. Informal, site and services and site without services are self-build types, while row houses, apartments and bunglows are built by private or public agencies. Gaothan houses, the traditional ones were often self-built, and few still survive today. Homes built in gaothans today are often like bunglows, or like apartments when they go multi-storey. The point of mapping based on typologies is to understand the pottential of each type to provide adequate living area and to optimise the use of land - in terms of its living, working, amenity and recreational functions rather than in commercial terms. It is evident from the charts below, that the apartment type in Malvani delivers the greatest amount of living space per unit of land consumed, bunglows provide the maximum built up area per capita, informal type occupy the largest amount of residential land area in the district, while site without services and informal type provide the greatest denisty of tenements per hectare. The bunglow, gaothan and row house types are clearly too luxurious in terms of land areas occupied, while informal, site and services and site without services are too limited in terms of built up area delivered. Densities of DU offered by the informal type are ideal for such population densities, and hence a type needs to be developed that can combine the densities of informal with a good land-to-built-up conversion factor.

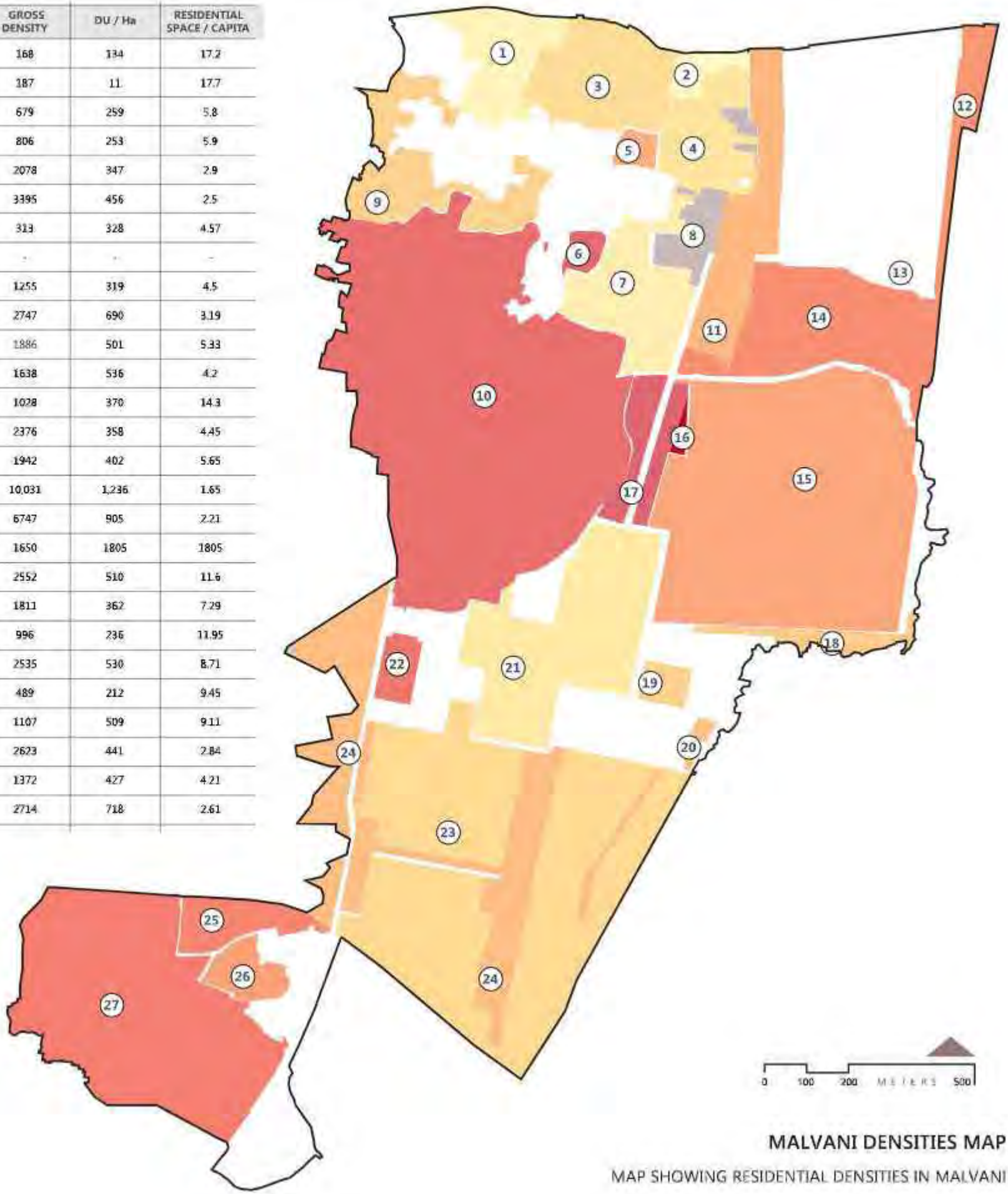








LABEL	COMMUNITY NAME	GROSS DENSITY	DU / Ha	RESIDENTIAL SPACE / CAPITA
1	RATHODI VILLAGE	168	134	17.2
2	KHARODI VILLAGE	187	11	17.7
3	HINUSWADI	679	259	5.8
4	WADARPADA	806	253	5.9
5	HANUMAN NAGAR	2078	347	2.9
6	LAXMI NAGAR	3395	456	2.5
7	JULIUS WADI	313	328	4.57
8	KHARODI OTHER	-	-	-
9	RATHODI SLUM	1255	319	4.5
10	AZMI NAGAR	2747	690	3.19
11	BMC COLONY	1886	501	5.33
12	BUDDH NAGAR	1638	536	4.2
13	CENTRAL GOVT QUARTERS	1028	370	14.3
14	OLD COLLECTOR COLONY	2376	358	4.45
15	NEW COLLECTOR COLONY	1942	402	5.65
16	BHIM NAGAR	10,031	1,236	1.65
17	SQUATTERS COLONY	6747	905	2.21
18	KACCHA RAASTA	1650	1805	1805
19	SAMNA NAGAR	2552	510	11.6
20	BEST	1811	362	7.29
21	MAHARASHTRA HOUSING BOARD (MHB)	996	236	11.95
22	POLICE QUARTERS	2535	530	8.71
23	MHADA LIG	489	212	9.45
24	MHADA MIG + PRIVATE MIG APTS	1107	509	9.11
25	NEW BABREKARNAGAR	2623	441	2.84
26	PATRA CHAWL	1372	427	4.21
27	AMBOJWADI	2714	718	2.61

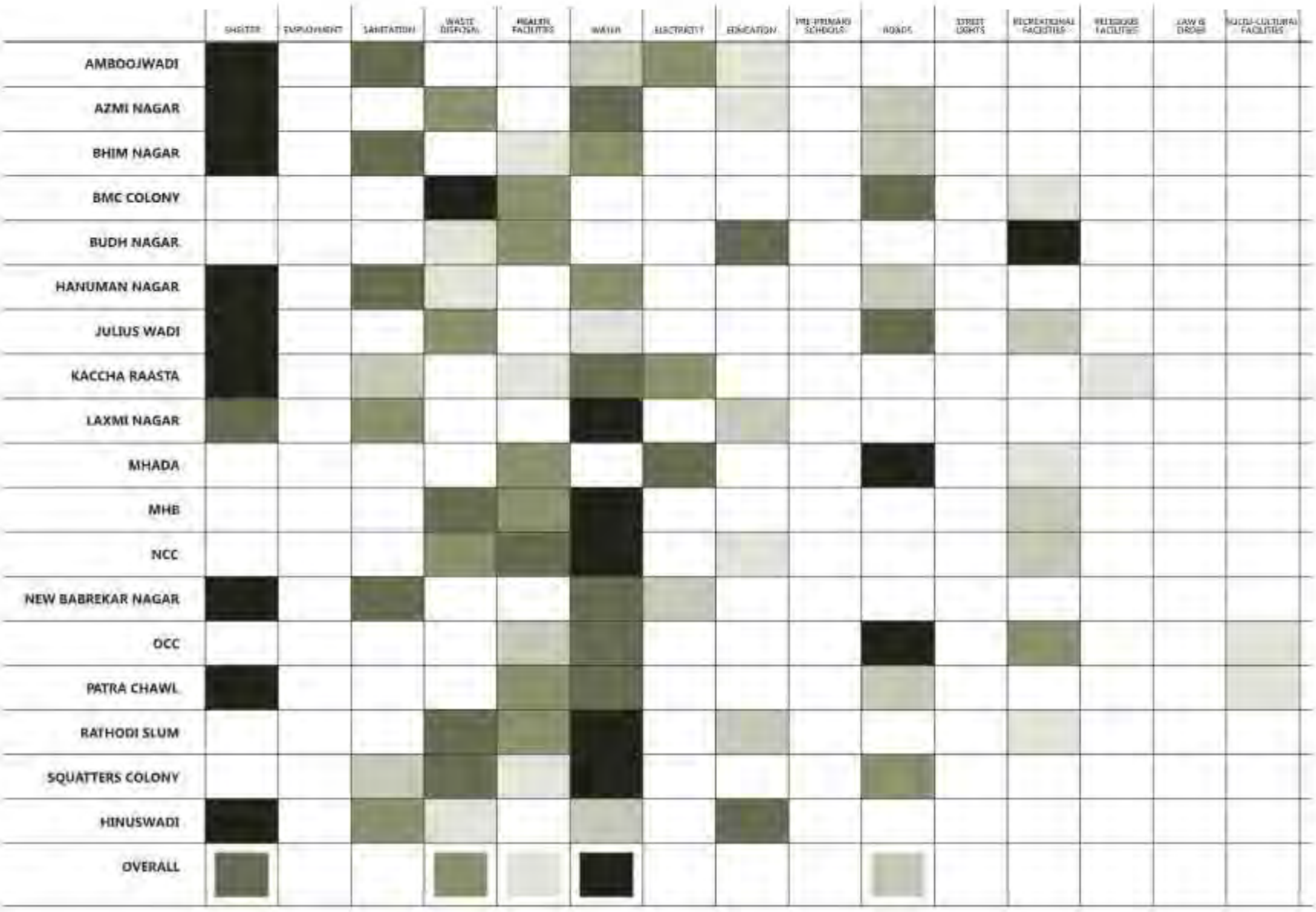


MALVANI DENSITIES MAP

MAP SHOWING RESIDENTIAL DENSITIES IN MALVANI

The map to the left shows the population density by community in Malvani. 15 out of 27 communities have gross densities of over 1500 persons per hectare. In a community like Bhimnagar (16) with a population of 2,500 persons on a land area of 0.25 Ha, the average built up residential area per person comes to about 1.65 sqm.

Below is a chart showing development priorities for each community. Priorities were determined through FGDs with the communities, where the participants were asked to rank physical infrastructure, social infrastructure and urban service requirements in order of priority. The two overwhelming priorities for Malvani were water and shelter, and shelter was almost always the most urgent concern in settlements where there is insecurity of tenure. For example, in a community such as Patra Chawl, where residents have been given land titles, the community insisted that the first and most urgent need for them is water, and everything else can wait. The 'overall' bar at the bottom averages the priorities for all of Malvani, indicating that water, shelter, solid waste management and disposal, roads and health are the most urgent priorities in that order. Prioritisation is useful as the sequence of implementation of proposals as well as allocation of resources follow that order. Apart from the first five priorities, sanitation, education and recreational facilities were also considered high priorities.



COMMUNITY PRIORITIES

DEVELOPMENT PRIORITIES IN MALVANI

PRIORITY
1
2
3
4
5

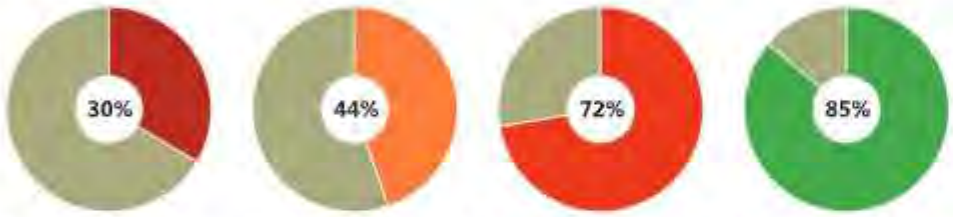
PART 2

STRATEGIES AND PROPOSALS

SOCIAL INFRASTRUCTURE

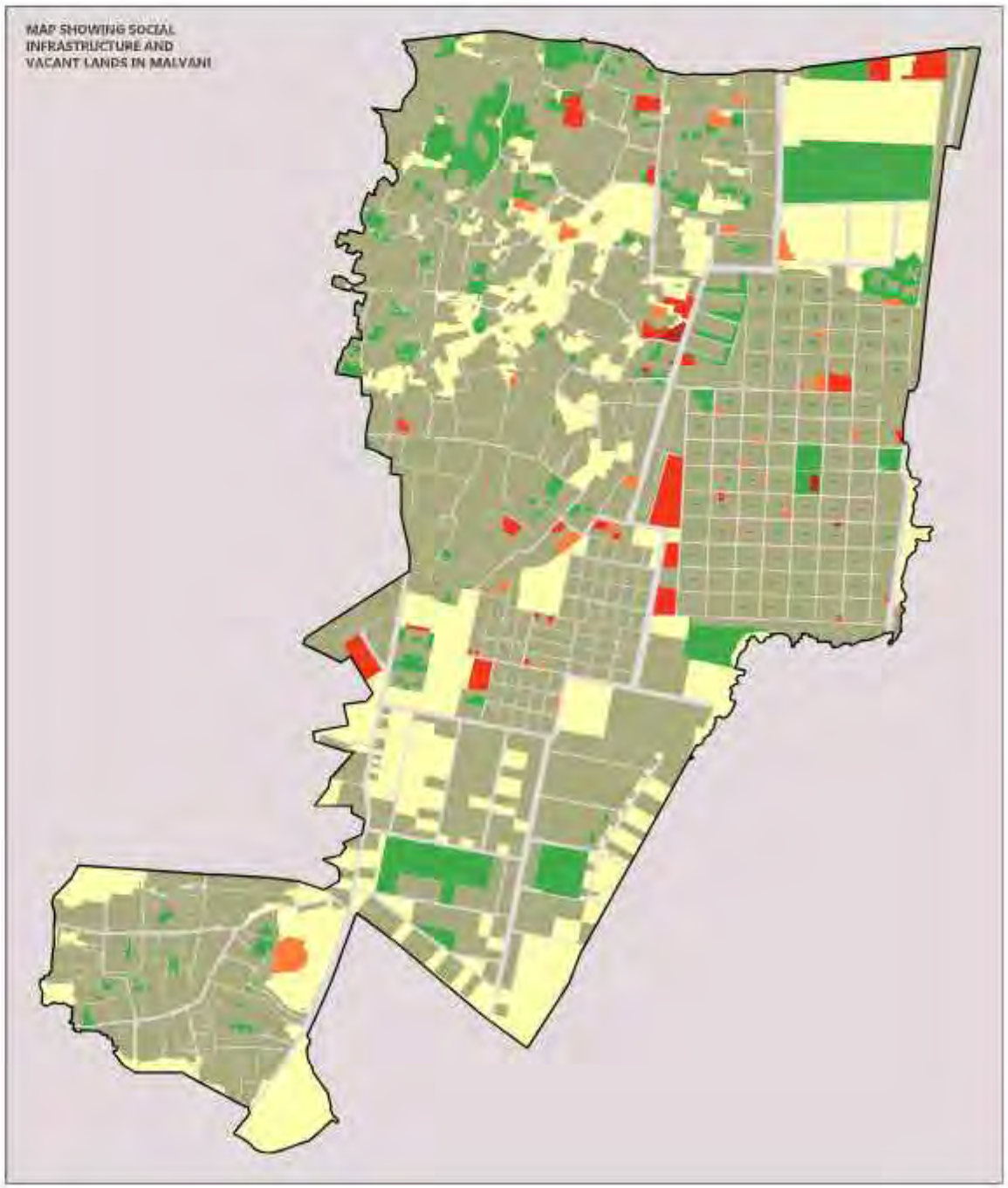
MALVANI PEOPLE'S PLAN | 2013-14

The land use map below shows the locations of health, education, socio-cultural and recreational infrastructure in Malvani, and the vacant lands available in the area. The total vacant land area available is 55.3 Ha, while the total buildable land area (total area minus circulation and natural areas) is 245 Ha. The chart beside it shows the amount of land area and percentage of land that would be required if social infrastructure was to be provided as per NBCI norms for the existing population of Malvani. 30% of land would get consumed by health amenites, 44% by socio-cultural, 72% by educational and 85% of land area of Malvani would be needed to provide open spaces for its population. This is clearly impossible, as only 19.6% of land area in Malvani is vacant, and the number of dwellers in the area are a given, and liable to increase marginally. The density of population is a crucial factor in the provision of infrastructure, as all norms are based on per capita terms and not in percentage area terms. The Slum Rehabilitation policy, for example, expects 15% of plot area to be dedicated to amenities - however, the densitiy of populations this 15% are meant to serve are so high that the amenity area per capita becomes miniscule as more people are accomodated in smaller areas - by building higher. In an area such as Malvani, the vacant land available is already insufficient for amenities,



PERCENTAGE OF LAND NEEDED FOR SOCIAL INFRASTRUCTURE AS PER NBCI NORMS FOR THE EXISTING POPULATION

LAND REQUIRED FOR SOCIAL INFRASTRUCTURE AS PER NBCI / UDPFI NORMS, AND LAND AREA AVAILABLE IN MALVANI



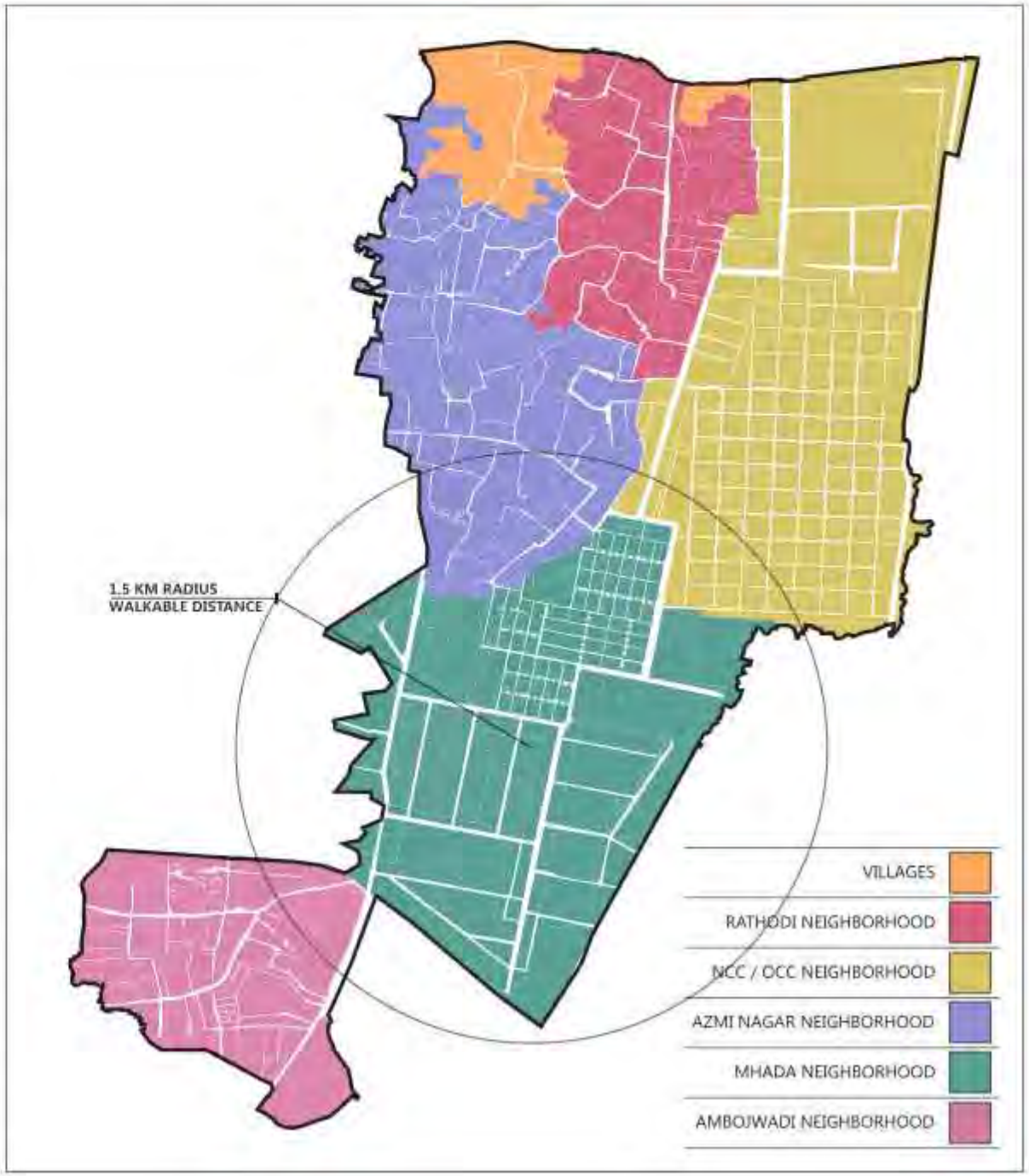
and hence any redevelopment project that brings in more people (to cross-subsidise rehabilitation of existing dwellers) is doomed to result in a settlement that has terribly compromised social infrastructure for people who are being "rehabilitated." This is a great contributor to socio-spatial inequities, physical segregation and ghettoisation in our cities,[1] and any planning effort must seek to achieve neighbourhoods that are mixed in income and use, and are well equiped with social infrastructure accessible to all classes and social groups.

Social infrastructure provision, moreover, must be based on three parameters - (1) number of facilities required (unit quantities), (2) land area requirements (areas), and (3) distance from place of residence (distances). Often, discussion on amenities focus only on land area requirements, which is in fact the only parameter that is negotiable, as creative means can be found to overcome limited land availability. The other two parameters are non-negotiable, as the number of, say, dispensaries for a certain population cannot be reduced if the area of land available is less, nor can a dispensary be located far away just because there is land available there and not nearby. Hence, for a number of social infrastructure facilities that need to be within walking

1. This point has been made by Shirish Patel et al. in 'Urban Layouts, Densities and Quality of Urban Life,' Economic and Politica Weekly, 2007.

MALVANI NEIGHBOURHOODS

SR.NO	NEIGHBOURHOOD NAME	COMMUNITIES	POPULATION	LAND AREA (Ha)
1	AMBOOJWADI	Amboojwadi	69,500	33.68
		New Babrekarnagar		
		Patra Chawl		
2	AZMI NAGAR	Azmi Nagar	128,000	50.17
		Rathodi Slum		
3	MHADA	MHADA MIG	49,800	76.23
		MHADA LIG		
		MHADA others		
		Police Quarters		
		MHB		
		Saamna Nagar		
		BEST		
4	NCC-OCC	Squatters Colony	127,980	78.98
		Bhim Nagar		
		NCC		
		Kaccha Raasta		
		OCC		
		BMC		
		Buddha Nagar		
		Central Govt Quarters		
5	KHARODI SLUM	Wadarpada	17,320	28.85
		Julius Wadi		
		Laxmi Nagar		
		Hinuswadi		
		Hanuman Nagar		
		Other		
6	VILLAGES	Kharodi Village	960	12.52
		Rathodi Village		
			393,560	280.43



distance - such as health centres, community centres, pre-primary, primary and secondary schools, markets, and neighborhood open spaces - appropriate spatial zones need to be identified for their provision. For this purpose, "neighborhoods" have been created by combining communities, and the following criteria have been considered in the demarcation of neighborhoods: (1) the area should be walkable - that is, within a radius of 1.5 Km; (2) areas should preferably have similar land ownerships patterns; (3) areas should prefereably have similar conditions or a similar spatial pattern; (4) that the areas should have sufficient vacant lands within them for the provision of social infrastructure.

By adopting the above guidelines, 5 neighborhoods were created in Malvani - Amboojwadi, Azmi Nagar, MHADA, NCC-OCC, Kharodi Slum and Urban Villages. The name of the largest community within the neighborhood was adopted for ease in identification. Social infrastructure that exists within these neighborhoods were mapped and tabulated for an estimation of shortfalls and requirements. The tables are shown below, with prescribed unit quanities for amenities and their provision - whether public or private - are shown for all of Malvani, and for each neighbourhood. The deficiency of social infrastructure for an area that is home to about 400,000 people becomes clear in these tables.

SOCIAL INFRASTRUCTURE BREAKUP BY NEIGHBORHOOD

Sr. No.	Category	Type	Ward Level (PN)	Site Level (Malvani)			Neighborhood Level*																
			1,000,000 Persons	390,000 Persons			Ambojawadi (70,000)			Azmi Nagar (125,000)			MHADA (50,000)			NCC-OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,500)		
			Prescribed	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public
1	Pre Primary	Anganwadi	500.0	195.0	63	1	35.0	0	0	62.5	25	0	24.4	0	1	62.5	35	0	10.0	3	0	0.3	0	0
2		Kindergaram																						
3		Bal Bhavan																						
4	Primary	Primary School	200.0	78.0	3	2	14.0	0	0	25.0	0	1	10.0	2	0	25.0	1	0	4.0	0	1	0.1	0	0
5	Secondary	Secondary School	130.0	50.7	1	0	9.1	0	0	16.3	0	0	6.5	0	0	16.3	1	0	2.6	0	0	0.1	0	0
6		Integrated School	20.0	7.8	1	17	1.4	0	0	2.5	0	4	1.0	0	4	2.5	1	4	0.4	0	5	0.0	0	0
7		Vocational Training Centre		0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0
8		Special School	20.0	7.8	0	0	1.4	0	0	2.5	0	0	1.0	0	0	2.5	0	0	0.4	0	0	0.0	0	0
9	Higher	Junior College	4.0	1.6	2	2	0.3	0	0	0.5	0	0	0.2	0	1	0.5	2	1	0.1	0	0	0.0	0	0
10		Professional College	3.0	1.2	0	0	0.2	0	0	0.4	0	0	0.2	0	0	0.4	0	0	0.1	0	0	0.0	0	0
11		Politechnic	2.0	0.8	0	1	0.1	0	0	0.3	0	0	0.1	0	1	0.3	0	0	0.0	0	0	0.0	0	0

Sr. No.	Category	Type	Ward Level	Site Level			Neighborhood Level*																
			1,000,000 Persons	400,000 Persons			Ambojawadi (70,000)			Azmi Nagar (125,000)			MHADA (50,000)			NCC OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,500)		
			Prescribed	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public
1	Vaccination Centres	Vaccination Centre																						
2	Health Centres	Urban Health Centre / Post	16.0	6.2	0	2	1.1	0	0	2.0	0	0	0.8	0	0	2.0	0	1	0.3	0	1	0.0	0	0
3	Dispensaries	Dispensary	67.0	26.1	0	1	4.7	0	0	8.4	0	0	3.4	0	0	8.4	0	0	1.3	0	1	0.1	0	0
4		Veterinary Dispensary			0	0		0	0		0	0		0	0		0	0		0	0		0	0
5	Hospitals	General Hospital	4.0	1.6	0	0	0.3	0	0	0.5	0	0	0.2	0	0	0.5	0	0	0.1	0	0	0.0	0	0
6		Specialty Hospital	10.0	3.9	0	0	0.7	0	0	1.3	0	0	0.5	0	0	1.3	0	0	0.2	0	0	0.0	0	0
7		Maternity Hospital / Nursing Home	15.0	5.9	0	1	1.1	0	0	1.9	0	0	0.8	0	0	1.9	0	1	0.3	0	0	0.0	0	0

Sr. No.	Category	Areas required	Ward Level	Site Level			Neighborhood Level*																
			1,000,000 Persons	400,000 Persons			Ambojawadi (70,000)			Azmi Nagar (125,000)			MHADA (50,000)			NCC OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,500)		
			Prescribed	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public
1	Community level	Upto 1500 SQM	-	-	21	144	-	0	1/	-	3	23	-	4	3	-	0	85	-	8	15	-	6	1
2	Residential level	1500 - 5000 SQM	200.0	80.0	6	14	14.0	0	1	25.0	1	4	10.0	1	1	25.0	1	6	4.0	1	2	0.3	2	0
3	Neighbourhood level	5000 SQM - 5 Ha	66.7	26.7	4	5	4.7	0	0	8.3	0	0	3.3	0	3	8.3	0	2	1.3	0	0	0.1	4	0
4	District level	5 Ha - 20 Ha	10.0	4.0	0	1	0.7	0	0	1.3	0	0	0.5	0	0	1.3	0	1	0.2	0	0	0.0	0	0
5	Ward level	20 Ha and over	1.0	0.4	0	0	0.1	0	0	0.1	0	0	0.1	0	0	0.1	0	0	0.0	0	0	0.0	0	0

* Based on National Building Code of India (NBC), National Urban Health Mission (NUHM) and other Government Norms

SOCIAL INFRASTRUCTURE BREAKUP BY NEIGHBORHOOD (CONTINUED)

Sr. No.	Category	Sub Category	Type	Ward Level (PN)	Site Level (Malvani)	Neighborhood Level*																	
				1,000,000 Persons	390,000 Persons	Ambojwadi (70,000)			Azad Nagar (125,000)			MHADA (50,000)			NCC-OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,000)		
				Prescribed	Prescribed	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public	Prescribed	Private	Public
1	Socio Cultural Facilities	Welfare	Welfare Centre / Community room	200.0	78.0	14.0	1	1	25.0	1	0	10.0	0	0	25.0	2	0	0.0	1	0	0.3	0	0
2			Public / Community Hall																				
3		Entertainment and Culture	Library	86.7	26.0	4.7	0	0	8.3	0	0	3.3	0	0	8.3	0	0	1.3	0	0	0.1	0	0
4			Multiplex				0	2		0	1		0	0		0	1		0	0		0	0
5			Cinema				0	0		0	0		0	0		0	0		0	0		0	0
6			Music / Dance / Theatre	10.0	3.9	0.7	0	0	1.3	0	0	0.5	0	0	1.3	0	0	0.2	0	0	0.0	0	0
7			Art Gallery				0	0		0	0		0	0		0	0		0	0		0	0
8			Spiritual Centre	10.0	3.9	0.7	0	0	1.3	0	0	0.5	0	0	1.3	0	0	0.2	0	0	0.0	0	0
9			Museum / Socio cultural centre	1.0	0.4	0.1	0	0	0.1	0	0	0.1	0	0	0.1	0	0	0.0	0	0	0.0	0	0
10			Recreational Club	10.0	3.9	0.7	0	1	1.3	0	0	0.5	0	0	1.3	1	0	0.2	0	0	0.0	0	0
11	Markets	Markets	Market	10.0	3.9			1	0.7		0	1.3		0	0.5		1	1.3		0	0.2		0	0
12			Wholesale Market	1.0	0.4			0	0.1		0	0.1		0	0.1		0	0.1		0	0.0		0	0
13			Informal Market	10.0	3.9			0	0.7		0	1.3		0	0.5		0	1.3		0	0.2		0	0
14			Weekly Market	15.0	5.9			1	1.1		0	1.9		0	0.8		0	1.9		0	0.3		0	0
15	Law and Order	Law and Order	Police Station	10.0	3.9			1	0.7		0	1.3		0	0.5		0	1.3		1	0.2		0	0
16			Police Chowky	20.0	7.8			3	1.4		0	2.5		0	1.0		2	2.5		0	0.4		0	0
17			Court House	na	na			0	na		0	na		0	na		0	na		0	na		0	0
18			Prison	1.0	0.4			0	0.1		0	0.1		0	0.1		0	0.1		0	0.0		0	0
19	Religious	Cemetery	Cemetery	5.0	2.0	0	0	0	0.4	0	0	0.0	0	0	0.3	0	0	0.4	0	0	0.1	0	0	0.0	0	0
20		Religious	Temple	na	na	64		0	6			na	17		na	9		na	26		na	8		na	0	
21			Church	na	na			0				na			na			na			na			na	0	
22			Mosque	na	na			0				na			na			na			na			na	0	
23			Dumbleva	na	na			0				na			na			na			na			na	0	
24			Fire Temple	na	na			0				na			na			na			na			na	0	
25			Jain Temple	na	na			0				na			na			na			na			na	0	
26			Synagogue	na	na			0				na			na			na			na			na	0	
27			Buddhist Temple	na	na			0				na			na			na			na			na	0	
28	Other	Other	Changing Room	na	na	0	0		0	0		na	0	0	na	0	0	na	0	0	na	0	0	na	0	0
29			Women's Changing Room	na	na	0	0		0	0		na	0	0	na	0	0	na	0	0	na	0	0	na	0	0
30			Women's Hostel	na	na	0	0		0	0		na	0	0	na	0	0	na	0	0	na	0	0	na	0	0
31			Night Shelter	na	na	0	0		0	0		na	0	0	na	0	0	na	0	0	na	0	0	na	0	0
32			Creche	na	na	0	0		0	0		na	0	0	na	0	0	na	0	0	na	0	0	na	0	0

* Based on National Building Code of India (NBC), Urban Development Plans Formulation and Implementation (UDPFI) guidelines, and other Government Norms

We now have 7 different scales to work with, a sort of spatial hierarchy, that can range from the level of the entire city to the level of the street. We can name them as follows: (1) City level (Greater Mumbai); (2) Sub-city level (Island city, Western and Eastern Suburbs); (3) Administrative Ward Level (such as P\ ward, D ward, etc.); (4) District Level (such as the area of Malvani); (5) Neighborhood level (such as Ambojwadi neighborhood or NCC-OCC neighbourhood); (6) Community Level (such as Patra Chawl or Kaccha Raasta); (7) Street Level.

We also now know what is the social infrastructure deficiency (in unit quantity terms) in Malvani as a whole, and in each neighborhood, and each community within it. We shall attempt, as proposals, to ensure that number of unit quanitities are provided for every neighborhood as per norms, and as much vacant lands available in that neighborhood be used for the creation of social infrastructure as opposed to more housing, commercial or industrial uses. Since land is in short supply, we will find ways to make the best use of limited land area, and this will be described in the next few pages as the eight "strategies" for the creation of social infrastructure.

There are also some additional facilities that have been introduced under the category of socio-cultural facilities that presently have no standards, but ought to be included in the National Building Code or the Urban Deveopment and Plans Formulation guidelines. The activities these new facilities will serve are a very important part of our cities, and cannot be ignored in the process of planning for them.

MALVANI SOCIAL INFRASTRUCTURE REQUIRED

HEALTH FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
DISPENSARIES	26.1	0.07
GENERAL HOSPITALS	1.6	0.24
OTHER HOSPITALS	7.8	0.49
SPECIALITY HOSPITALS	3.9	1.27
MATERNITY HOSPITALS	5.8	0.05
TOTAL HEALTH FACILITIES		**2.12**

EDUCATIONAL FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
PRE-PRIMARY SCHOOLS	195	0.32
PRIMARY SCHOOLS	78	0.8
SECONDARY SCHOOLS	50.7	2.13
INTEGRATED SCHOOLS	7.8	0.7
SPECIAL SCHOOLS	7.8	0.11
JUNIOR COLLEGE	1.6	0.32
PROFESSIONAL COLLEGE	1.2	0.42
TECHNICAL EDUCATION	0.8	0.08
UNIVERSITY		0.07
TOTAL EDUCATIONAL FACILITIES		**4.95**

SOCIO-CULTURAL FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
SOCIO-CULTURAL FACILITIES	116.1	0.56
MARKETS	14.1	1.43
LAW AND ORDER	13.1	0.2
RELIGIOUS	3.9	0.08
CEMETERY	2	0.13
FIRE STATION	-	0.05
TOTAL SOCIO-CULTURAL FACILITIES		**2.45**

RECREATIONAL FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
COMMUNITY OPEN SPACES		3.0
AS RESERVED PLOTS		3.0
TOTAL RECREATIONAL FACILITIES		**6.0**

1

STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

DISAGGREGATION BASED ON SCALE

Disaggregation by scale involves identifying what kinds of social infrastructure can be provided at what scale – some amenities, such as university and professional colleges may be provided anywhere in the city. Some others, such as technical education and fire stations must be made available at ward levels. While dispensaries, hospitals, schools, etc. must be provided at the local district level or even at a more walkable neighbourhood level. By disaggregating based on scale, ward and city level amenities can be passed on to the larger spatial units. As shown in the diagrams below, 0.92 sqm per capita area for various amenities can be reduced from provision in the area of Malvani.

CITY LEVEL

FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
UNIVERSITY	NA	0.07
PROFESSIONAL COLLEGE	1.2	0.42
TOTAL FACILITIES		**0.49**

WARD LEVEL

FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
TECHNICAL EDUCATION	0.8	0.08
UNIVERSITY	NA	0.07
FIRE STATION	NA	0.05
CEMETERY	2.0	0.13
WARD LEVEL OPENSPACE	0.4	0.2
TOTAL FACILITIES		**0.43**

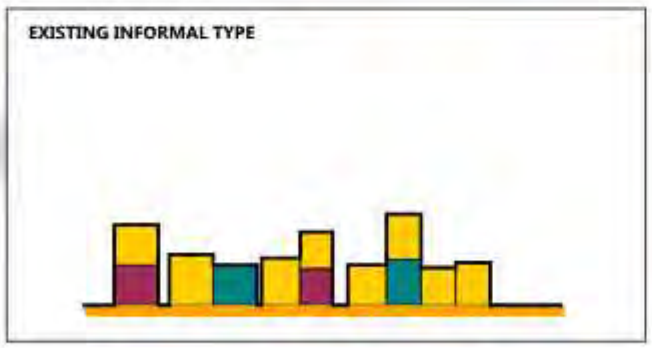
SITE LEVEL

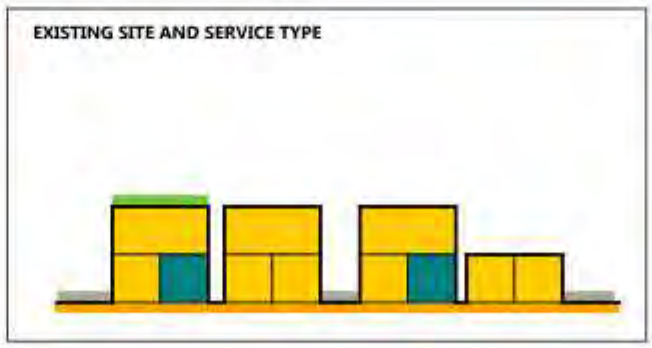
FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
DISPENSARIES	26.1	0.07
GENERAL HOSPITALS	1.6	0.24
OTHER HOSPITALS	7.8	0.49
MATERNITY HOSPITALS	5.8	0.05
PRE-PRIMARY SCHOOLS	195	0.32
PRIMARY SCHOOLS	78	0.8
SECONDARY SCHOOLS	50.7	2.13
INTEGRATED SCHOOLS	7.8	0.7
SPECIAL SCHOOLS	7.8	0.11
JUNIOR COLLEGE	1.6	0.32
SOCIO-CULTURAL FACILITIES	116.1	0.56
MARKETS	14.1	1.43
LAW AND ORDER	13.1	0.2
RELIGIOUS	3.9	0.08
RECREATIONAL AREAS		5.8

2 STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

CREATING SOCIAL INFRASTRUCTURE WITHIN RESIDENTIAL PLOTS

An immensely effective method for the creation of social infrastructure is provision on residential plots itself, rather than relying merely on plot reservations for amenities. The way this can be done is to introduce amenity norms within the Development Control Regulations (DCRs) that make it mandatory for every development to have some percentage of its area dedicated for this purpose. This is already the case for certain amenities such as parking and open spaces, but even other facilities can be made a part of the building regulations. What is more important however is to regulate access to these amenties - to ensure that the "public" nature of the amenities is in fact preserved. Typological or formal guidelines can achive this end to some extent - for example, the ground storey can be made a "public level" where pedestrian right of way, social infrastructure and commercial functions can be integrated, especially in high density areas, to ensure a healthy PGA - BPA ratio, an acceptable per capita built up area for amenities, and a vibrant public realm and mixed use character of neighborhoods.





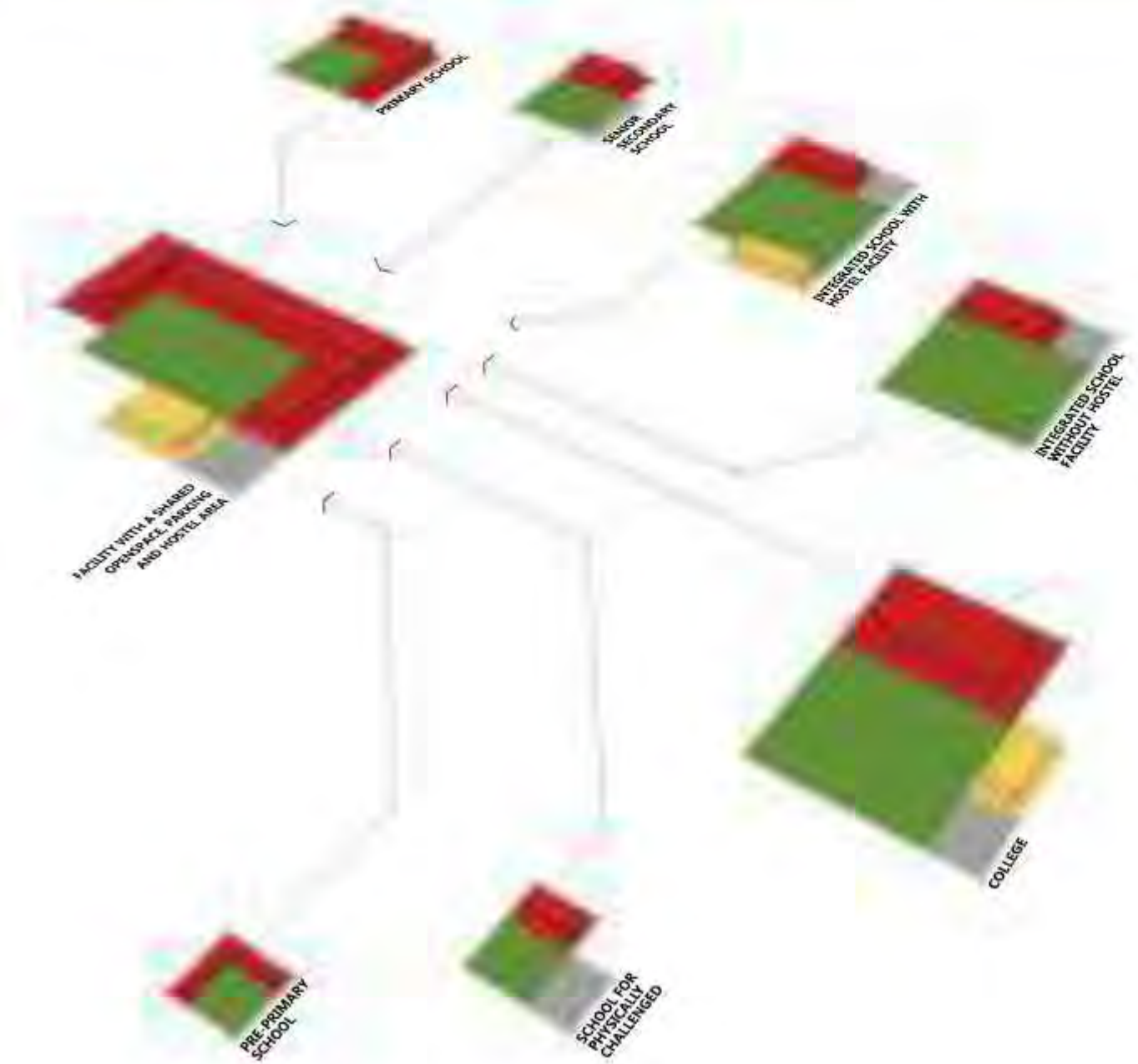
FACILITIES	UNITS FOR (3.9 L PPL)	AREA PER CAPITA
DISPENSARIES	26.1	0.07
PRE-PRIMARY SCHOOLS	195	0.32
SOCIO-CULTURAL FACILITIES	-	0.4
RECREATIONAL AREAS	-	3.0*
TOTAL FACILITIES		**0.43**

*NBCI SPECIFIES 1.0 SQM / CAPITA FOR LIG HOUSING

3 STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

SHARING SOCIAL INFRASTRUCTURE AREAS

A closer look at social infrastructure norms as per NBCI or UDPFI reveals that every facility, for example a secondary school or a public hospital, has a further breakup of how much area must be dedicated to each function. So for instance, the UDPFI states that a senior secondary school that requires 1.80 Ha. must have 0.60 Ha area dedicated for its building, 1.00 Ha for a playground, and 0.2 Ha for parking. The drawing below shows graphically the area each educational facility requires in comparitive terms as building, playground and parking areas. Naturally, one can question the extravagance of parking or playground (or even building) areas that the norms demand, but putting that aside, a situation of limited land availability can be addressed by sharing some of the features of these facilities, as depicted below. If we add up all the educational facilities that NBCI requires, we need 15.3 Ha of land; by sharing all the parking areas and playgrounds (by taking the uppermost value for them) these can be achived in 7.48 Ha. A large open space -as shown in the detail of the PLU below- can be shared by many institutions to "save" land area.



DETAIL FROM THE PROPOSED LAND USE PLAN SHOWING SHARING OF SOCIAL INFRASTRUCTURE IN THE NCC-OCC NEIGHBORHOOD

AREAS FOR EDUCATIONAL FACILITIES AS PER NBCI

EDUCATIONAL FACILITIES	BUILDING AREAS (Ha)	'PLAY AREAS' (Ha)	PARKING AREAS	RESIDENTIAL
PRIMARY SCHOOLS	0.28	0.2	0.0	0.0
SECONDARY SCHOOLS	0.6	1.0	0.2	0.0
INTEGRATED SCHOOLS	1.4	5.0	0.6	0.4
SPECIAL SCHOOLS	0.2	0.3	0.2	0.0
JUNIOR COLLEGE	1.8	2.5	0.3	0.4
TOTAL AREA	**4.28**	**9.0**	**1.3**	**0.8**
AREA THROUGH SHARING	**4.28**	**2.5**	**0.3**	**0.4**

AREA WITHOUT SHARING: 15.3 Ha

AREA AFTER SHARING: 7.48 Ha

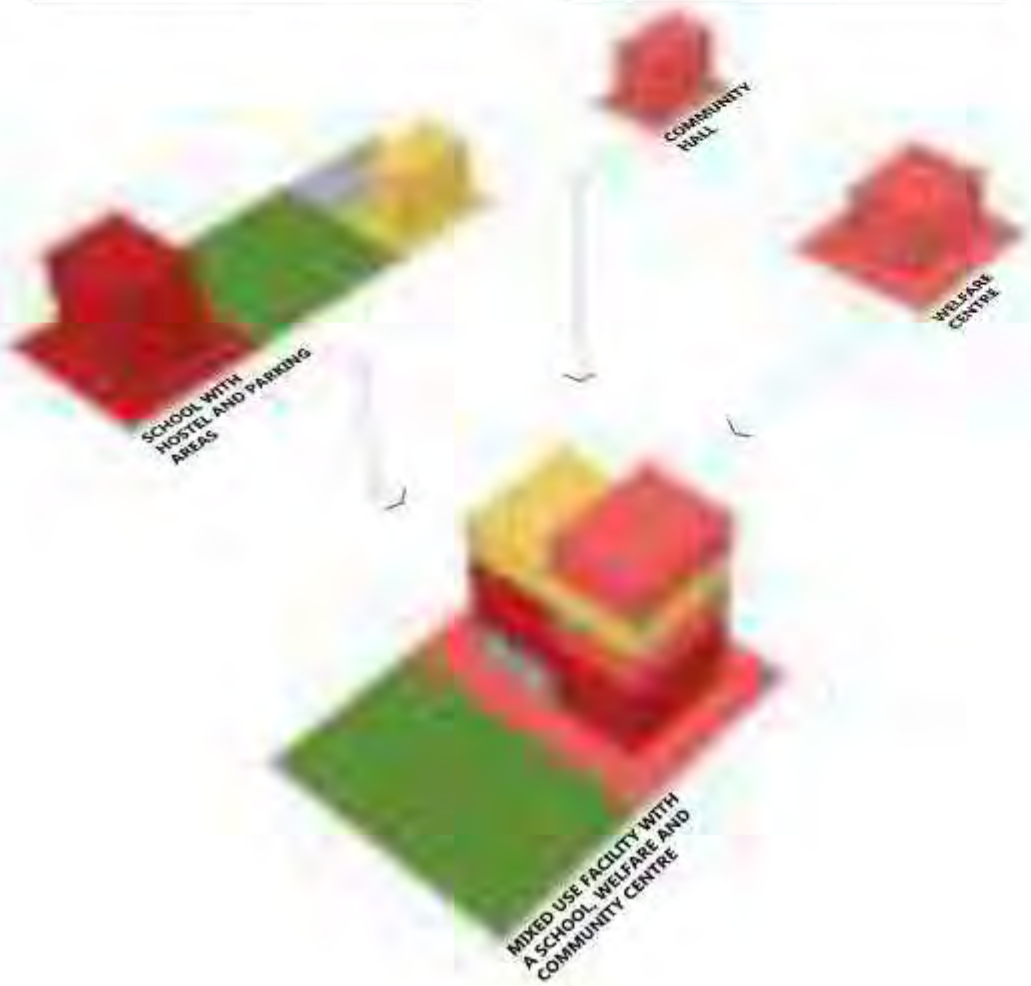
4 STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

MULTIPLE USE SOCIAL INFRASTRUCTURE AREAS

Social facilities that usually run at fixed timings such as schools and colleges, or are needed temporarily, such as community halls or auditoriums, can easily be used "flexibly" or "multiply" to serve other uses. Such multiple use infrastructure facilities already exist in many parts of the city (school buildings being used as community halls after school hours) and can simply be managed to make use of fewer facilities. The graphic below graphically illustrates an example and shows possible combinations for multiple use facilities in Malvani.

POSSIBLE COMBINATIONS FOR MIXED USE FACILITIES
SECONDARY SCHOOLS / COLLEGES
WELFARE CENTRES
COMUNITY HALLS
RECREATIONAL AREA
SCHOOL / COLLEGE PLAYGROUND
RECREATIONAL CLUB

POSSIBLE COMBINATIONS FOR MIXED USE FACILITIES
SOCIO-CULTURAL CENTRE
MUSIC / DANCE / AND DRAMA CENTRE
COMMUNITY HALL
ANGANWADI / PRE-PRIMARY SCHOOL
COMMUNITY ROOM

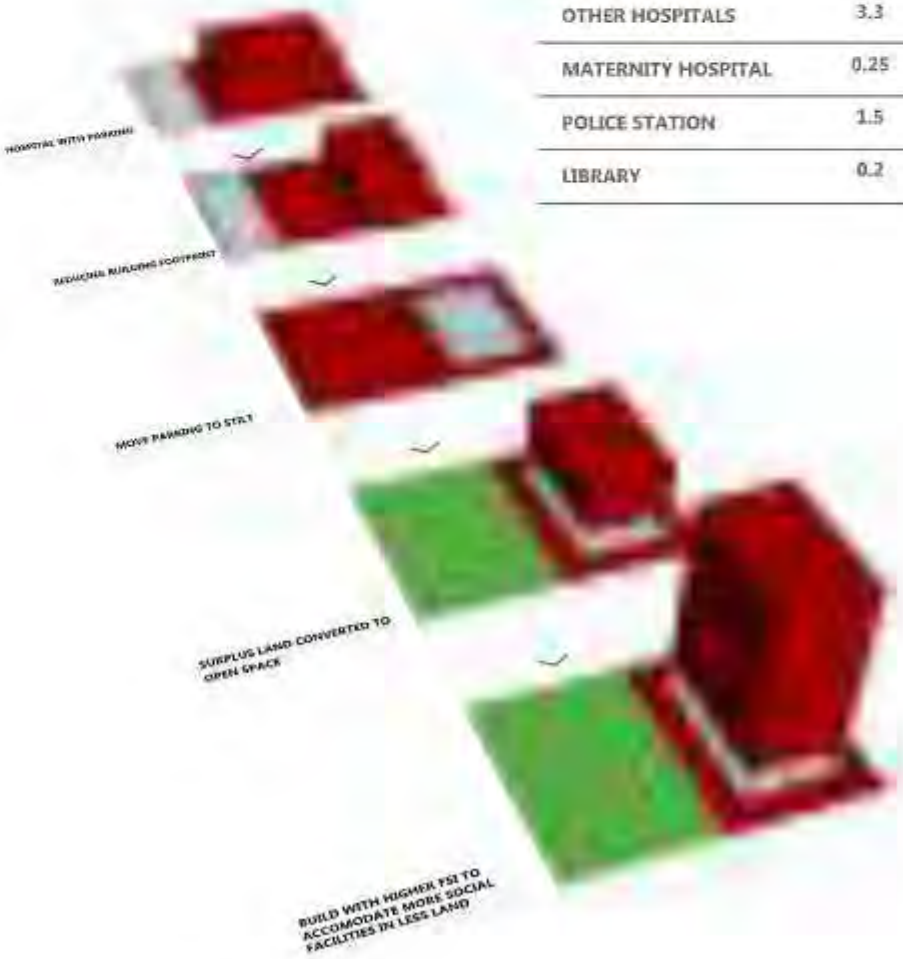


5 STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

INTENSIVELY BUILT SOCIAL INFRASTRUCTURE AREAS

By building intensively, or by permitting higher FSI to institutional buildings, more built up space can be created even if there is less land available. An FSI of 3 for instance can reduce the land area requirement from one-half to one-third. An example of this is illustrated below: A hospital that requires 6.0 Ha of land, can by allowing high-rise construction can relieve more than half of the land area for another use - such as an open space.

TYPE OF FACILITY	LAND AREA REQUIRED	LAND AREA @ 3 FSI
SECONDARY SCHOOL	0.6	0.2
INTEGRATED SCHOOL	1.4	0.46
JUNIOR COLLEGE	1.8	0.6
GENERAL HOSPITAL	4.0	1.33
OTHER HOSPITALS	3.3	1.1
MATERNITY HOSPITAL	0.25	0.09
POLICE STATION	1.5	0.5
LIBRARY	0.2	0.06

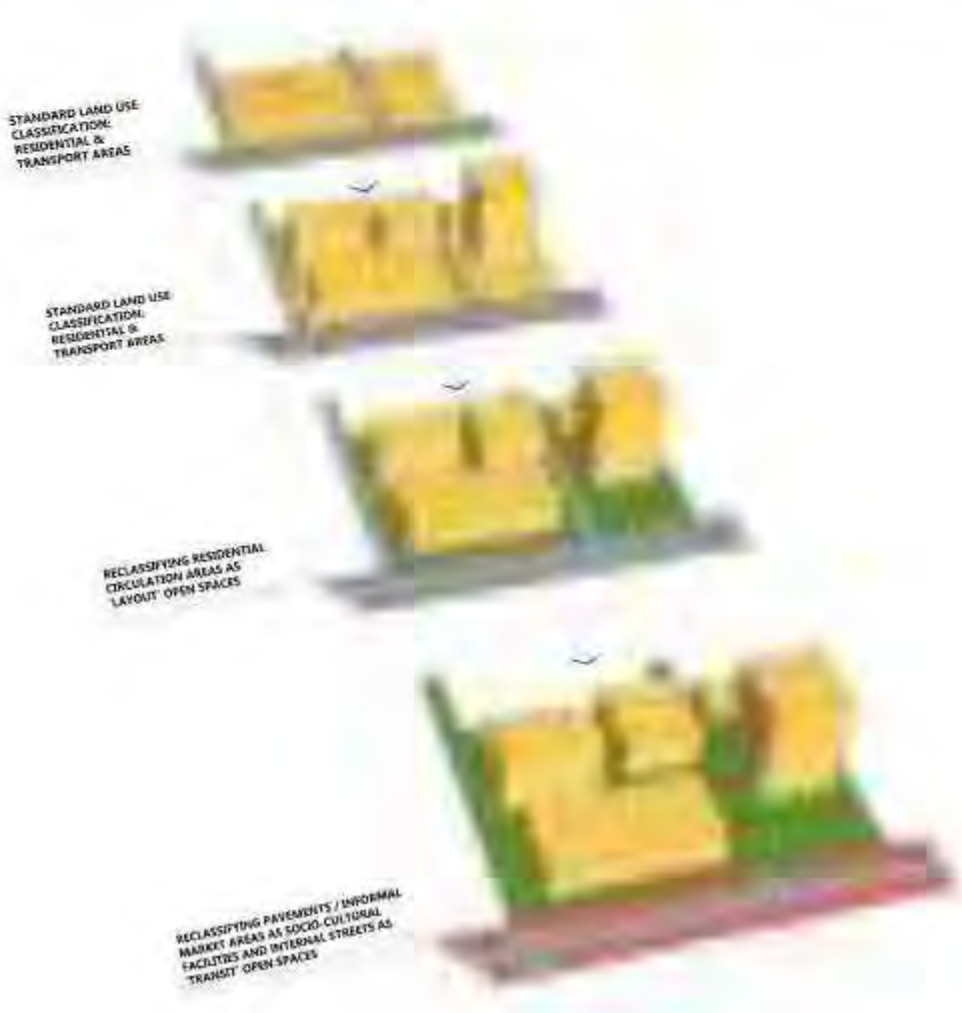


6 STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

RECLASSIFICATION

Development guidelines seem to be based on the modernist gospel that areas designated for a certain function must or will serve that purpose and no other. Circulation spaces in our cities - especially lanes and pathways function often as open spaces, and pedestrian areas usually serve a variety of uses that can be best described as "socio-cultural." Reclassifying these areas as what they actually end up becoming - helps a better understanding of behavior in urban environments, as well as reduces the need for specialised areas in the form of land reservations.

TYPE OF FACILITY	RECLASSIFIED AS
INTERNAL STREETS	TRANSIT AREAS (OPEN SPACES)
PEDESTRIAN PATHWAYS	TRANSIT AREAS (OPEN SPACES)
PAVEMENTS	SOCIO-CULTURAL FACILITY
INFORMAL STREET MARKETS	SOCIO-CULTURAL FACILITY



7 STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

INTRODUCING NEW CATEGORIES

Development guidelines also seem to have a built-in class bias, and the kind of urban environment they embody suits the lifestyle patterns of the middle class - with sub-urban densities and layouts. There are hardly any facilities or support infrastructure that are included in the norms for the informal commercial, service, or manufacture, and whatever is prescribed is glaringly disproportionate to the number of people that depend on the informal economy. New categories and types of facilities need to be introduced, as enlisted below.

HEALTH FACILITIES	NORMS IF ANY
VACCINATION CENTRE	
URBAN HEALTH CENTRE (NUHM)	16 UNITS FOR 390,000 PERSONS

SOCIO-CULTURAL FACILITIES	NORMS IF ANY
INFORMAL STREET MARKETS	0.055 SQM / CAPITA
MICRO-BUSINESS HUB (NULM)	
LIVELIHOOD CENTRES (NULM)	1 PER 100,000 PERSONS
CHANGING ROOM FOR NAKA WORKERS	
CHANGING ROOM FOR WOMEN	
WOMEN'S HOSTEL	
NIGHT SHELTER	
CRECHE	

RECREATIONAL AREAS / OPEN SPACES	NORMS IF ANY
PUBLIC TRANSIT AREAS	
PEDESTRIAN INFRASTRUCTURE	
URBAN FARMS / FOOD GARDENS	

UTILITIES	NORMS IF ANY
SOLID WASTE DISPOSAL FACILITY	
SOLID WASTE COLLECTION POINT	

8

STRATEGIES FOR SOCIAL INFRASTRUCTURE CREATION

PRIORITIZE

After all of the above, if land is still found to be inadequate, there may be no option left but to choose one kind of amenity over another – a prioritisation of amenities can be one way in which this could be done. Two types of priority lists are shown below, one based on human development needs that puts health and education above everything else, and the other based on the various surveys with communities in Malvani and their perception of what are most important and urgent needs.

PRIORITIES BASED ON HUMAN DEVELOPMENT NEEDS

1) HEALTH FACILITIES

2) EDUCATIONAL FACILITIES

3) LIVELIHOOD RELATED FACILITIES

4) OTHER SOCIAL FACILITIES

5) RECREATIONAL AREAS

PRIORITIES BASED ON COMMUNITITY PRIORITIES AND DEVELOPMENT NEEDS

1) WASTE DISPOSAL AND MANAGEMENT

2) ROADS (TRANSIT INFRASTRUCTURE)

3) HEALTH FACILITIES

5) EDUCATIONAL FACILITIES

6) TOILETS AND SANITATION

7) RECREATIONAL AREAS

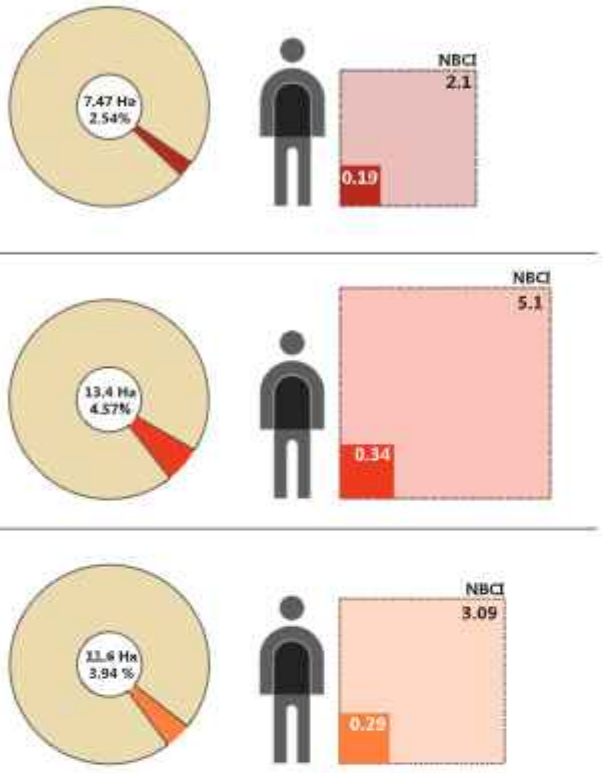
8) SOCIO-CULTURAL FACILITIES

MALVANI PROPOSED SOCIAL INFRASTRUCTURE MAP

MAP SHOWING HEALTH, EDUCATIONAL, SOCIO-CULTURAL AND RECREATIONAL FACILITIES AS PROPOSED IN MALVANI

LAND AREA AND PERCENTAGE FOR SOCIAL INFRASTRUCTURE

LAND AREA PER CAPITA FOR SOCIAL INFRASTRUCTURE



* OPEN SPACES PROVIDED AS LAND USE RESERVATIONS
** EXTENDED OPEN SPACES BY INCLUDING LAYOUT OPEN SPACES BY ADOPTING A NON-GATED OR UN-ENCLOSED RESIDENTIAL TYPOLOGY (40% - 50% OF RESIDENTIAL AREAS), AND BY INCLUDING LANES AND PATHWAYS AS OPEN SPACES (10-15% OF RESIDENTIAL AREAS)

0 100 200 METERS 500

MALVANI PROPOSED SOCIAL INFRASTRUCTURE

- HEALTH FACILITIES
- EDUCATIONAL FACILITIES
- SOCIO-CULTURAL FACILITIES
- RECREATIONAL AREAS

The map on the previous page shows the proposed social infrastructure in Malvani. The percentage of land dedicated to health amenities has gone up from 0.1% to 2.54%, and per capita health amenities have increased from 0.01 sqm to 0.19 sqm. Educational infrastructure has gone up from 1.8% to 4.5% and per capita educational amenity area has increased from 0.13 to 0.34 sqm. Socio-cultural infrastructure has increased from 0.87% to 3.94%, and in per capita terms from 0.06 to 0.29 sqm per capita. Recreational areas can be improved from 8.6% of land area as they are now, to a proposed 17.7%, which means 1.3 sqm per person as compared to 0.6 sqm per person as exists today. If we consider layout openspaces as part of the open space area due to the proposed "free layout plan," which avoids enclosing plots within compound walls and provides as much free movement around buildings as possible, in addition to the pedestrian circulation areas within the residential plots, we can achieve 43% open areas that translates to 3.18 sqm per capita.

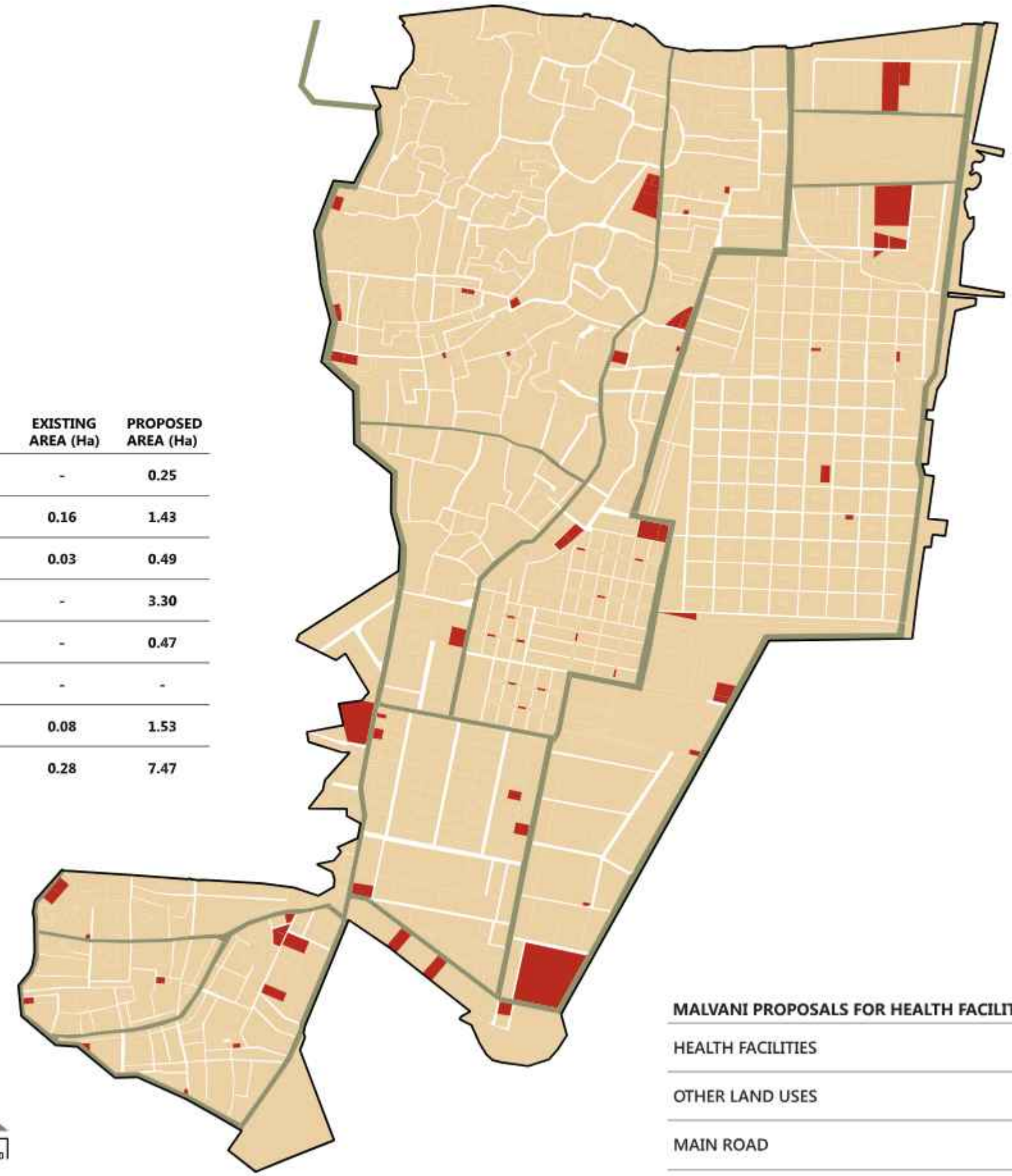
The map on the facing page shows the locations of all the health facilities as proposed. 7 new hospitals including 2 speciality hospitals have been proposed, and 13 nursing homes have been added. 28 dispensaries, 16 health centres and 9 vaccination centers have been proposed. Total area for health facilities has increased from 0.28 Ha to 7.47 Ha. The table beside the map shows a break up this area by facility, and the table below shows a breakup of educational and health infrastructure in terms of unit quanitities by neighbourhoods.

A map of proposed educational infrastructure is shown overleaf. One professional college, 6 junior colleges, 6 special schools and 7 vocational training centres have been proposed in the plan. 29 secondary schools 22 primary schools, and 49 pre-primary schools have been proposed as land use reservations (more pre-primary schools can be generated in residential plots as part of the mixed use residential development). The area for educational amenities has increased from 5.18 Ha at present, to 13.4 Ha. A detailed breakup is provided in the table below.

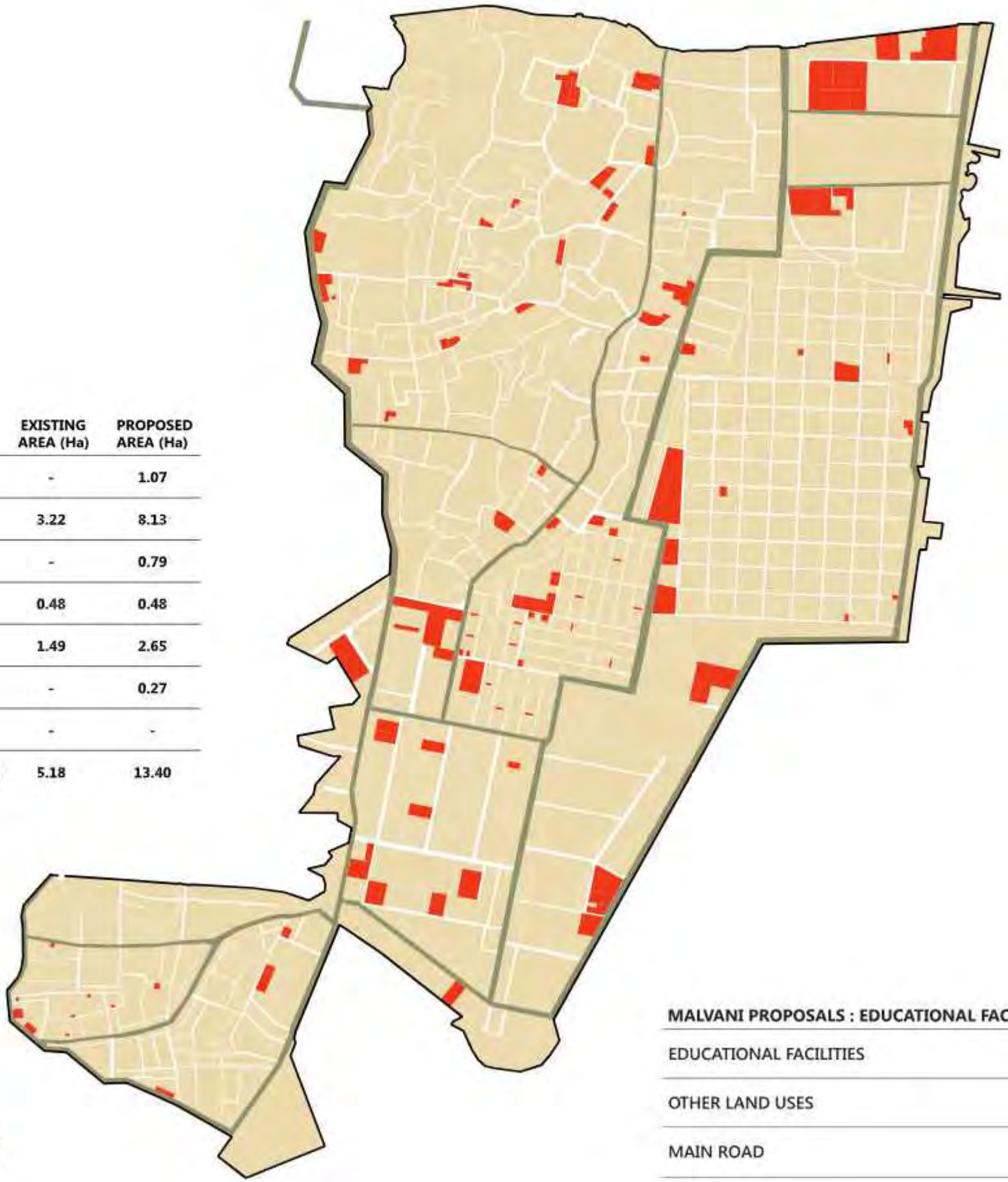
Sr. No.	Category	Type	Ward Level (PN)	Site Level (Malvani)			Cluster Level																	
			1,000,000 Persons	380,000 Persons			Ambojwadi (70,000)			Azmi Nagar (125,000)			MHADA (50,000)			NCC OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,500)		
			Prescribed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed
1	Pre Primary	Anganwadi	500.0	195.0	69	49	35.0	0	11	62.5	25	9	24.4	0	18	62.5	35	8	10.0	3	5	0.3	0	0
2		Kindergarten																						
3		Bal Bhawan																						
4	Primary	Primary School	200.0	78.0	5	22	14.0	0	1	25.0	1	4	10.0	2	7	25.0	1	0	4.0	1	10	0.1	0	0
5	Secondary	Secondary School	180.0	50.7	1	18	9.1	0	0	16.3	0	4	6.5	0	7	16.3	1	5	2.6	0	2	0.1	0	0
6		Integrated School	20.0	7.8	18	11	1.4	0	1	2.5	4	4	1.0	4	4	2.5	5	1	0.4	5	1	0.0	0	0
7		Vocational Training Centre		0.0	0	7	0.0	0	1	0.0	0	2	0.0	0	2	0.0	0	1	0.0	0	1	0.0	0	0
8		Special School	20.0	7.8	0	6	1.4	0	0	2.5	0	1	1.0	0	4	2.5	0	1	0.4	0	0	0.0	0	0
9	Higher	Junior College	40	1.6	4	6	0.3	0	0	0.5	0	0	0.2	1	2	0.5	3	3	0.1	0	1	0.0	0	0
10		Professional College	3.0	1.2	0	1	0.2	0	0	0.4	0	0	0.2	0	0	0.4	0	1	0.1	0	0	0.0	0	0
11		Polytechnic	2.0	0.8	1	1	0.1	0	0	0.3	0	0	0.1	1	1	0.3	0	0	0.0	0	0	0.0	0	0

Sr. No.	Category	Type	Ward Level	Site Level			Cluster Level																	
			1,000,000 Persons	400,000 Persons			Ambojwadi (70,000)			Azmi Nagar (125,000)			MHADA (50,000)			NCC OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,500)		
			Prescribed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed
1	Vaccination Centres	Vaccination Centre				9			2			2			2			1			2			0
2	Health Centres	Urban Health Centre / Post	16.0	6.2	2	18	1.1	0	3	2.0	0	4	0.8	0	4	2.0	1	3	0.3	1	4	0.0	0	0
3	Dispensaries	Dispensary	67.0	26.1	1	29	4.7	0	6	8.4	0	4	3.4	0	15	8.4	0	2	1.3	1	2	0.1	0	0
4		Veterinary Dispensary			0	0		0	0		0	0		0	0		0	0		0	0		0	0
5	Hospitals	General Hospital	4.0	1.6	0	5	0.3	0	0	0.5	0	0	0.2	0	4	0.5	0	1	0.1	0	0	0.0	0	0
6		Specialty Hospital	10.0	3.9	0	2	0.7	0	0	1.3	0	0	0.5	0	0	1.3	0	1	0.2	0	1	0.0	0	0
7		Maternity hospital / Nursing Home	15.0	5.9	1	14	1.1	0	3	1.9	0	3	0.8	0	4	1.9	1	3	0.3	0	1	0.0	0	0

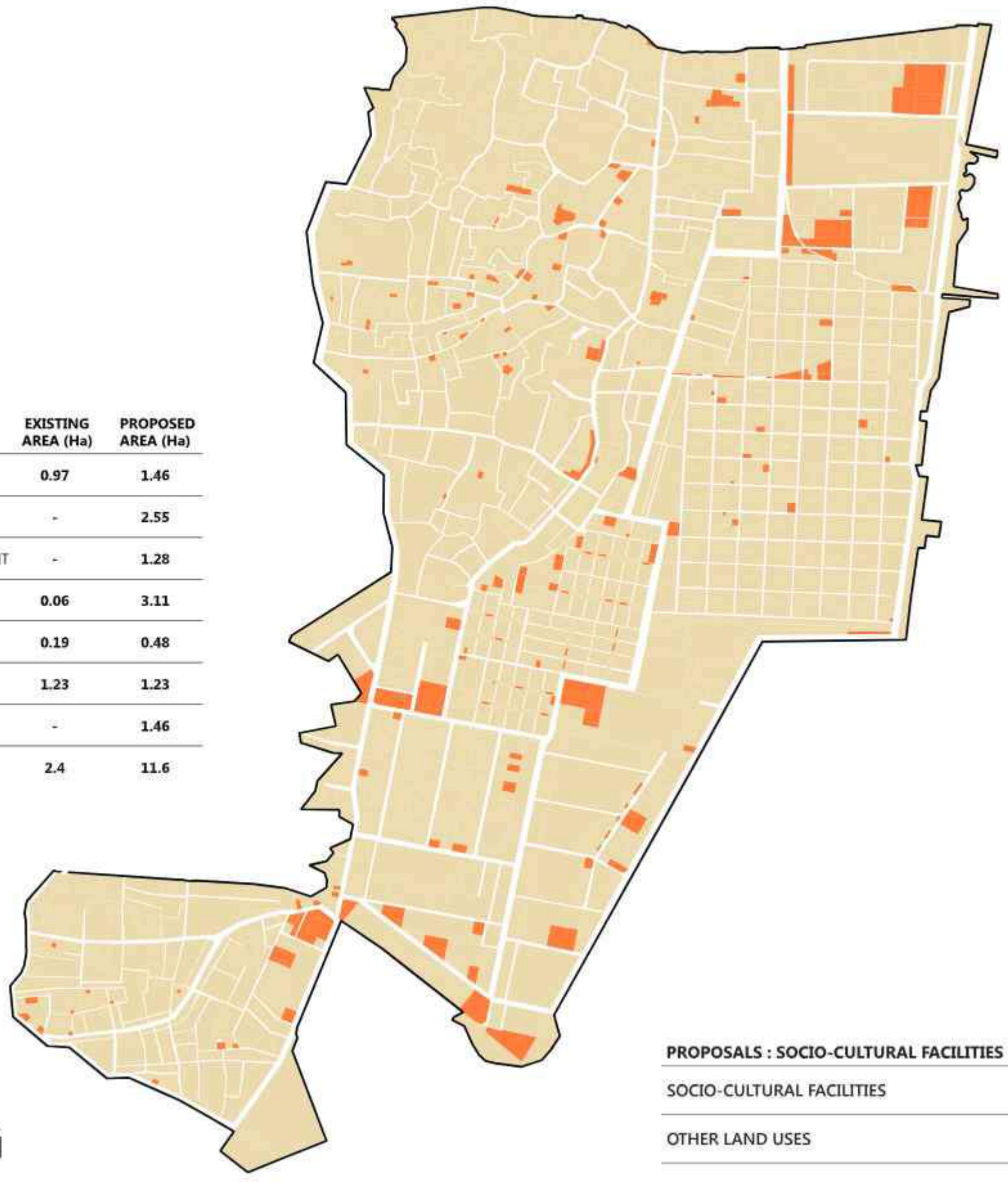
TYPE OF HEALTH FACILITY	EXISTING AREA (Ha)	PROPOSED AREA (Ha)
VACCINATION CENTRE	-	**0.25**
UHC / HEALTH POST	**0.16**	**1.43**
DISPENSARY	**0.03**	**0.49**
GENERAL HOSPITAL	-	**3.30**
SPECIALITY HOSPITAL	-	**0.47**
OTHER HOSPITALS	-	-
MATERNITY / NURSING HOME	**0.08**	**1.53**
TOTAL HEALTH FACILITIES	**0.28**	**7.47**



TYPE OF HEALTH FACILITY	EXISTING AREA (Ha)	PROPOSED AREA (Ha)
PRE-PRIMARY SCHOOLS	-	**1.07**
PRIMARY AND SEC. SCHOOLS	**3.22**	**8.13**
SPECIAL SCHOOLS	-	**0.79**
TECHNICAL SCHOOLS	**0.48**	**0.48**
HIGHER EDUCATION	**1.49**	**2.65**
PROFESSIONAL EDUCATION	-	**0.27**
UNIVERSITY	-	-
TOTAL EDUCATIONAL FACILITIES	**5.18**	**13.40**



TYPE OF HEALTH FACILITY	EXISTING AREA (Ha)	PROPOSED AREA (Ha)
WELFARE / COMMUNITY CENTRE	**0.97**	**1.46**
CULTURE AND LEISURE	-	**2.55**
RECREATION AND ENTERTAINMENT	-	**1.28**
MARKETS	**0.06**	**3.11**
LAW AND ORDER	**0.19**	**0.48**
RELIGIOUS	**1.23**	**1.23**
OTHER	-	**1.46**
TOTAL SOCIAL FACILITIES	**2.4**	**11.6**



Socio-cultural infrastructure has been agumented from 2.4 Ha to 12.6 Ha, and some new types of facilities such as changing rooms for men and women, women's hostels, creches, night shelters and livelihood centres have been introduced. Cultural institutions such as libraries, theatres, auditoriums and facilities for entertainment such as cinema halls have been proposed. Formal and informal markets are provided as well.

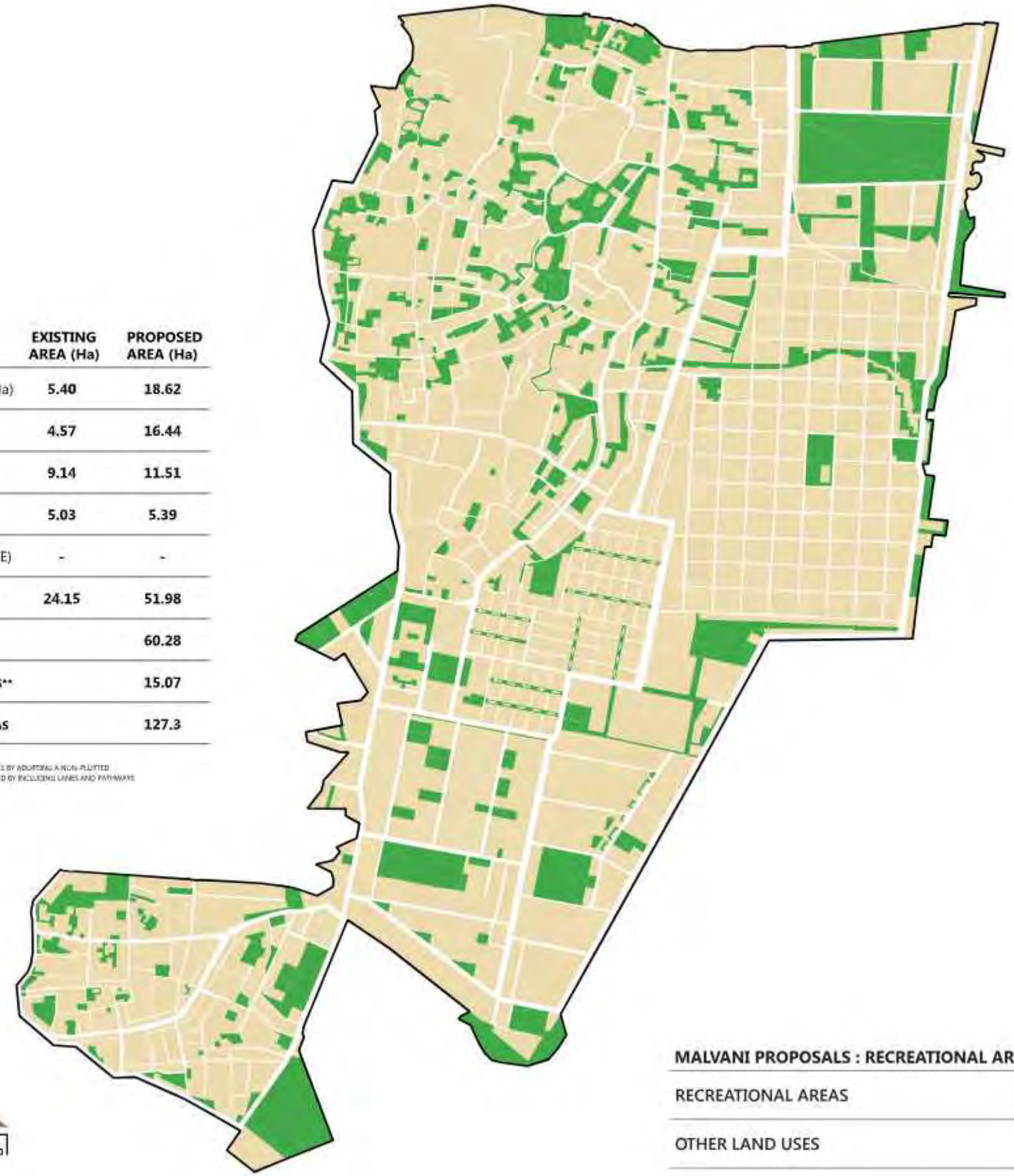
Openspaces have been doubbled from 24.15 Ha to 51.98 Ha, and if layout openspaces and circulation spaces are included, a total of 127.3 Ha can be achieved as accessible open spaces. All the community open spaces have been preserved and consolidated, and new ones have been proposed. Openspaces have also been designed to provide exclusive network of pedestrian access across the area.

Sub Category	Type	Ward Level (PN)	Site Level (Malvani)			Cluster Level														
		1,000,000 Persons	400,000 Persons			Ambojwadi (70,000)			Azmi Nagar (125,000)			MHADA (50,000)			NCC OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,500)		
		Prescribed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed
Welfare	Welfare Centre / Community room	200.0	78.0	6	41	14.0	2	6	25.0	1	10	10.0	0	14	25.0	2	4	4.0	1	7	0.3	0	0
	Public / Community Hall																						
Entertainment and Culture	Library	66.7	26.0	2	30	4.7	0	2	8.3	0	1	8.3	0	2	8.3	0	1	1.3	0	1	0.1	0	0
	Vachanalya						0	1		0	8		0	12		2	0		0	2		0	0
	Cinema	10.0	3.9	0	8	0.7	0	0	1.3	0	0	0.5	0	1	1.3	0	1	0.2	0	0	0.0	0	0
	Multi / Dance / Theatre						0	0		0	0		0	1		0	1		0	0		0	0
	Art Gallery						0	0		0	0		0	2		0	2		0	0		0	0
	Spiritual Centre	10.0	3.9			0.7	0	0	1.3	0	0	0.5	0	0	1.3	0	0	0.2	0	0	0.0	0	0
	Museum / Socio-cultural centre	1.0	0.4	0	3	0.1	0	0	0.1	0	0	0.1	0	0	0.1	0	0	0.0	0	0	0.0	0	0
	Recreational Club	10.0	3.9			0.7	0	0	1.3	0	0	0.5	0	2	1.3	0	1	0.2	0	0	0.0	0	0
Markets	Market	10.0	3.9	1	29	0.7		1	1.3	0	1	0.5	1	3	1.3		1	0.2		0	0.0		0
	Wholesale Market	1.0	0.4			0.1		0	0.1		0	0.1		0	0.1		0	0.0		0	0.0		0
	Informal Market	10.0	3.9			0.7		2	1.3		4	0.5		8	1.3		8	0.2		0	0.0		0
	Weekly Market	15.0	5.9			1.1		0	1.9		0	0.8		1	1.9		0	0.3		0	0.0		0
Law and Order	Police Station	10.0	3.9	4	6	0.7		0	1.3		0	0.5		0	1.3	1	1	0.2		0	0.0		0
	Police Chowky	20.0	7.8			1.4		2	2.5		1	1.0	2	0	2.5		0	0.4	1	2	0.0		0
	Court House	na	na			na		0	na		0	na		0	na		0	na		0	na		0
	Prison	1.0	0.4			0.1		0	0.1		0	0.1		0	0.1		0	0.0		0	0.0		0
Cemetery	Cemetery	5.0	2.0	0	0	0.4	0	0	0.6	0	0	0.3	0	0	0.6	0	0	0.1	0	0	0.0	0	0
Religious	Temple	na	na	64	64		6	6	na	17	17	na	9	9	na	26	26	na	6	6	na	0	
	Church	na	na						na			na			na			na			na	0	
	Mosque	na	na						na			na			na			na			na	0	
	Gurudwara	na	na						na			na			na			na			na	0	
	Fire Agiary	na	na						na			na			na			na			na	0	
	Jain Temple	na	na						na			na			na			na			na	0	
	Synagogue	na	na						na			na			na			na			na	0	
	Buddhist Temple	na	na						na			na			na			na			na	0	
Other	Changing Room	na	na	0	30		0	0	na	0	2	na	0	2	na	0	1	na	0	0	na	0	0
	Women's Changing Room	na	na				0	1	na	0	2	na	0	2	na	0	2	na	0	0	na	0	0
	Women's Hostel	na	na				0	0	na	0	0	na	0	1	na	0	1	na	0	0	na	0	0
	Night Shelter	na	na				0	0	na	0	0	na	0	1	na	0	0	na	0	0	na	0	0
	Crèche	na	na				0	4	na	0	4	na	0	4	na	0	1	na	0	2	na	0	0
	Other	na	na					2			3						4						

Sr. No.	Category	Areas required	Ward Level	Site Level			Cluster Level																
			1,000,000 Persons	400,000 Persons			Ambojwadi (70,000)			Azmi Nagar (125,000)			MHADA (50,000)			NCC OCC (125,000)			Kharodi Slum (20,000)			Urban Villages (1,500)		
			Prescribed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed	Prescribed	Existing	Proposed
1	Community level	Upto 1500 SQM			165	324		17	45		26	112		7	82		85	27		23	72		7	8
2	Residential level	1500 - 5000 SQM	200.0	80.0	20	70	14.0	1	5	25.0	5	14	10.0	2	11	25.0	7	23	4.0	3	13	0.3	2	4
3	Neighbourhood level	5000 SQM - 5 Ha	66.7	26.7	9	11	4.7	0	1	8.3	0	0	3.3	3	6	8.3	2	2	1.3	0	0	0.1	4	0
4	District level	5 Ha - 20 Ha	10.0	4.0	1	1	0.7	0	0	1.3	0	0	0.5	0	0	1.3	1	1	0.2	0	0	0.0	0	0
5	Ward level	20 Ha and over	1.0	0.4	0	0	0.1	0	0	0.1	0	0	0.1	0	0	0.1	0	0	0.0	0	0	0.0	0	0

TYPE OF AREA	EXISTING AREA (Ha)	PROPOSED AREA (Ha)
COMMUNITY LEVEL (UPTO 0.15 Ha)	**5.40**	**18.62**
RESIDENTIAL (0.15 - 0.5 Ha)	**4.57**	**16.44**
NEIGHBOURHOOD (0.5 - 5.0 Ha)	**9.14**	**11.51**
DISTRICT LEVEL (5.0 - 20.0 Ha)	**5.03**	**5.39**
WARD LEVEL (20.0 Ha AND ABOVE)	-	-
TOTAL RECREATIONAL AREA	**24.15**	**51.98**
INCLUDE 40% LAYOUT OPEN SPACES*		**60.28**
INCLUDE 10-15% AS PATHS AND LANES**		**15.07**
TOTAL EXTENDED RECREATIONAL AREAS		**127.3**

* OPEN SPACES PROVIDED AS LAND USE RESERVATIONS
** EXTENDED OPEN SPACES BY INCLUDING LAYOUT OPEN SPACES BY ADOPTING A NON-PLOTTED RESIDENTIAL TYPOLOGY (40% - 50% OF RESIDENTIAL AREAS) AND BY INCLUDING LANES AND PATHWAYS AS OPEN SPACES (10-15% OF RESIDENTIAL AREAS)



MALVANI PROPOSALS : RECREATIONAL AREAS

RECREATIONAL AREAS

OTHER LAND USES

LIVELIHOODS

MALVANI PEOPLE'S PLAN | 2013-14

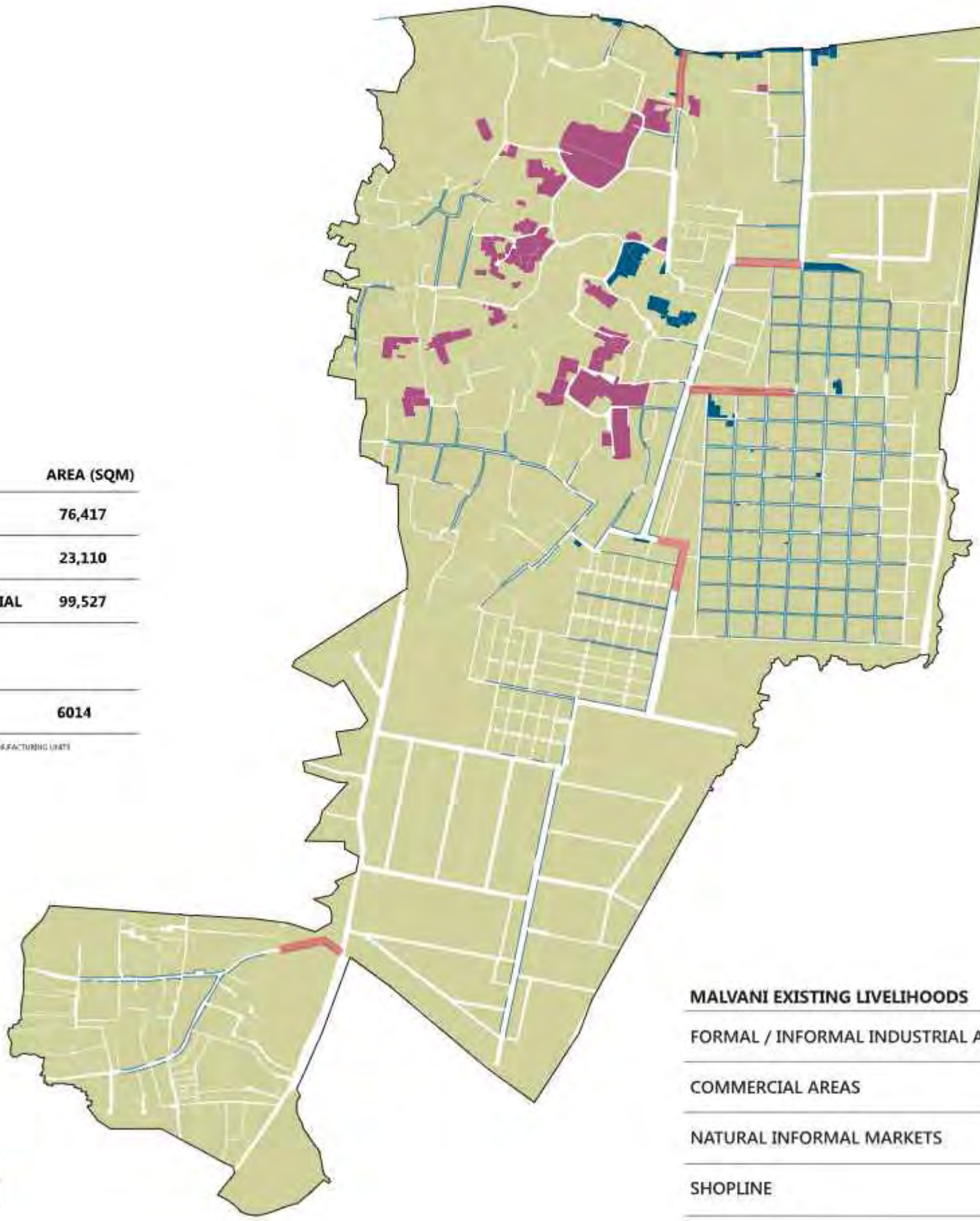
MALVANI EXISTING LIVELIHOODS

Map showing existing industrial, commercial areas and natural markets

TYPE OF AREA	AREA (SQM)
INDUSTRIAL AREAS	**76,417**
COMMERCIAL AREAS	**23,110**
TOTAL COMMERCIAL + INDUSTRIAL	**99,527**

SHOPS	
APPROX NUMBER OF SHOPS*	**6014**

* LENGTH OF SHOPLINE / 5M. SHOPS INCLUDE BOTH RETAIL AND MANUFACTURING UNITS



PLACE OF HAWKING*

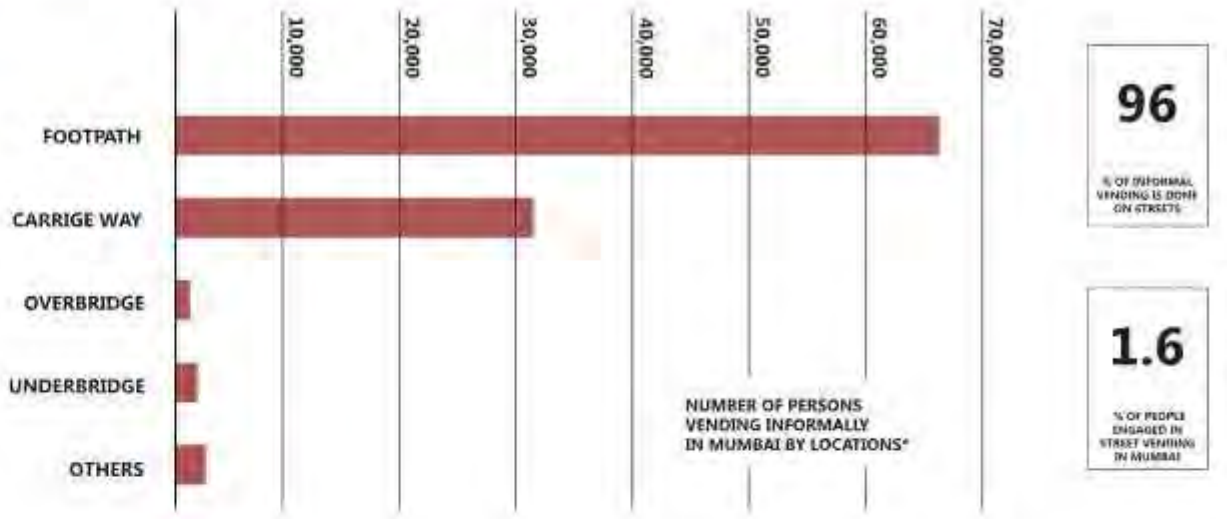
PLACE OF HAWKING		SPATIAL UNITS				TOTAL FOR
		CBD	REST OF CITY	WEST SUBURBS	EAST SUBURBS	GREATER MUM
FOOTPATH	NUMBER	15698	17143	20744	13947	67523
	%	81.6	71.4	54.7	66.8	65.9
CARRIAGE WAY	NUMBER	3347	5626	15834	6208	31015
	%	17.4	23.1	41.7	29.6	30.5
OVERBRIDGE	NUMBER	120	431	238	145	934
	%	0.6	1.8	0.6	0.7	0.9
UNDERBRIDGE	NUMBER	24	883	77	307	1291
	%	0.1	3.6	0.2	1.5	1.3
OTHERS	NUMBER	51	276	1057	254	1636
	%	0.3	1.1	2.8	1.2	1.6
TOTAL	NUMBER	19231	24359	37950	20861	102401
	%	18.8	23.8	37.1	20.4	100

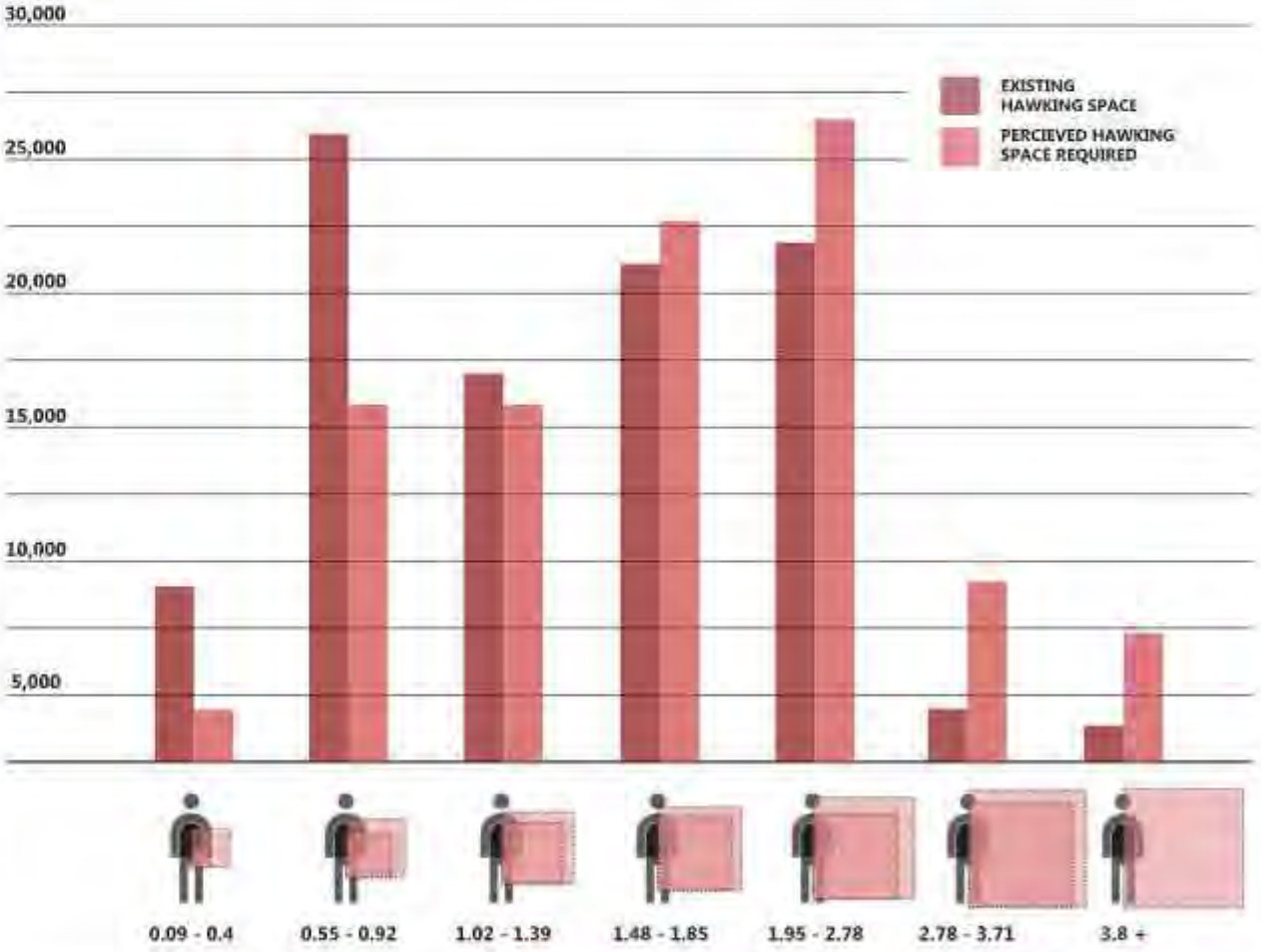
SIZE OF HAWKING AREA*

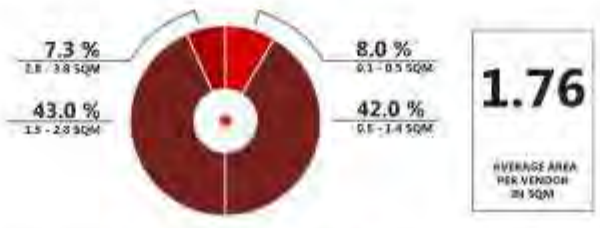
SIZE IN SQM		SPATIAL UNITS				TOTAL
		CBD	REST OF CITY	WEST SUBURBS	EAST SUBURBS	GREATER MUM
0.09 - 0.4	NUMBER	1493	2210	3506	1028	8239
	%	7.8	9.1	9.2	4.9	8
0.55 - 0.92	NUMBER	7258	6722	7584	4234	25808
	%	37.7	27.6	20.2	20.3	25.2
1.02 - 1.39	NUMBER	3868	4207	5831	3203	17104
	%	20.1	17.3	15.4	15.4	16.7
1.48 - 1.85	NUMBER	3756	4274	6286	5241	21558
	%	19.5	17.5	21.8	25.1	21.5
1.95 - 2.78	NUMBER	2090	4950	9628	5391	22059
	%	10.9	20.3	25.4	25.8	21.5
2.87 - 3.71	NUMBER	477	1080	1647	1023	4227
	%	2.5	4.4	4.3	4.9	4.1
3.8 AND ABOVE	NUMBER	292	917	1368	741	3318
	%	1.5	3.8	3.6	3.6	3.2
TOTAL	NUMBER	19231	24359	37950	20861	102401
	%	18.8	23.8	37.1	20.4	100

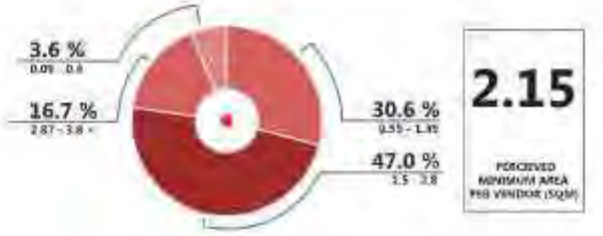
PERCEPTION OF HAWKERS REGARDING MINIMUM SPACE REQUIRED*

SPACE IN SQM		SPATIAL UNITS				TOTAL FOR
		CBD	REST OF CITY	WEST SUBURBS	EAST SUBURBS	GREATER MUM
0.09 - 0.4	NUMBER	643	1047	1612	833	3695
	%	3.3	4.3	4.4	1.6	3.6
0.55 - 0.92	NUMBER	4303	3701	5566	2115	15685
	%	22.4	15.2	14.7	10.1	15.3
1.02 - 1.39	NUMBER	3851	3998	5070	2780	15679
	%	20	16.4	13.4	13.2	15.4
1.48 - 1.85	NUMBER	5080	4596	7876	5265	22727
	%	26	18.9	20.8	25.2	22.2
1.95 - 2.78	NUMBER	3337	6554	11581	6044	27492
	%	17.4	26.9	30.5	29	26.8
2.87 - 3.71	NUMBER	1435	2557	3325	2411	9708
	%	7.5	10.4	8.8	11.6	9.5
3.8 AND ABOVE	NUMBER	662	1926	2680	1937	7405
	%	3.4	7.9	7.6	9.3	7.2
TOTAL	NUMBER	19231	24359	37950	20861	102401
	%	18.8	23.8	37.1	20.4	100









* SURVEY OF HAWKERS ON BMC LAND, TISS AND YUVA, 1996

AREAS REQUIRED FOR INFORMAL VENDING BY TYPE OF VENDOR : BASED ON STUDY BY YUVA "INTEGRATION OF STREET VENDORS THE CITY DEVELOPMENT PLAN," 2005.

UDPFI GUIDELINES ON PROVISION FOR INFORMAL AND FORMAL VENDORS : NUMBER OF SHOPS BY TYPE

CATEGORY	DISTRICT 125,000-500,000	COMMUNITY 25,000-100,000	SECTOR 5,000-20,000	CLUSTER 1,000-4,000
TOTAL SHOPS	1620	475	77	37
FORMAL SHOPS	1250	365	55	24
GENERAL RETAIL	1200	295	35	16
FRUIT AND VEGETABLES		40	7	3
SERVICE AND REPAIR	50	30	13	5
INFORMAL SHOPS	370	110	22	13
GENERAL RETAIL	355	88	14	8
FRUIT AND VEGETABLES		13	3	2
SERVICE AND REPAIR	15	9	5	3
INFORMAL VENDORS AS % OF POPULATION	0.07-0.2 %	0.11-0.44 %	0.11-0.44 %	0.13-0.32 %

REVISED NUMBERS BASED ON PROTECTION OF LIVELIHOOD AND REGULATION OF STREET VENDING BILL 2012 (PLRSV)**

CATEGORY	DISTRICT 125,000-500,000	COMMUNITY 25,000-100,000	SECTOR 5,000-20,000	CLUSTER 1,000-4,000
INFORMAL SHOPS AS PER UDPFI GUIDELINES	370	110	22	13
INFORMAL VENDORS AS % OF POPULATION AS PER UDPFI	0.07 - 0.2	0.11-0.44 %	0.11-0.44 %	0.13-0.32 %
INFORMAL SHOPS @ 2.5 %	12500	2250-2750	400-600	60-140
% OF VENDOR POPULATION (AVERAGE 2.5)	2.50%	2.25-2.75%	2.0-3.0%	1.5-3.5%
SPACE REQUIRED @ 2.2 sqm / VENDOR	27500	4,950-6,050	880-1,320	132-308
INFORMAL VENDOR SPACE PER CAPITA *	0.055	0.0495 – 0.0605	0.044 – 0.066	0.033 – 0.077

* CALCULATED FOR THE HIGHER VALUE AT DISTRICT, COMMUNITY, SECTOR AND CLUSTER LEVELS

** THESE INCLUDE (1) ORGANIZED INFORMAL BAZAARS, (2) STREET MARKETS, (3) WEEKLY MARKETS, (4) MARKETS IN AND AROUND PUBLIC SPACES

1.6	2.5	0.055	2.2	10,000	22,000
% OF POPULATION ENGAGED IN STREET VENDING IN MUMBAI PRESENTLY	% OF POPULATION PERMITTED TO HAWK AS PER PLRSV 2011	SQM AREA PER CAPITA FOR STREET VENDING	AVERAGE AREA PER VENDOR IN SQM	NUMBER OF VENDORS @ 2.5% OF POPULATION FOR MALVANI	VENDING SPACE FOR STREET VENDORS IN MALVANI IN SQM

Infrastructure for the Informal Commercial Sector

Social infrastructure norms in the UDPFI and NBCI are quite generous in terms of land areas, but in norms for informal vending, the requirements are miniscule in proportion to the number of people engaged in informal activities. In fact, there are no norms for informal street vending in terms of areas on streets, and it seems as though the norms require all informal vending to happen in designated "informal markets" - open areas or planned areas near public spaces.

This quite in contrast to the observed patterns of informal vending. A survey undertaken by TISS and YUVA in 1996[1] in Greater Mumbai shows that 96% of informal vending happens on streets, either on pavements or on carriageways - perhaps where pavements are inadequate or lacking. There have been various attempts in the past by public agencies to "rehabilitate" street vendors - a well known example is a 7 storey informal hawker building built by the MCGM - but these have hardly ever worked. There is also an effort to restrict street vending to "hawking zones," where it may be

permitted, and nowhere else. Usually the assumption is that street vendors are encroachers on streets and pavements, as the automobile has the first right to the former, while the pedestrian has the sole right to the latter. Street vending, however, is a very important source of livelihood, and estimates[2] suggest that 200,000 persons are engaged in street vending in Greater Mumbai, and as vendors, they do comparatively better than people engaged in other sectors of the informal economy.[3]

Only 15,500 street vendors are granted permits in the city.[4] This means that, according to the MCGM's own estimates, just 7.25% of the vendors are legally entitled to vend. This is unacceptably low, and according to the Protection of Livelihood and Regulation of Street Vending Act (PLRSV), that requires a plan to be prepared in each city by the Municipal Authority, the plan "shall ensure that all existing street vendors...subject to a norm of two and half percent of the population of the ward, zone, town or city...are accomodated in the plan for street vending."[5] According to the PLRSV, a minimum of 311,059 persons must be permitted to vend in the city,[6] and the development plan must propose the necessary infrastructure for these many vendors.

According to the UDPFI, in every urban district (125,000 - 500,000 people), there must be atleast 1250 formal shops, and 370 informal ones. For a community (25,000 - 100,000) there must be 365 formal and 110 informal shops. Every sector (5,000 - 20,000) must have atleast 55 formal and 22 informal shops, and a cluster (2,000 - 5,000) must have 24 formal and 13 informal shops. This means that the UDPFI norms expects only 0.07% - 0.44% of the population in a given spatial unit to engage in street vending, much too low for the number of actually existing vendors, as well as for the law regulating street vending.

We have attempted here to propose a revision to these norms, by using 2.5% of the population as a benchmark for informal vending as per the PLRSV 2014. In a 2005 report by the NGO YUVA that presents a plan for street vendors in Nalasopara, Mumbai,[7] a survey was undertaken that estimated the areas different types of street vendors occupied. The TISS and YUVA study of 1996 also provided the areas occupied by street vendors. The previous page illustrates these findings and shows that a street vendor requires on average about 2.2 sqm of area per selling unit. 1.15 - 1.5 m of pavement width is needed for vending comfortably. Based on these studies, we can estimate the amount of street vending area that must be provided in per capita terms for the entire population (0.055 sqm). In addition to this basic area, supporting infrastructure for vending such as toilets, storage areas, drinking water sources and access to some form of public transportation.

For a population of 400,000 people, vending infrastructure for a minimum of 10,000 vendors need to be provided. If we assume an area of 1.25 X 2.5 m = 3.125 sqm for each vendor, at least 31,250 sqm of area ought to be provided for street vending. In the livelihoods strategies map on the next page, a street length of 13.6 km is proposed to support street vending, which works out to an area for about 12,301 vendors, well above the minimum required. It must be noted that the informal vending line is not intended to be a the place where vending must happen, but indicates areas where support infrastructure ought to be provided so that vending can happen. Also, vending is nor meant to be restricted to these areas only.

Infrastructure for the Informal Service Sector

The mission statement of the National Urban Livelihoods Mission (NULM)[8] considers the question of the informal service sector and makes the following suggestions:

(1) "Livelihood / service centres that act as 'one-stop shop' for those seeking services from the informal sector as well as for the urban poor promoting their services and products...Livelihood centres will position as a resouce centre for those seeking information relating to employment and skill training opportunities, etc."

(2) "The Livelihood Centres may support the urban poor in offering a of services like those provided by carpenters, plumbers, electricians, TV/radio/refrigerator /mobile phone mechanics, etc. who could be available to city residents on call."

(3) NULM envisages that one Livelihood Centre be set up at zonal/city level to cater to a population of about 100,000 persons. A one-time capital

1. TISS and YUVA Survey of Street Vendors on BMC Land 1998.

2. MCGM, Preparatory Studies for the Revision of the Development Plan, 2013

3. Shanti Bhowmik and Debdula Saha for National Association of Street Vendors of India (NASVI), Street Vending in Ten Cities in India 2012

4. Reetika Subramanian, 31 Hawkers May Get Licenses in the City, Hindustan Times 27th February 2013

5. Protection of Livelihoods and Regulation of Street Vending Act, 2014

6. 2.5 % of the population of Greater Mumbai (Census 2011)

7. YUVA, Integration of Street Vendors in the City Development Plan, 2005

8. Ministry of Housing and Poverty Alleviation, National Urban Livelihoods Mission, Govt. Of India

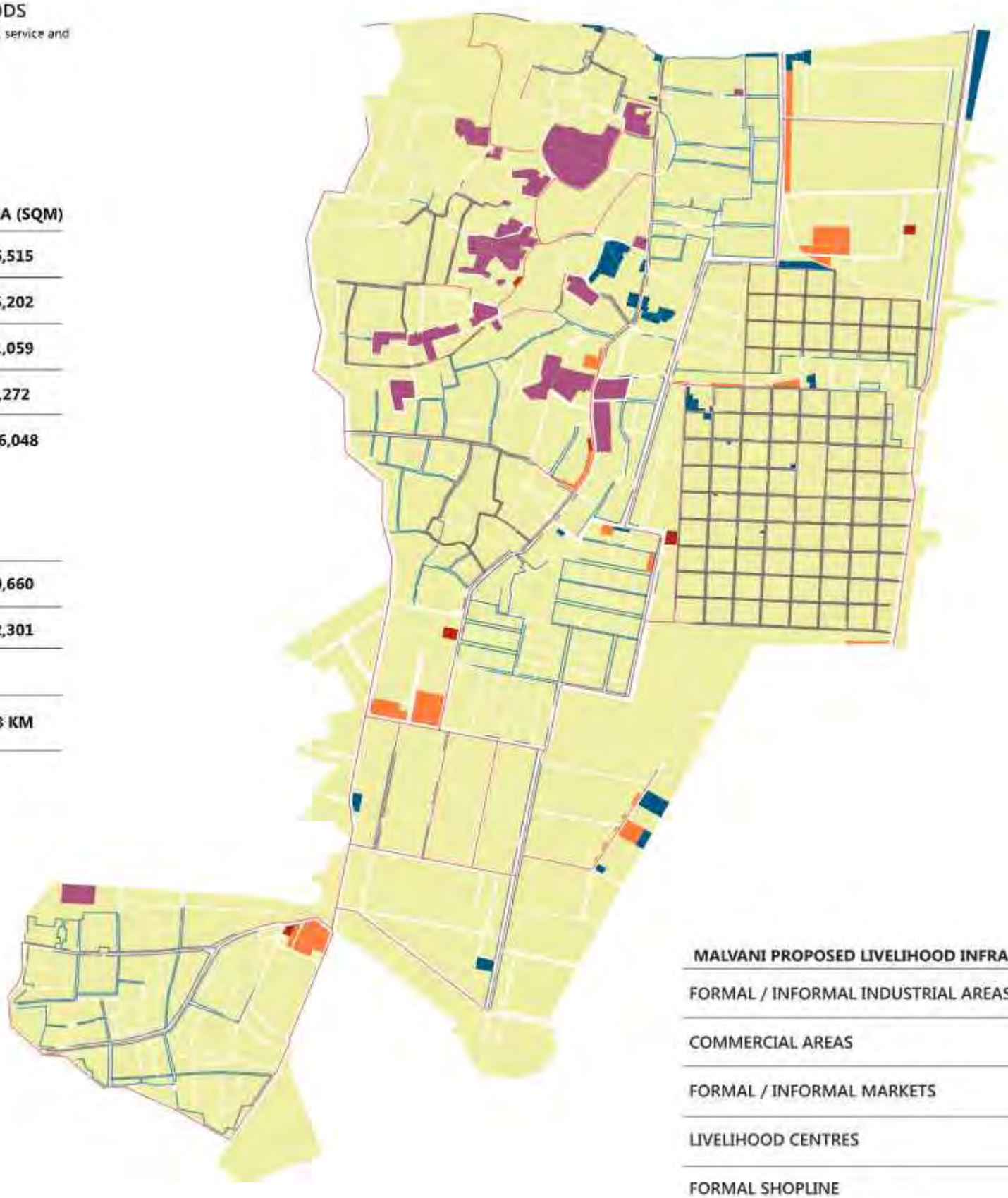
MALVANI STRATEGIES FOR LIVELIHOODS

Map showing proposed formal and informal commercial, service and industrial areas

TYPE OF AREA	AREA (SQM)
INDUSTRIAL AREAS	**76,515**
COMMERCIAL AREAS	**25,202**
FORMAL / INFORMAL MARKET AREAS	**31,059**
LIVELIHOOD CENTRES	**3,272**
TOTAL LIVELIHOOD AREA	**136,048**

SHOPS	
APPROX NUMBER OF SHOPS*	**30,660**
MINIMUM INFORMAL VENDOR UNITS **	**12,301**
MINIMUM ACCESSIBLE STREET LENGTH FOR MOBILE VENDORS"*	**58 KM**

* LENGTH OF SHOPLINE / 5M. SHOPS INCLUDE BOTH RETAIL AND MANUFACTURING UNITS
(153,701 / 5 = 30,660 Z)
** INFRASTRUCTURE FOR FIXED INFORMAL VENDING. CALCULATED AS LENGTH OF STREET
VENDOR LINE / 2.5M. (30,754 / 2.5 = 12,301)
* LENGTH OF ALL PRIMARY AND SECONDARY STREETS



0 100 200 METERS 500

MALVANI PROPOSED LIVELIHOOD INFRASTRUCTURE

- FORMAL / INFORMAL INDUSTRIAL AREAS
- COMMERCIAL AREAS
- FORMAL / INFORMAL MARKETS
- LIVELIHOOD CENTRES
- FORMAL SHOPLINE
- FIXED INFORMAL VENDOR LINE

grant of Rs. 10 lakhs per Livelihood Centre is to be provided as 'untied funds'. This amount can be used flexibly - corpus fund, basic training facilities and equipment like computers, product demonstration outlets, furniture, rent (where building is not available), telephone and other operational expenses, staffing support on contract basis, etc."

Based on these recommendations, at least 4 Livelihood Centres need to be provided in Malvani for a population of 400,000 people. The map on the previous page shows the proposed livelihood centres. A total of 5 centres have been proposed, with a total area of 3,272 sqm. The Centres have been provided next to main roads for identification and accessibility. One of the Centres is located near the MHB colony, on the site of an abandoned building that can be repaired and reused for this new purpose.

Infrastructure for the Informal Industrial Sector

The Sub-component 4.1 & 4.2 of the NULM Mission Statement[9] recommends assistance to "individuals/groups of urban poor for setting up gainful self-employment ventures/ micro-enterprises, suited to their skills, training, aptitude and local conditions." It recommends a house-to-house socio-economic survey to identify urban poor beneficiaries to understand "residential, social and occupational vulnerabilities." The following suggestions are made by the Mission statement:

(1) "Prioritisation of Micro-Enterprises. ..encourage under-employed and unemployed urban poor to set up small enterprises relating to manufacturing, servicing and petty business for which there is considerable local demand. Local skills and local crafts should be particularly encouraged. Each District/City/Town should develop a compendium of such activities/projects keeping in view skills available, marketability of products, costs, economic viability etc. For the purpose of self-employment, focus may be on two key sectors i.e. Production (Micro-industry), and Business."

(2) "Under the Micro industry (Manufacturing) side, a group of micro-entrepreneurs (hub) will be encouraged for setting up of enterprises centered around and supported by a Micro Business Centre (MBC), that may be established following a cluster approach."

(3) "Space may be provided by MBC in the form of working sheds with tools or micro-entrepreneurs may work from their homes and access MBC facilities. MBCs may also act as self-help promoting institutes along the lines of similar institutes promoted by public sector banks /other financial institutions in rural areas."

In physical planning terms, MBCs need to be provided near settlements where informal industrial activities are practiced. In Malvani, there is already a large area where informal industries have come about. There are no industrial areas in Amboojwadi, and hence the proposal includes a reservation for an industrial area there, where an MBC can be set up. The existing land area utilised for industrial activity has been retained. What is most crucial is to provide ample common areas in residential developments for cooperatives and spaces at home to practice manufacture. Typologies that enable such activities have been proposed in this plan and are illustrated in the section on shelter.

Infrastructure for the Formal and Informal Markets

Presently there is only one municipal market in Malvani, and no informal markets or weekly markets. The proposal provides 31,059 sqm of informal and formal markets. 4 new formal municipal markets and 1 weekly market have been proposed, and reservations for 21 new informal markets have been made. These markets are located either where informal vending is already practiced, or where it is likely to happen - very close to or within residential areas along primary or secondary streets. In addition to this, the number of formal shops have been increased to an estimated 31,059 from an estimated 6,014 (calculated as the length of shopline / 5). It must be remembered that quite a few of these "shops," especially in slum areas are used for industrial purposes – small workshops, vehicle repair, etc.

Other Commercial Infrastructure

Areas for new commercial facilities have been identified - 2 banks (currently none exist in the area, except in the MIG area), 1 hotel and lodging house, 2 formal shopping centres and 1 storage facility or godown.

9. Ministry of Housing and Poverty Alleviation, National Urban Livelihoods Mission, Govt. Of India.

SOLID WASTE MANAGEMENT

The combined area of Mumbai city's dumping grounds at Deonar, Kanjurmarg and Mulund is greater than the total area of Malvani - about 300 Ha. The city produces about 10,809 tonnes of waste everyday, out of which 8,923 tonnes is garbage, and 1,887 tonnes is debris and silt. Most of this ends up in one of the dumping grounds, and the city spends about Rs. 1,200 crores (12 million) to collect and transport this waste, through 1000 Municipal and private vehicles that make more than 1500 trips.[1]

The diagram on the right shows the material flow in the solid waste system and its formal and informal parts, in the city. According to the World Bank, a low income family produces on average 3 Kg waste per day, compared to an upper income family that produces up to 3-4 times that much.[2] Malvani produces an estimated 236 MT of waste per day, out of which 142 MT can be composted. The following are some of the principles for the collection, processing, recycling and disposal of solid waste in Malvani:

1) Decentralisation of the waste management process (segregation, processing and disposal) is necessary. This would require segregation of waste at source into compost-able and non-compost-able waste, to be carried off to nearby locations for processing. This would also mean that waste processing and controlled disposal facilities would be closer to the source of waste production, and not in centralised dumps. Decentralisation must not be conflated with privatisation of waste management.

2) There must be efforts made to process waste and to use it as a raw material for other purposes, such as energy production, compost, or recycled materials. As much of this as possible must be done as close to the source of wast production. This presupposes a functioning waste collection and segregation system and facilities for them such as collection points and segregation sheds.

3) Building codes and planning norms must include facilities for waste segregation at source and storage. Garbage chutes, segregation bins, composting pits, etc. as part of the building design, collection points and composting yards at the neighbourhood level, and processing and disposal facilities at the ward or zonal levels can be introduced as part of development norms.

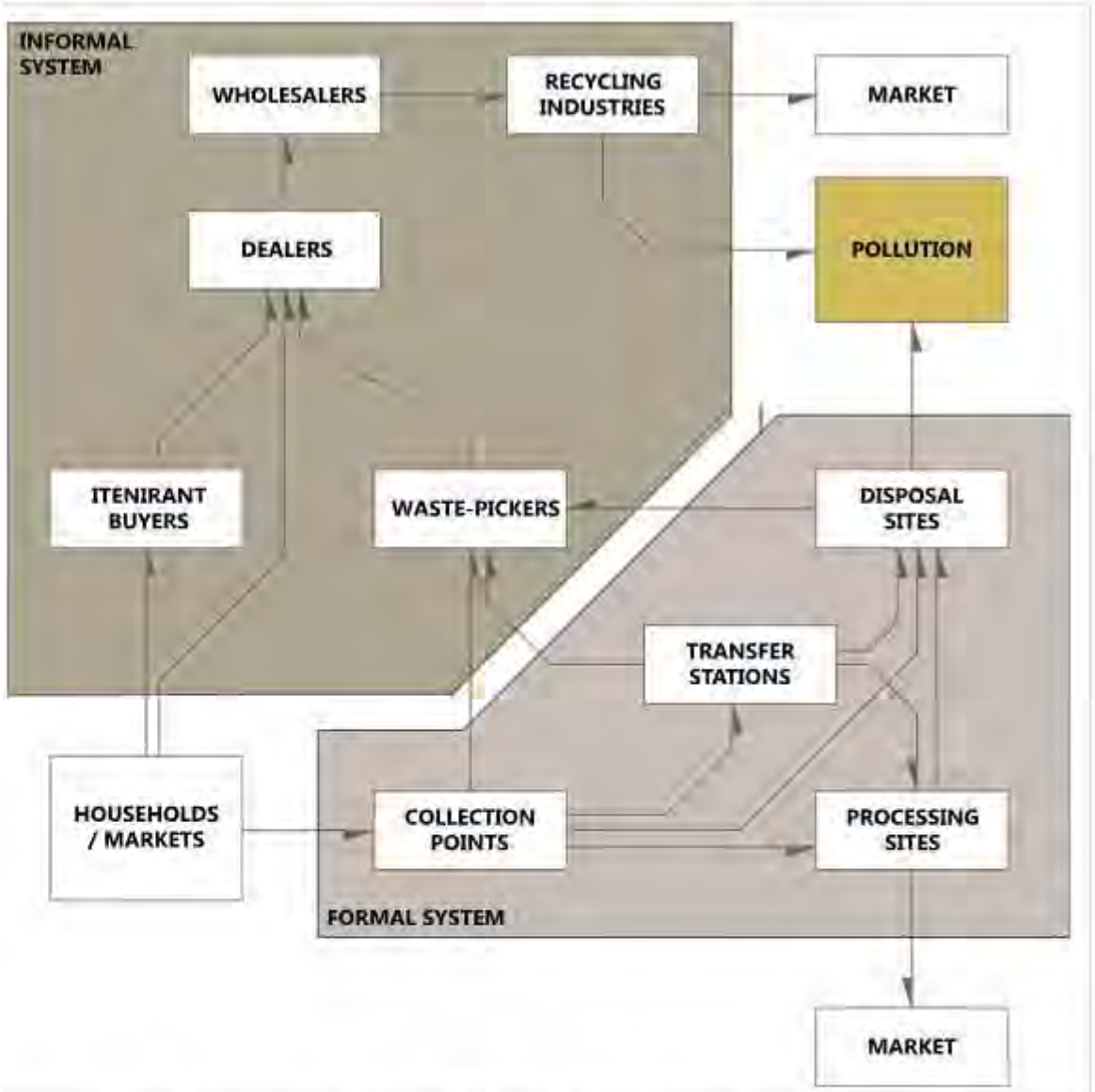


Diagram showing material flow in the solid waste system and relation between the informal and formal parts of the system. Adapted from Sudhir V. G. Srinivasan and V. R. Muraleedharan. 1997. Planning for Sustainable Solid Waste Management in Urban India." System Dynamics Review 13 (3): 223–46.

4) Discrimination, poor and hazardous working conditions and exploitation of people engaged in the sector must be removed, and formalisation of the workforce and the right of worker groups and organisations to determine the minimum standards and levels of work conditions, technology inputs and wages must be ensured.

This Plan recommends providing multiple dry waste sorting sheds near

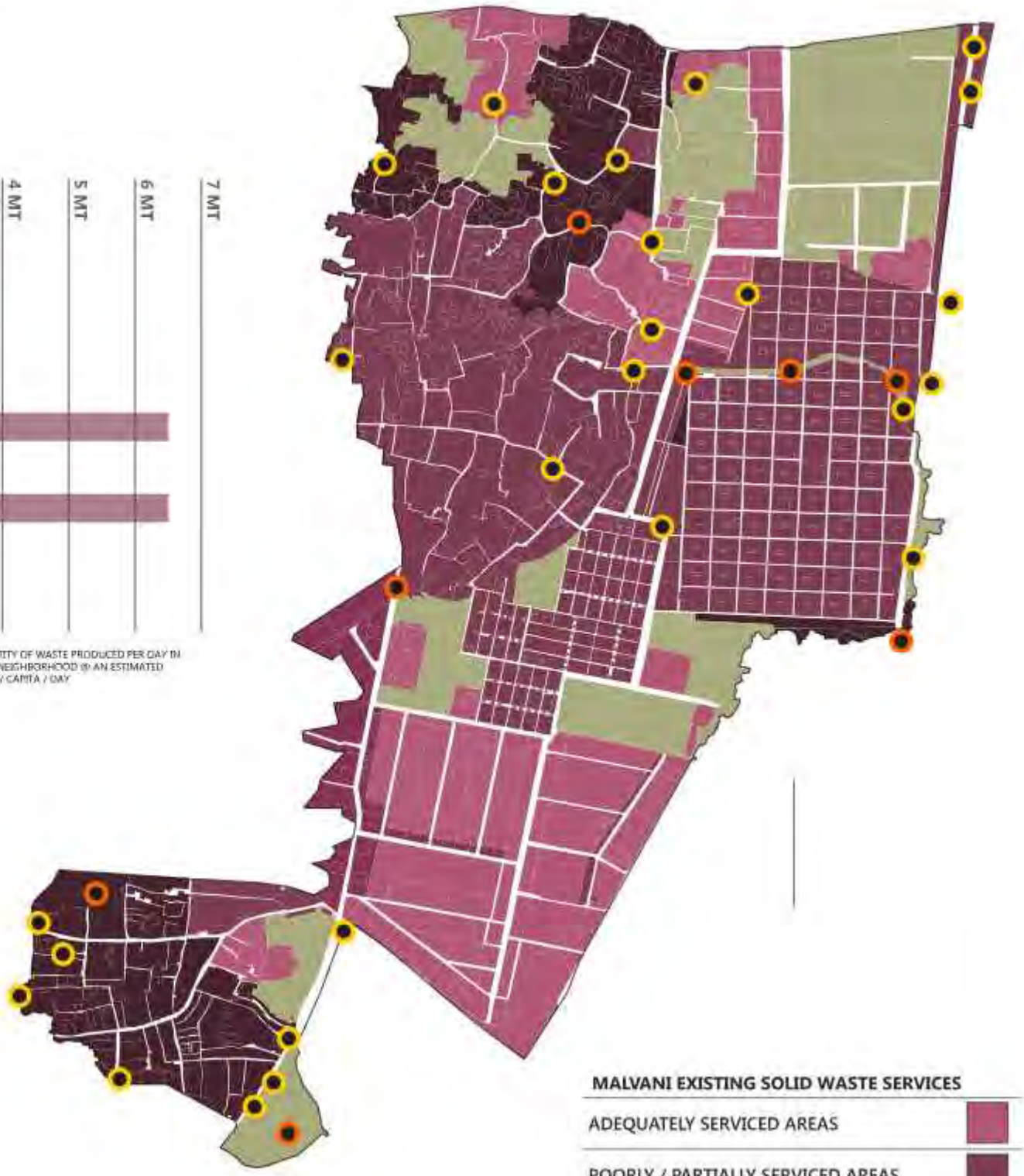
1. Data from MCGM website

2. World Bank. "Urban Development Series – Knowledge Papers," Ch. 3 Waste Generation

WASTE MANAGEMENT SERVICES IN MALVANI

Showing the availability of solid waste disposal service and accumulation areas

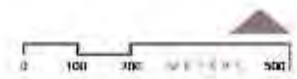
QUANTITY OF WASTE PRODUCED PER DAY IN EACH NEIGHBORHOOD @ AN ESTIMATED 0.5 kg / CAPITA / DAY



WASTE GENERATION AND FACILITIES

AVERAGE WASTE / CAPITA / DAY	**0.6 KG***
MALVANI TOTAL WASTE / DAY	**236 MT**
ORGANIC WASTE (ABOUT 0.55% OF TOTAL)	**142 MT**
APPROX LAND AREA (SQM) THAT CAN CONSUME 4260 MT OF ORGANIC WASTE FOR URBAN FARMING / MONTH **	**7.08 Ha**
APPROX LAND AREA REQUIRED FOR A 3 TON PER DAY COMPOST MAKING AND PACKAGING PLANT***	**810 SQM**
LAND AREA FOR COMPOSTING FACILITIES	**3.8 Ha**
LAND AREA FOR SOLID WASTE SEGREGATION FACILITY (ESTIMATED)	**2000 SQM**

* FOR LOW INCOME PERSONS ACCORDING TO THE WORLD BANK'S 'KNOWLEDGE PAPERS' - URBAN DEVELOPMENT SERIES
** 1 SQM OF LAND REQUIRES PER MONTH ABOUT 60 KG OF ORGANIC WASTE AS COMPOST
*** ROTHENBERGER ET AL. (2006): "DECENTRALIZED COMPOSTING FOR CITIES OF LOW INCOME AND MIDDLE INCOME COUNTRIES – A USER'S MANUAL."



MALVANI EXISTING SOLID WASTE SERVICES

- ADEQUATELY SERVICED AREAS
- POORLY / PARTIALLY SERVICED AREAS
- NO SERVICE
- NOT APPLICABLE / NO DATA
- LARGE DUMPING SITES
- SMALL DUMPING SITES

every neighbourhood in the district of Malvani. A total of 11 seggregation sheds (1.44 Ha) have been provided, out of which 2 could also be converted into transfer stations or compacting plants. Similarly 26 smaller units for producing compost from wet waste have been provided, that will process the estimated 142 MT of wet waste that is produced in the area everyday. The Plan further proposes that the compost that is produced in these processing units could be used in the 4.94 Ha of land for urban farms, that can be used for food production, providing employment to many (an estimated 1976 persons @ 25 sqm/person). According to one estimate,[3] 2.74 Kg of spinach can be grown in 1 sqm of land. Even if 50% of the alloted land is utilized, more than 65 MT of the vegetable can be produced per cycle. For facilitating collection of waste collection, 18 collection points have been provided in areas that are presently prone to dumping.

3. KRVIA + IN:CH, "Ecologies of Waste in Mumbai," report of findings from the studio conducted at the KRVIA, March 2014

Waste collection and dry waste segregation facilities
Images
www.cell.com
wikimedia commons
wikimedia commons

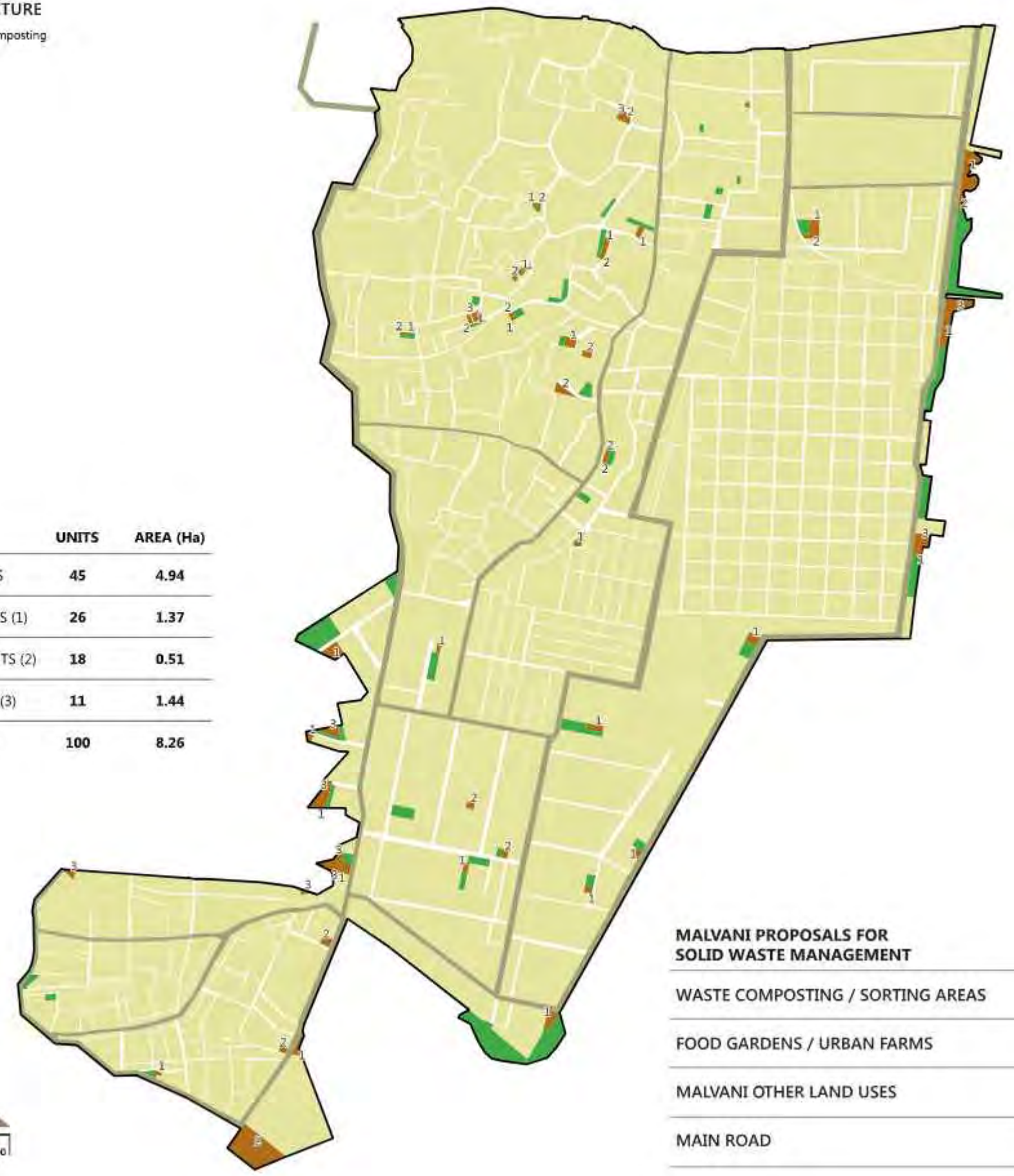
Wet waste composting facilities
Images
www.gardeningguild.org
http://mbdbuildings.com
www.bangalore.citizenmatters.in

Urban agriculture / urban farms
Images
wikimedia commons
http://mathewpike.files.wordpress.com
https://3.bp.blogspot.com

MALVANI PROPOSED WASTE MANAGEMENT INFRASTRUCTURE

Showing the waste processing, sorting, composting and areas for food gardens / urban farms

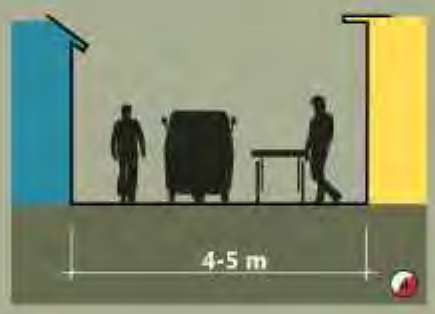
TYPE OF AREA	UNITS	AREA (Ha)
FOOD GARDENS / URBAN FARMS	45	4.94
WET WASTE COMPOSTING AREAS (1)	26	1.37
SOLID WASTE COLLECTION POINTS (2)	18	0.51
DRY WASTE SORTING FACILITIES (3)	11	1.44
TOTAL WASTE MANAGEMENT	100	8.26



TRANSIT

MAIN STREETS

CONNECTOR STREETS



LANES / PATHWAYS

MALVANI EXISTING STREET TYPES

Showing the type of streets and hierarchy

VEHICLE TYPE

- MOVING VEHICLE
- PARKED VEHICLE

USE OF BUILDING ON STREET

- RESIDENTIAL USE
- COMMERCIAL USE
- SOCIO-CULTURAL USE

ROAD HIERARCHY (EXISTING)

- MAIN STREET
- CONNECTOR STREETS
- LANES / PATHWAYS

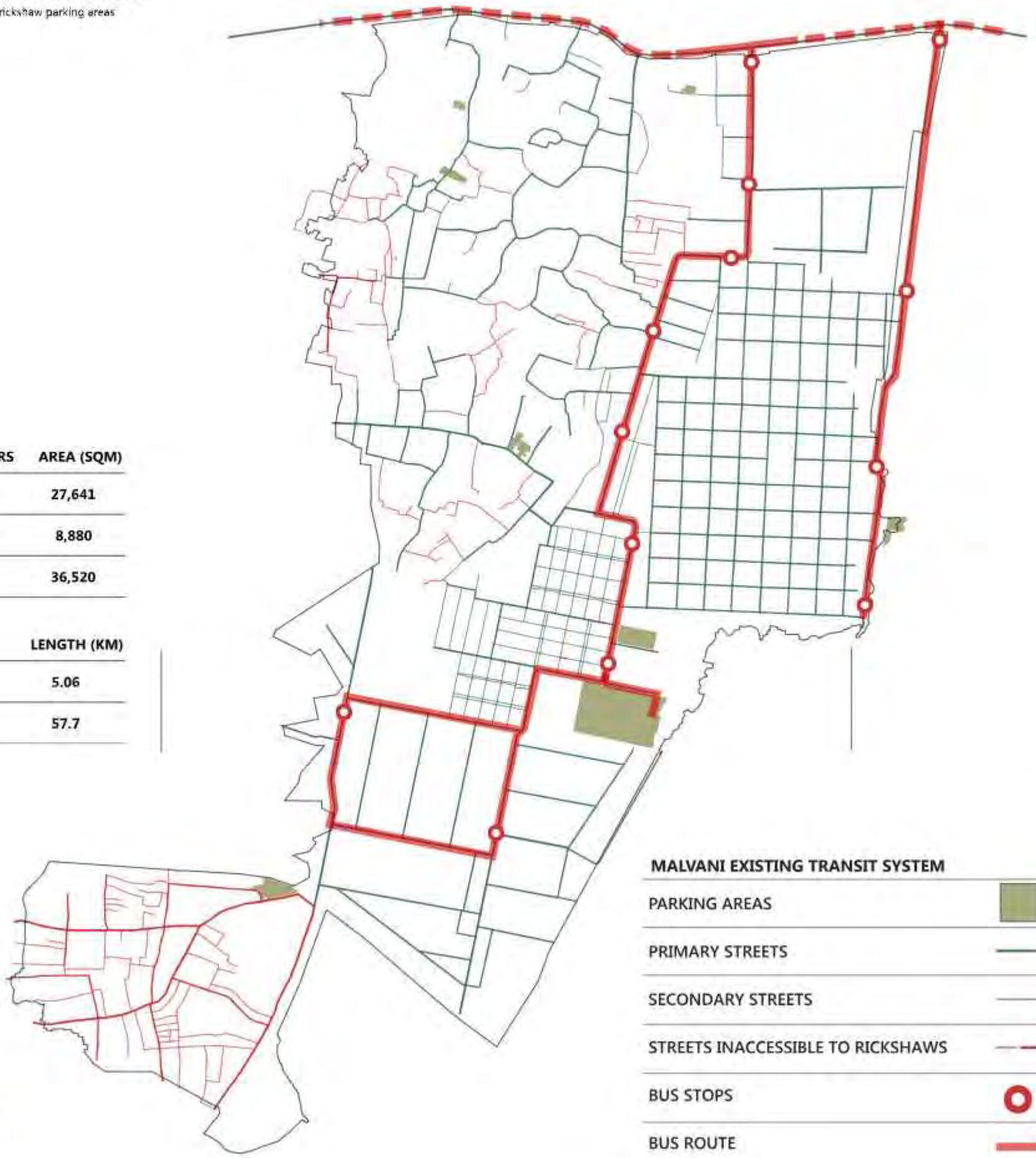
ROADS IN GOOD CONDITION	2 3 6
POOR OR NO ROADS	2 3 6

MALVANI EXISTING TRANSPORT INFRASTRUCTURE

Showing the bus route, bus stops, bus, taxi and rickshaw parking areas

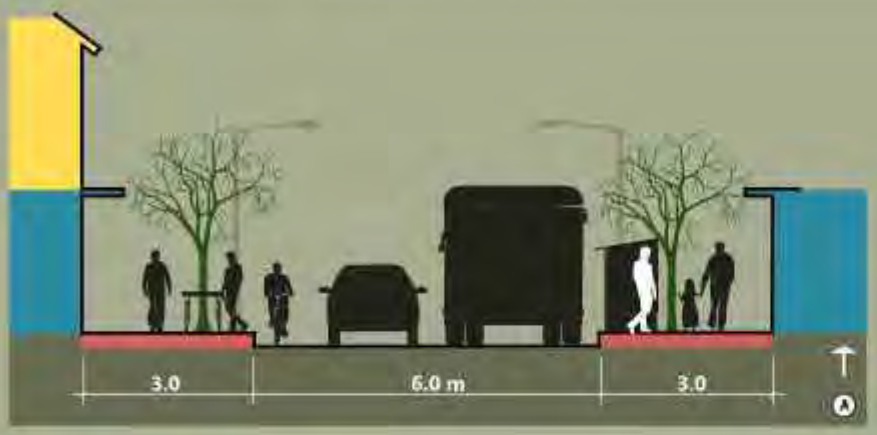
TYPE OF AREA	NUMBERS	AREA (SQM)
BUS PARKING AREAS	02	27,641
TAXI / AUTO PARKING	07	8,880
TOTAL PARKING AREAS	**09**	**36,520**

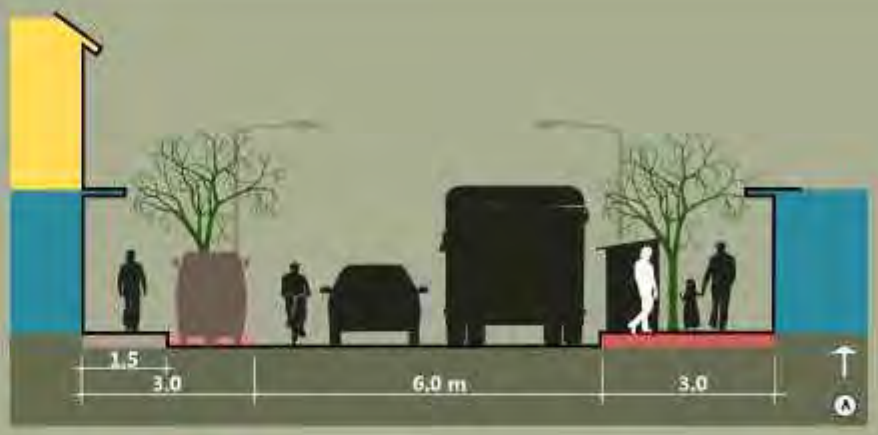
STREET TYPE	LENGTH (KM)
BUS ROUTE	5.06
TOTAL STREET LENGTH (MALVANI)	57.7

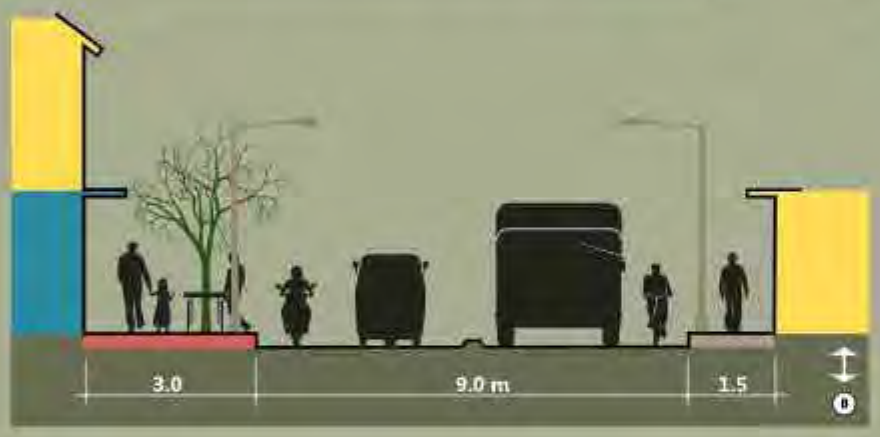


MALVANI PROPOSED STREET TYPES AND GUIDELINES

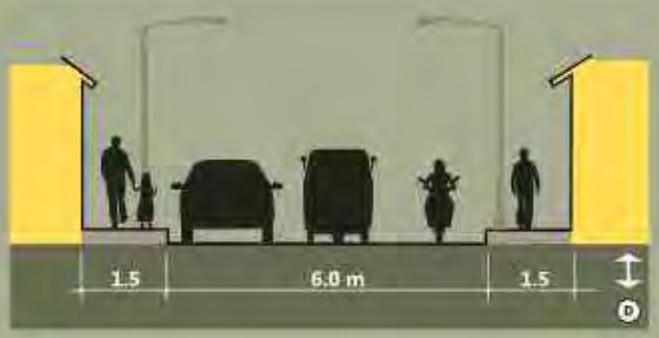
MAIN STREETS



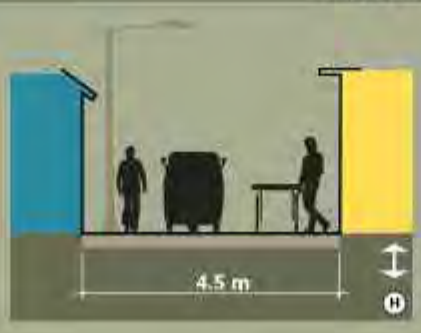


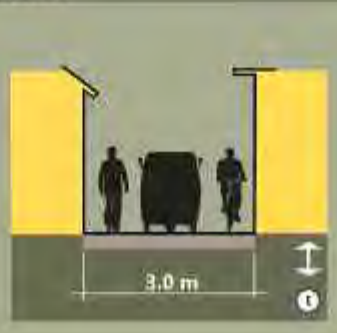


CONNECTOR STREETS



LANES / PATHWAYS





USE OF BUILDING ON STREET

- RESIDENTIAL USE
- COMMERCIAL USE
- SOCIO-CULTURAL USE
- TRANSIT AREAS
- OPEN SPACES
- MOVING VEHICLES
- PARKED VEHICLES

MALVANI PROPOSED TRANSIT INFRASTRUCTURE

Showing the proposed street and pedestrian network

0 100 200 METERS 500

MALVANI TRANSIT MAP

- LIVELIHOOD INFRA
- PUBLIC TOILETS
- TAXI / AUTO / BUS PARKING
- STREET NETWORK
- PEDESTRIAN NETWORK

Streets are crucial socio-cultural institutions of our cities. Recent trends have sought to "discipline" streets and control its use in the interests of middle class commuters, most often private car owners. These have often masquraded as benign beautification or street widening measures. In Malvani, our focus is to protect and facilitiate informal street vending, along with the improvment of pedestrian and bicycle infrastructure that promotes commercial activity. Public transport will also be augumented, making walking to a bus stop within 5 minutes walk from every home possible. In addition, capacity of taxi and auto stands will be improved, and infrastructure for drivers such as resting rooms and toilets will be provided.

There will also be a pedestrian circulation system that will be made possible due to a porus urban public realm (see the PLU section) that will make the entire district extremely walkable and accessible. Infrastructure for street vending will be made on almost every major street, and supporting facilities such as storage areas, toilets and changing room for both men and women will be provided at many locations. Introduction of some major roads, and traffic management measures have been proposed.

MALVANI PROPOSED STREET TYPES

Sr. No.			Main Street						Connector Street						Lane / Pathways			
			A		B		C		D		E		F		G	H	I	J
			L	R	L	R	L	R	L	R	L	R	L	R				
1	Application	Movement Type	Moderate		Fast		Moderate		Fast		Moderate		Moderate		Slow	Slow	Slow	Slow
2		Direction	One way		Two way		Two way		Two way		Two way		Two way		Two way	Two way	Two way	Two way
3		Bus Route	Yes		No		Yes		No		Yes		No		No	No	No	No
4	Functions	Formal Market	Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5		Informal Market	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	Yes	No	Yes	Yes	No	No
6		Weekly Market	Yes	Yes	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No
7		Street Parking	No	No	No	Yes	Yes	Yes	No	No	No	No	Yes	No	No	No	No	No
8	Vehicles	Heavy Vehicles	Yes		Yes		Yes		No		Yes		No		No	No	No	No
9		Four Wheelers	Yes		Yes		Yes		Yes		Yes		Yes		Yes	No	No	No
10		Three Wheelers	Yes		Yes		Yes		Yes		Yes		Yes		Yes	Yes	Yes	No
11		Two Wheelers	Yes		Yes		Yes		Yes		Yes		Yes		Yes	Yes	Yes	Yes
12		Bicycles	Yes		Yes		Yes		Yes		Yes		Yes		Yes	Yes	Yes	Yes
13		Pedestrians	Yes		Yes		Yes		Yes		Yes		Yes		Yes	Yes	Yes	Yes
14		Mobile Hawkers	Yes		Yes		Yes		Yes		Yes		Yes		Yes	Yes	Yes	No
15	Lanes	Right of Way	6.00		9.00		9.00		6.00		6.50		4.50		6.00	4.50	3.00	1.50
16		Bicycle Parking	Yes	Yes	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No
17		Taxi / Auto Parking	Yes	Yes	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No
18		Private Car Parking	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No
19		Informal Vending	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	Yes	No	Yes	Yes	No	No
20		Walkways	3.00	3.00	3.00	1.50	3.00	1.50	1.50	1.50	2.00	1.50	2.00	1.50				
21		Dividers			Yes													
22	Landscape Features	Trees	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No	No	No	No
23		Planters	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
24		Street Lighting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25		Benches	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No	No	No	No
26																		

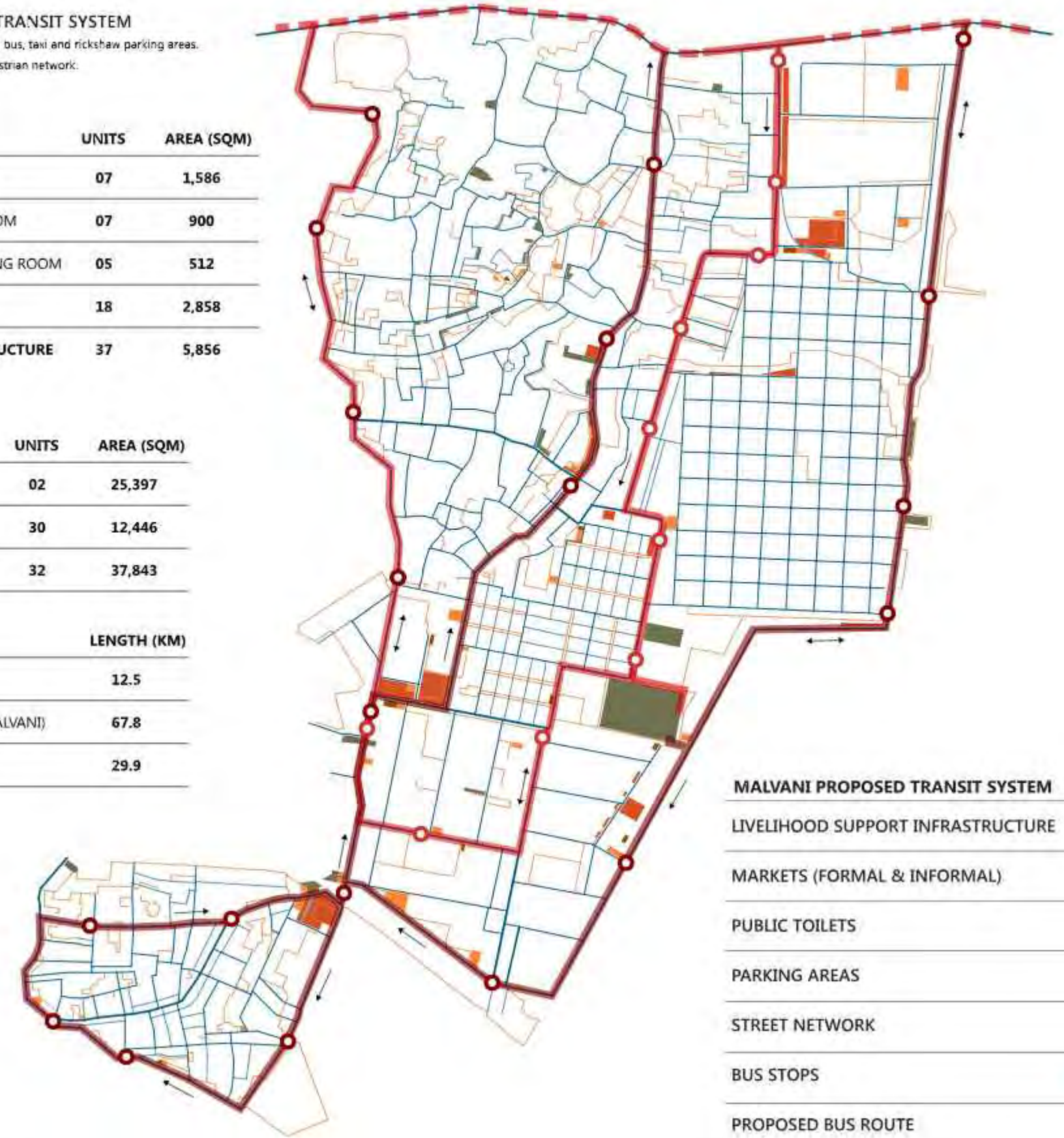
MALVANI PROPOSED TRANSIT SYSTEM

Showing the bus route, bus stops, bus, taxi and rickshaw parking areas.
Also shows markets and the pedestrian network.

TYPE OF AREA	UNITS	AREA (SQM)
STORAGE FOR HAWKERS	07	1,586
WOMEN'S CHANGING ROOM	07	900
NAKA WORKERS' CHANGING ROOM	05	512
PUBLIC TOILETS	18	2,858
TOTAL SOCIAL INFRASTRUCTURE	**37**	**5,856**

TYPE OF AREA	UNITS	AREA (SQM)
BUS PARKING AREAS	02	25,397
TAXI / AUTO PARKING	30	12,446
TOTAL PARKING AREAS	**32**	**37,843**

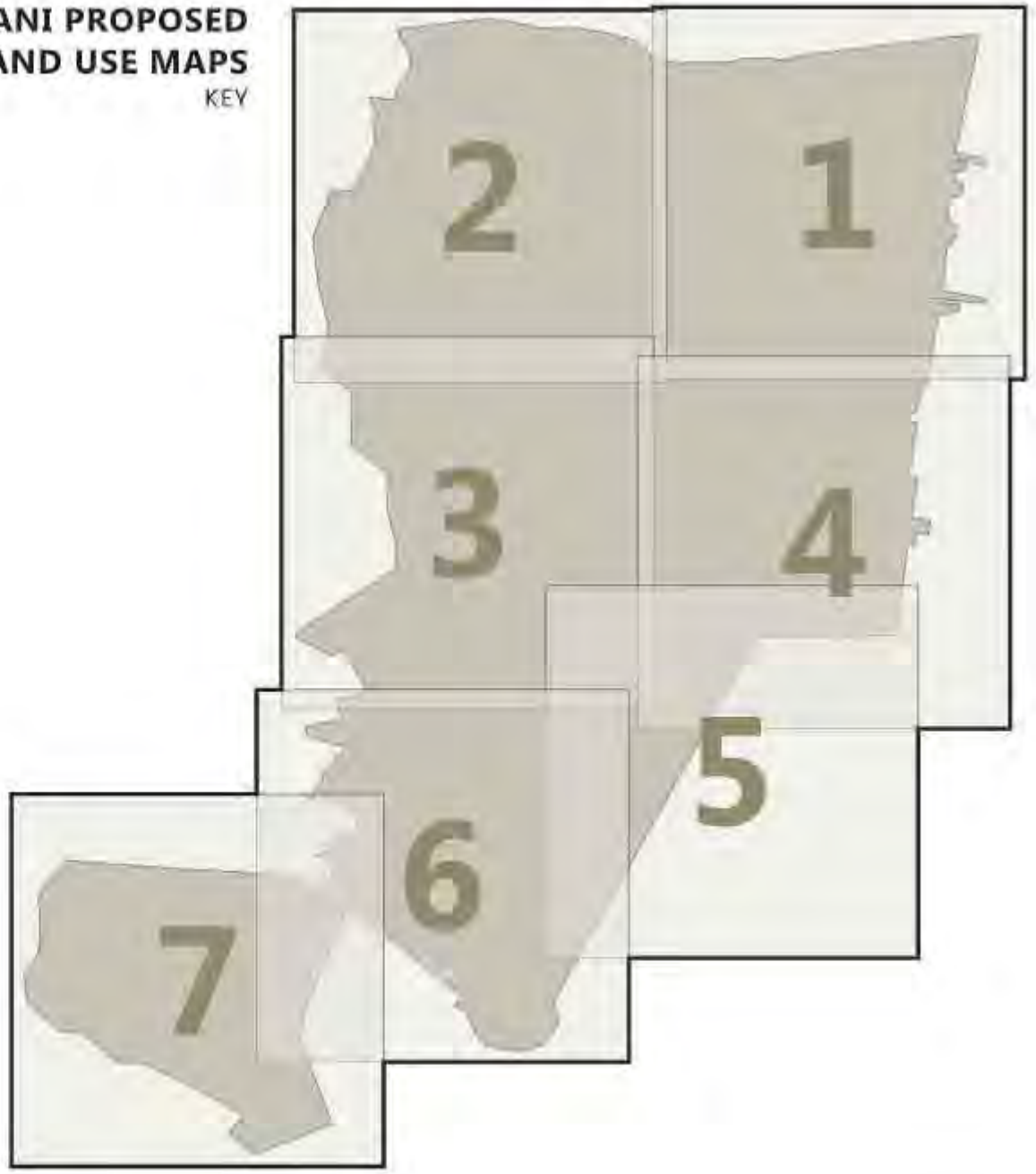
STREET TYPE	LENGTH (KM)
BUS ROUTE	12.5
TOTAL STREET LENGTH (MALVANI)	67.8
PEDESTRIAN NETWORK	29.9



MALVANI PROPOSED LAND USE MAPS

KEY

CODE	DESCRIPTION
APT_R	APARTMENTS : RESIDENTIAL ONLY
APT_R+C	APARTMENTS: + COMMERCIAL
APT_LW	APARTMENTS : LIVE + WORK TYPE
APT_MU	APARTMENTS: MIXED USE TYPE
BUS	BUS DEPOT
COLL	COLLEGE
CUL	CULTURAL FACILITY
DISP	DISPENSARY
ENT	ENTERTAINMENT FACILITY
FILM	FILM STUDIO
GAO_R	GAOTHAN HOUSES
HOSP	HOSPITAL
HOTEL	HOTEL
INDV	RESIDENTIAL : BUNGLOW
L&O	POLICE STATION / CHOWKY
MAR	MARKET
MAT	MATERNITY HOME
OFF	OFFICES
OTH	OTHER SOCIO-CULTURAL FACILITIES
PAR	PARKING
PHC	PRIMARY HEALTH CENTRE
PRE	PRE-PRIMARY SCHOOL
PRIM	PRIMARY SCHOOL
RELI	RELIGIOUS FACILITY
RET	RETAIL
ROW	RESIDENTIAL : ROW HOUSE TYPE
ROW_MU	RESIDENTIAL : MIXED USE ROW HOUSES
SCL	SCHOOL
SCL_INT	INTEGRATED SCHOOL
SEW	SEWAGE TREATEMENT PLANT
SI_SE	RESIDENTIAL : SITE AND SERVICE TYPE
STO	STORAGE
SW	SOLID WASTE MANAGEMENT FACILITY
TOIL	PUBLIC TOILET
UHC	URBAN HEALTH CENTRE
VCC	VACCINATION CENTRE
WB	WATER BODY
WELF	WELFARE CENTRE



CODE	LEGEND (LAND USE)
	RESIDENTIAL
	PUBLIC HOUSING
	COMMERCIAL AREA
	INDUSTRIAL
	HEALTH
	EDUCATIONAL
	SOCIO-CULTURAL
	RECREATIONAL
	TRANSIT INFRASTRUCTURE
	UTILITIES
	STREET NETWORK
	PRIMARY ACT.
	NATURAL AREAS
	VACANT LANDS
	WATER BODY
	URBAN VILLAGE BUFFER
	URBAN VILLAGE CORE
	SITE BOUNDARY

CODE	LEGEND (PUBLIC REALM)
	STREET NETWORK
	PEDESTRIAN NETWORK
	SHOPLINE
	OPEN SPACES
	WATER BODIES
	URBAN VILLAGE
	SITE BOUNDARY

A

LAND USE

B

CIRCULATION NETWORK & PUBLIC REALM

0 50 100 200 METERS 500

PLATE 1A

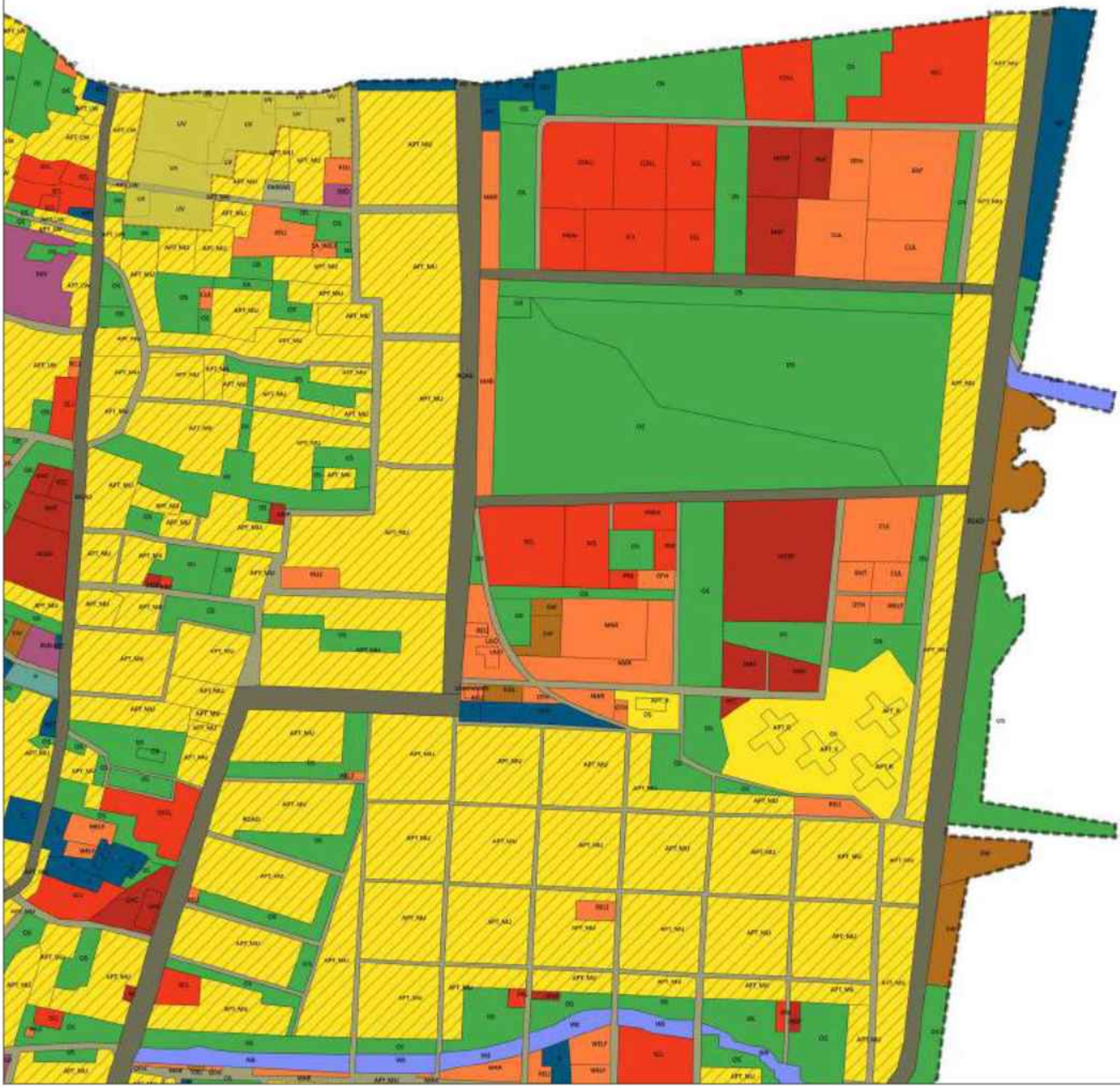


PLATE 1B

PLATE 2A

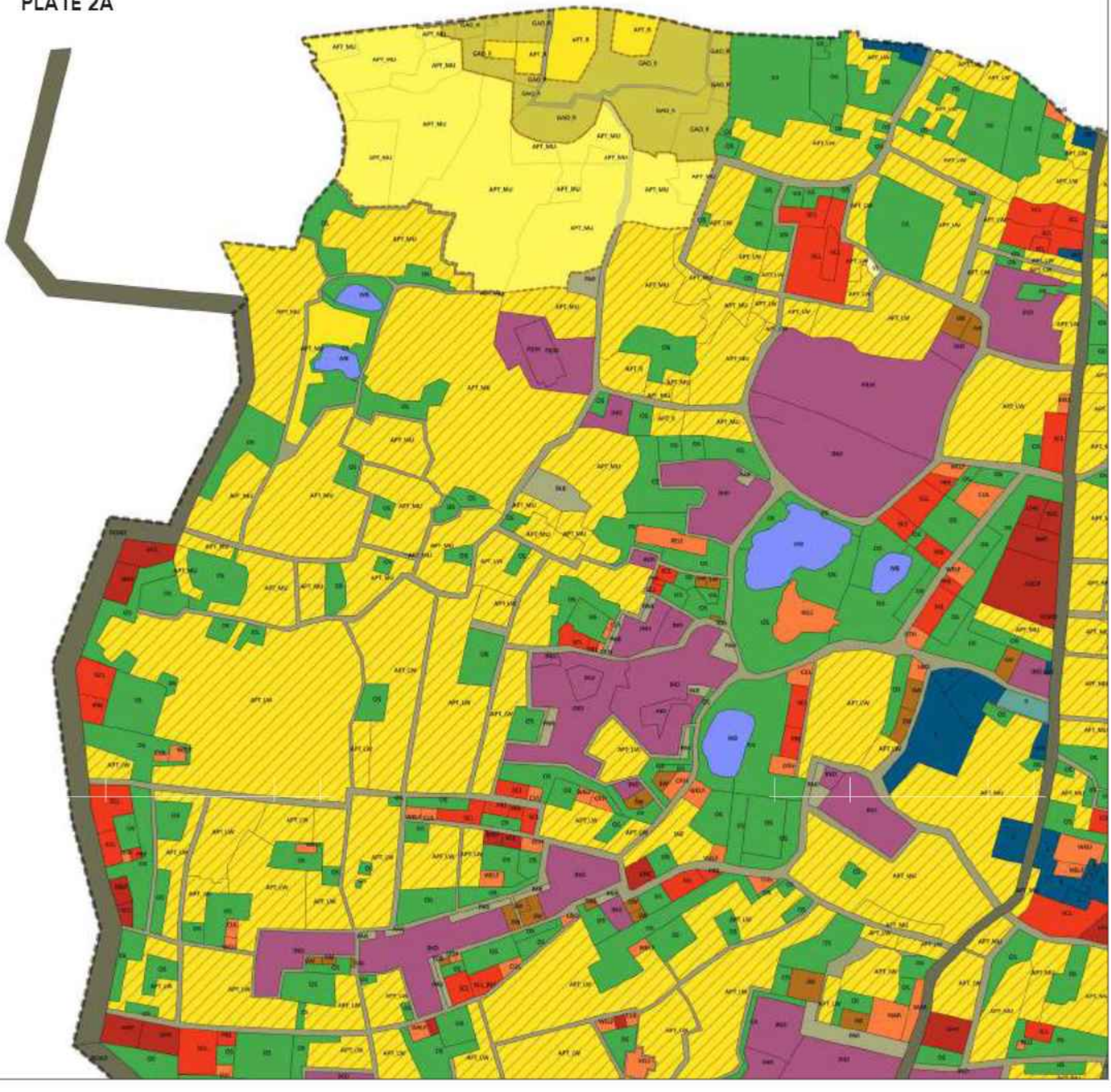


PLATE 2B

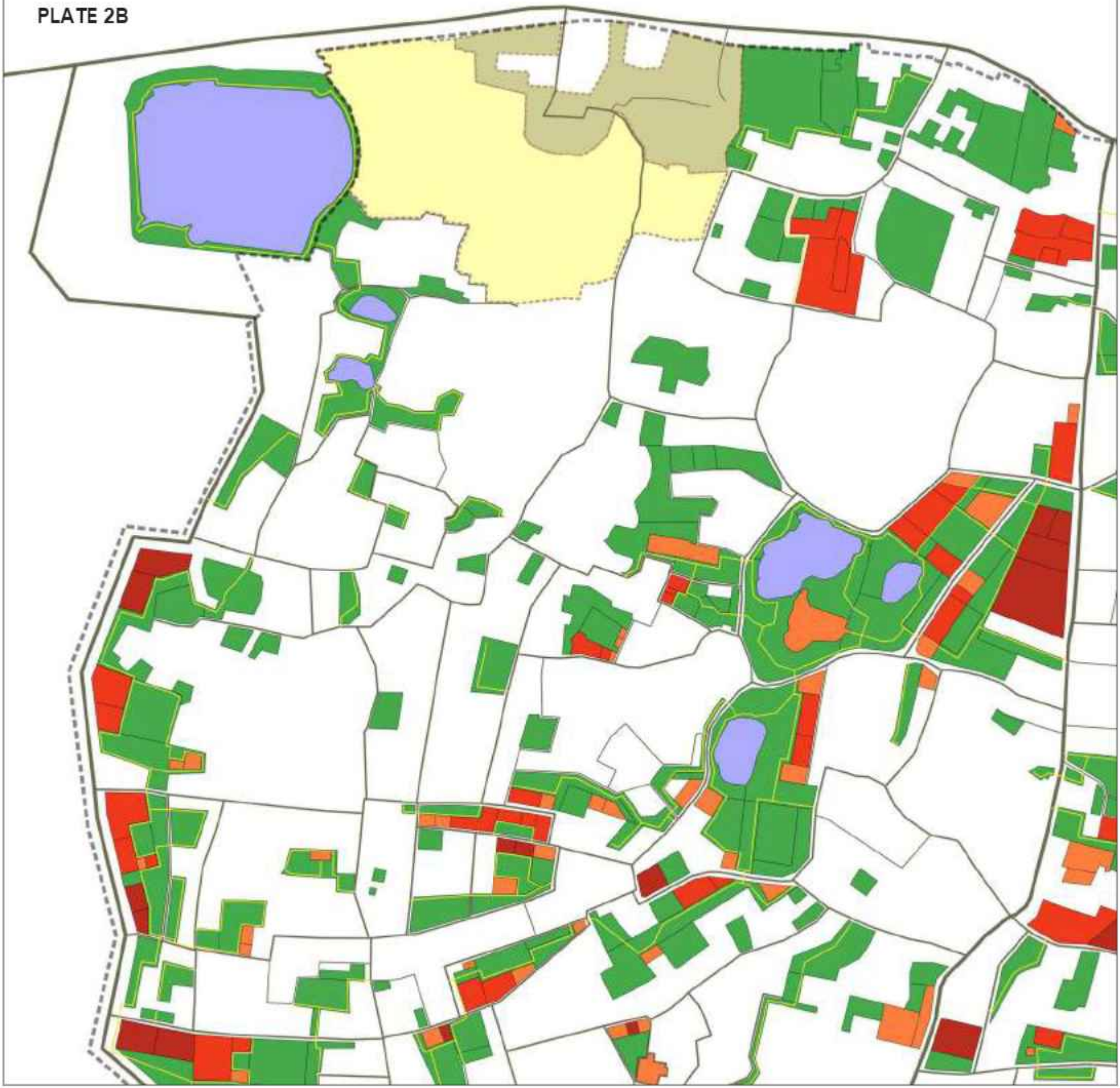


PLATE 3A

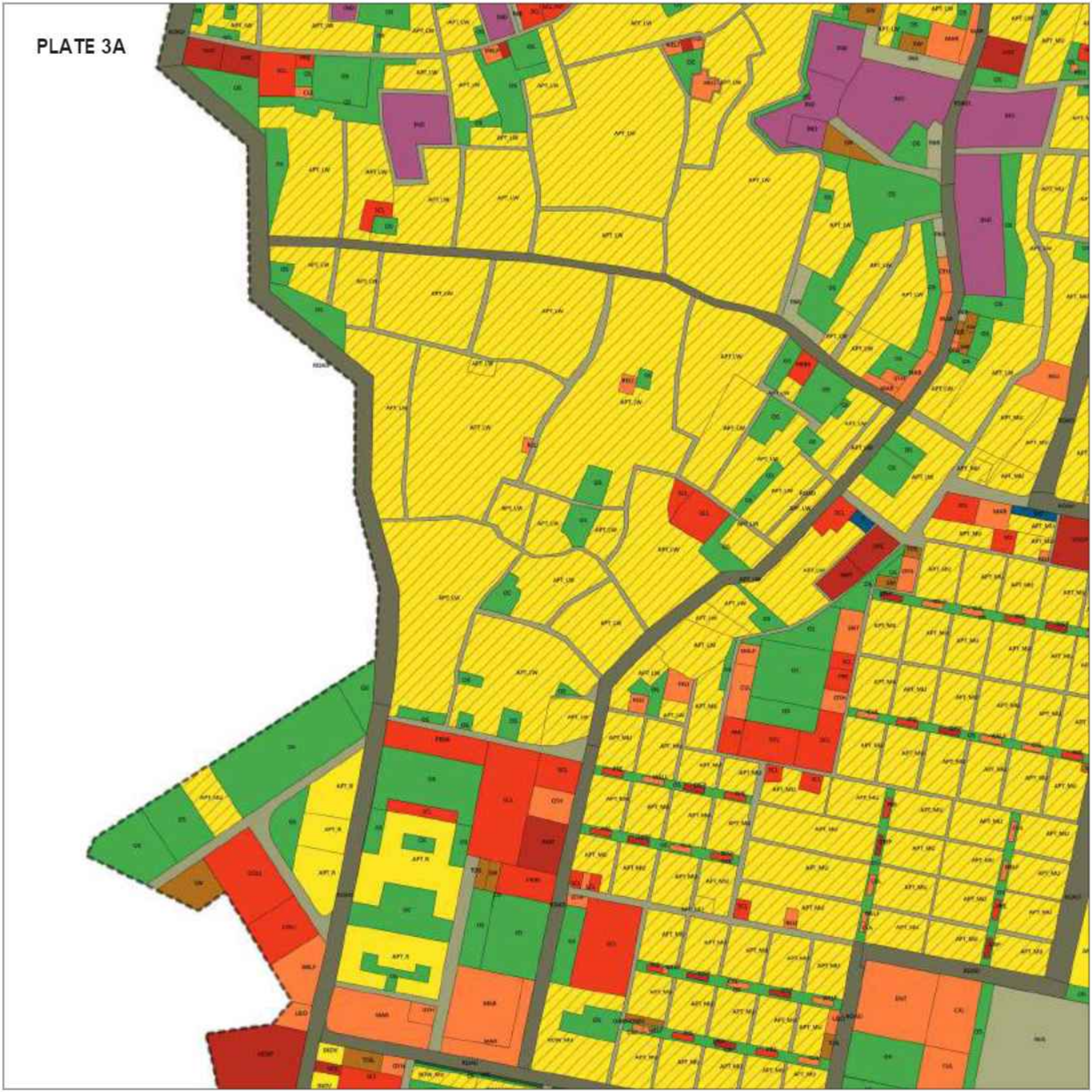


PLATE 3B

PLATE 4A

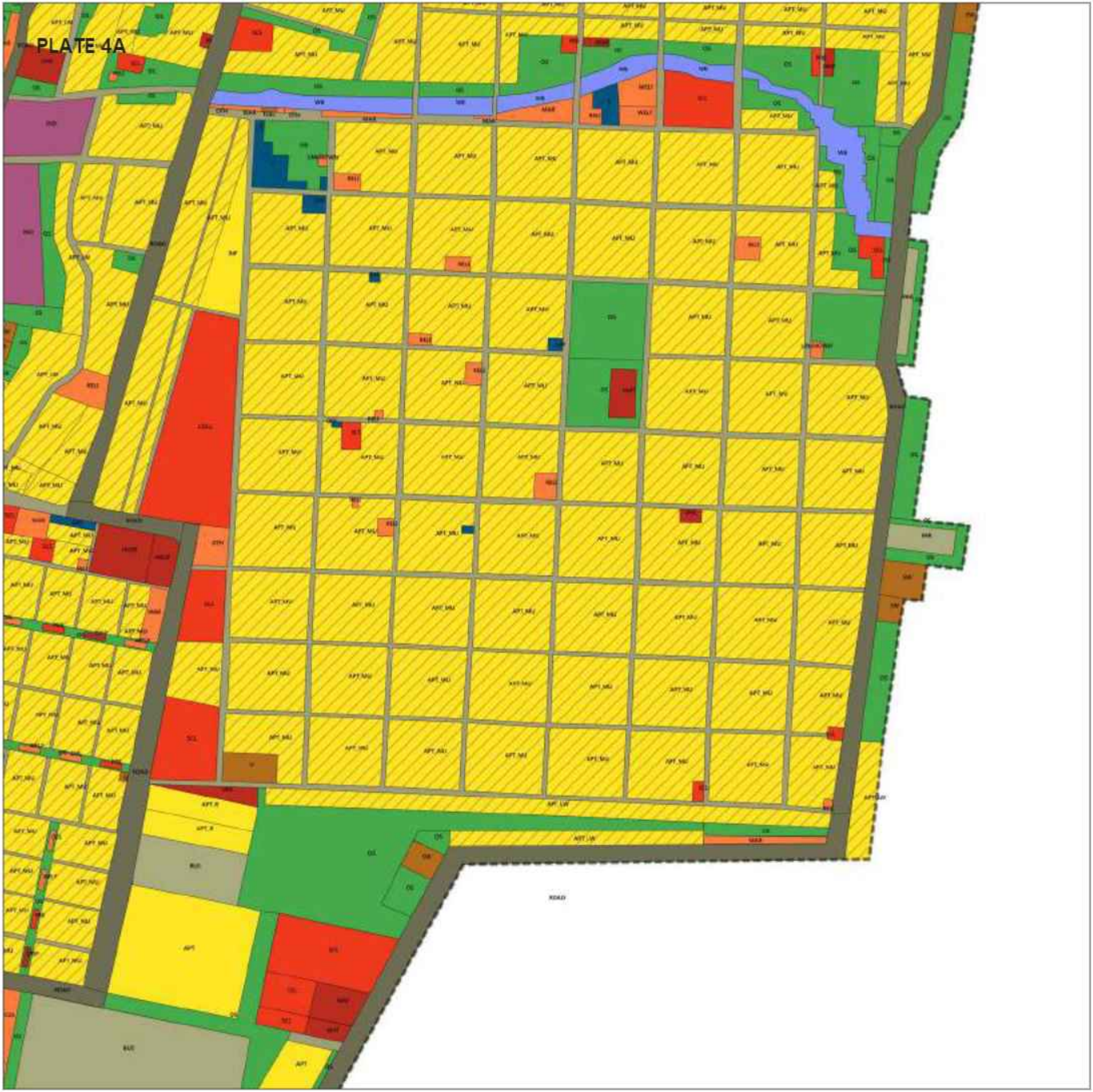


PLATE 4B

PLATE 5A

PLATE 5B

PLATE 6A

PLATE 6B

PLATE 7A

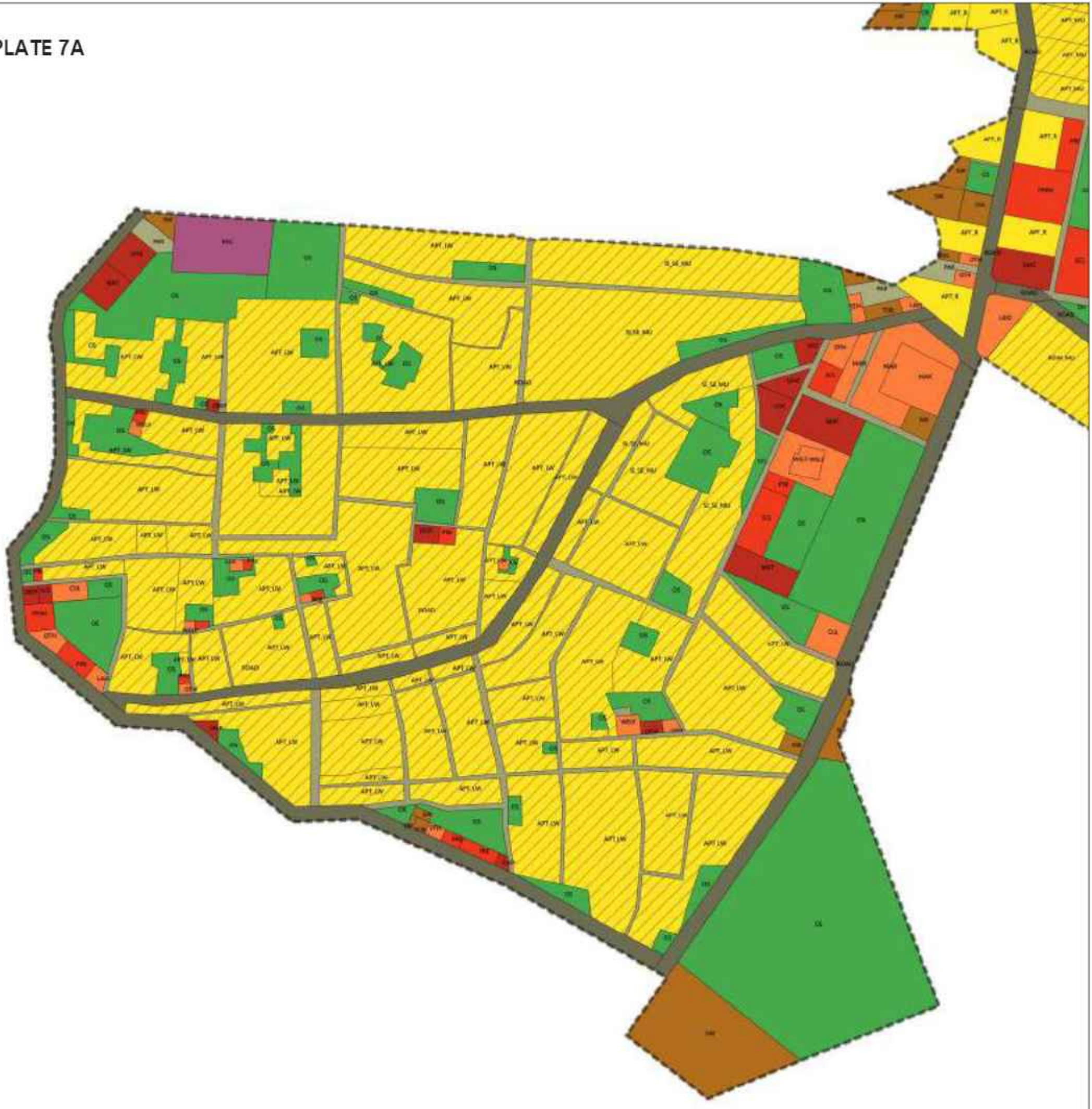
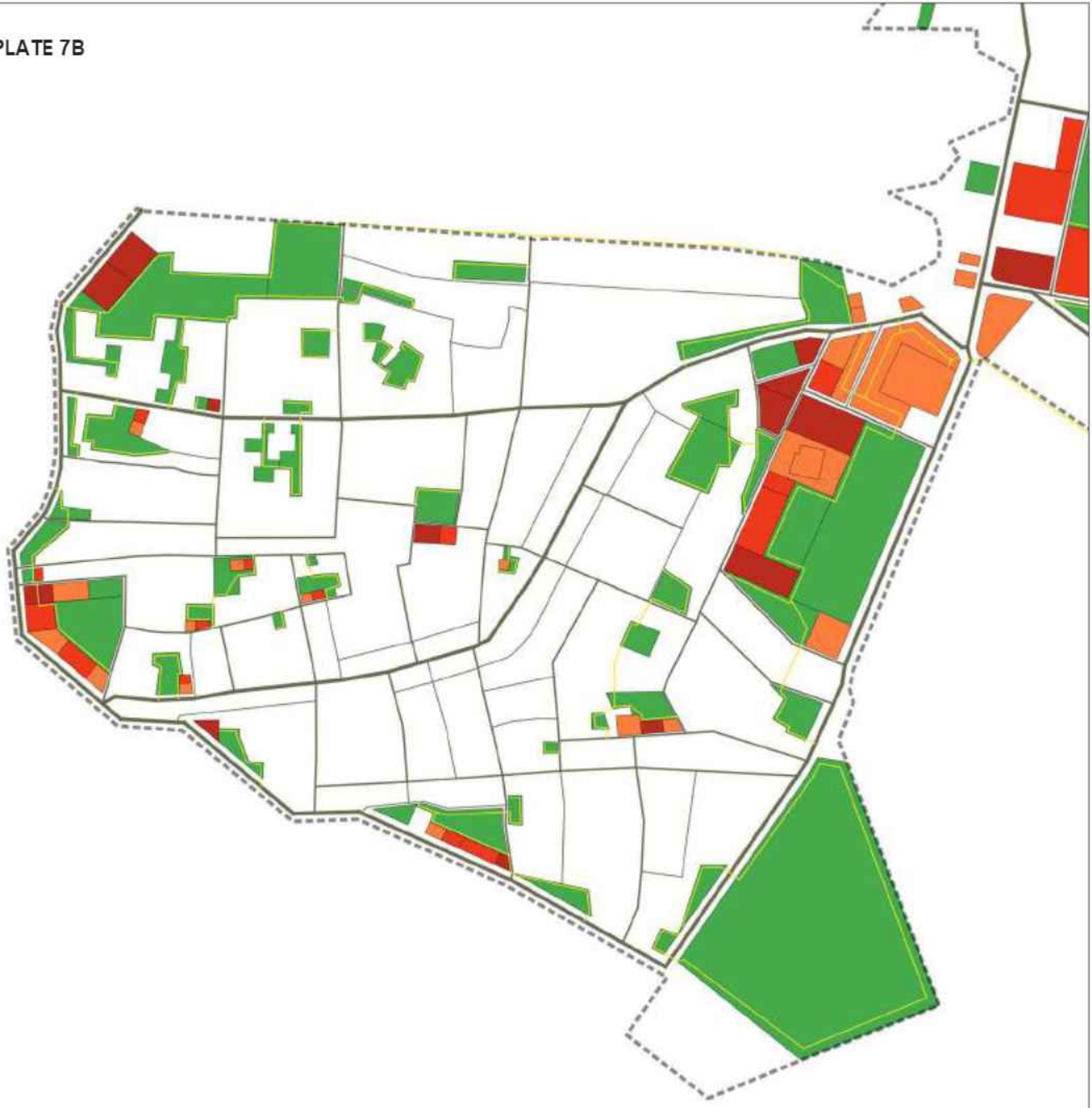
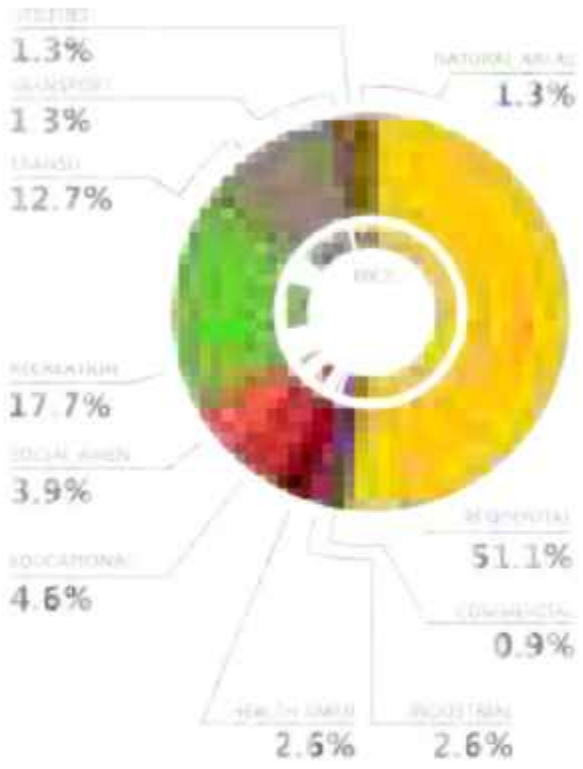
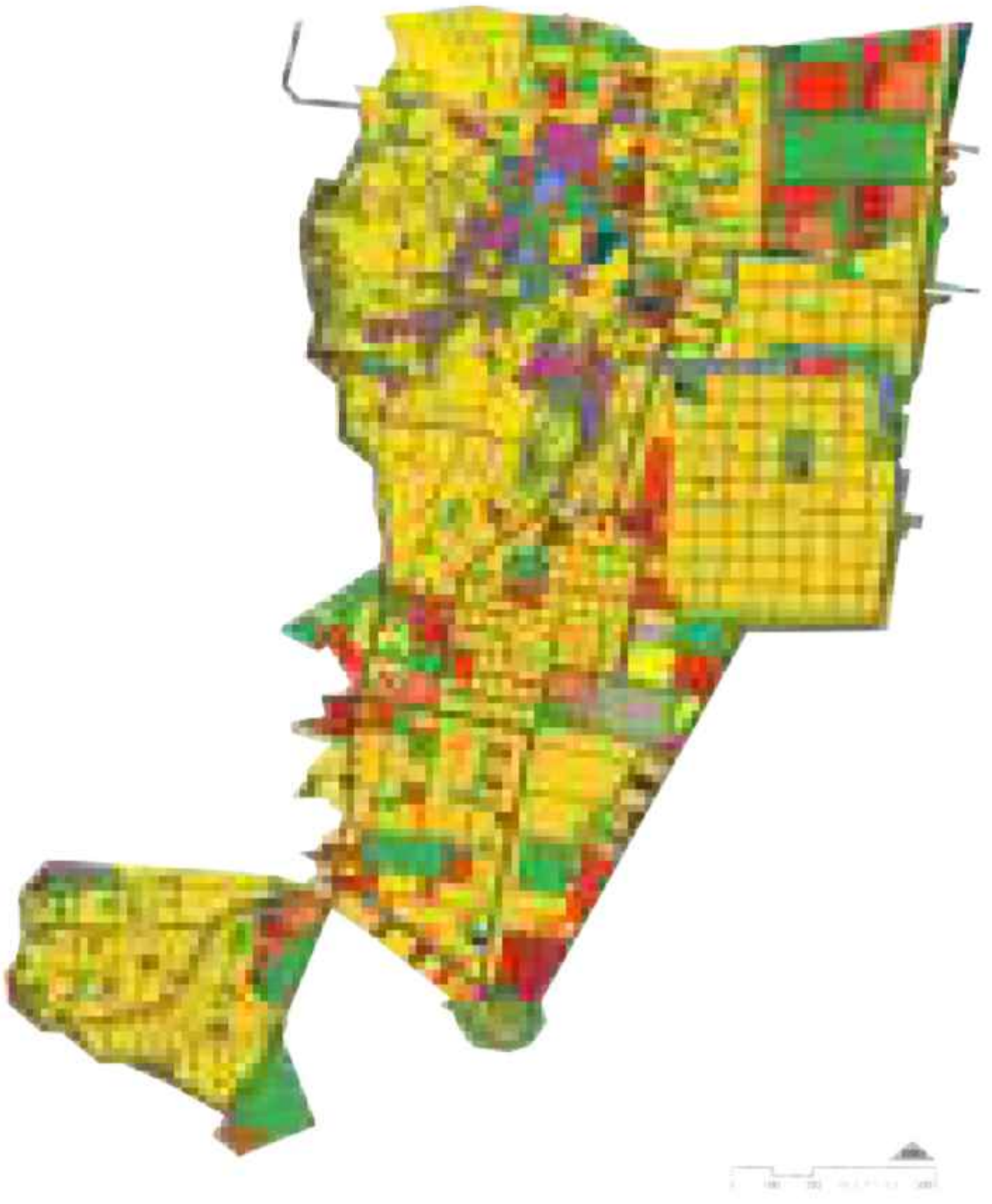


PLATE 7B

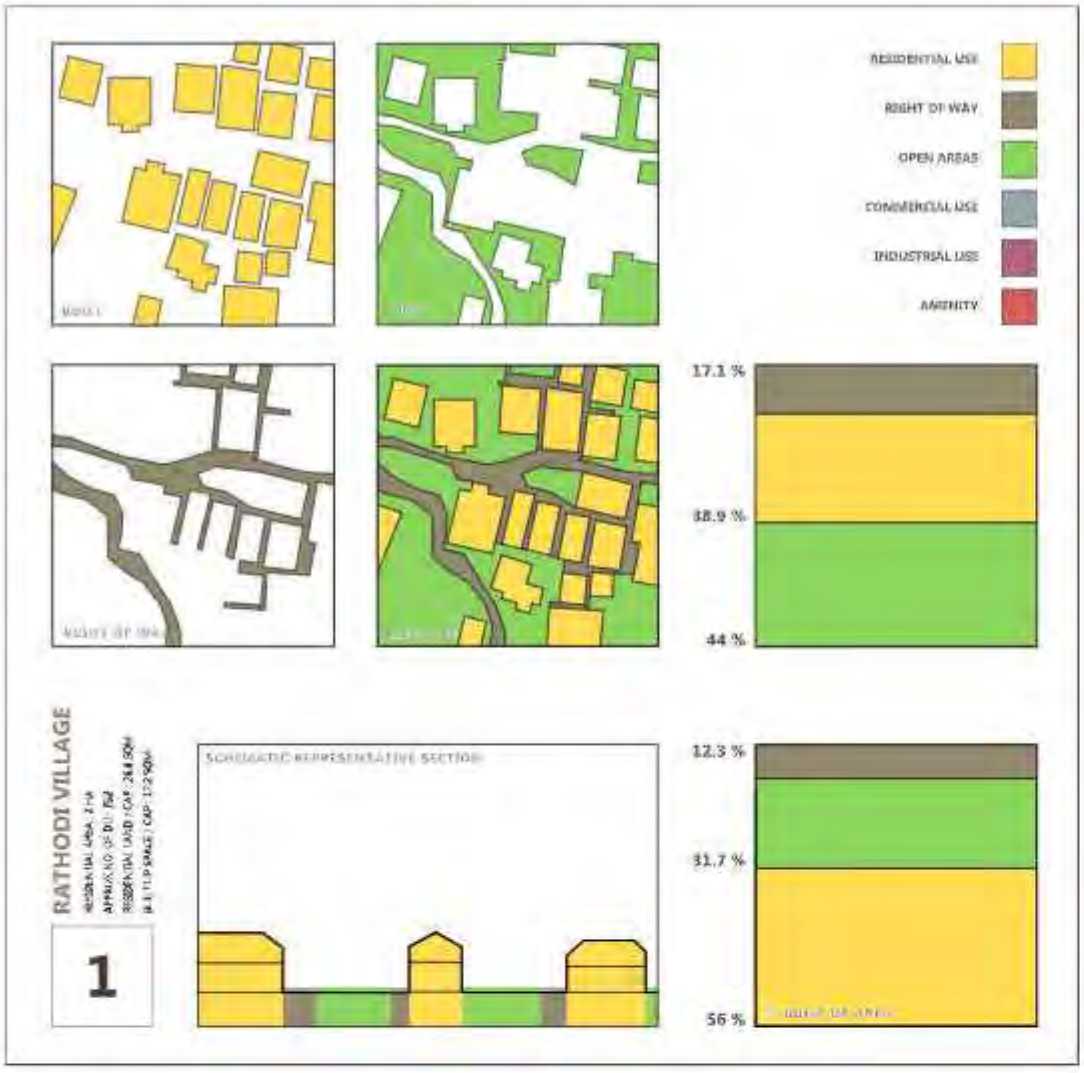




LAND USE	AREA PLU(Ha)	AREA PLU(Ha)	% OF AREA	CODE
RESIDENTIAL	148.48	149.62	51.1	
COMMERCIAL	2.31	2.52	0.9	
INDUSTRIAL	7.64	7.69	2.6	
HEALTH	0.28	7.47	2.6	
EDUCATION	5.18	13.4	4.6	
SOCIAL	2.45	11.5	3.9	
RECREATION	14.16	51.9	17.7	
TRANSIT	26.76	37.17	12.7	
UTILITIES	0.72	3.92	1.34	
TRANSPORT	1.14	3.78	1.3	
PRIMARY ACT	2.28			
NATURAL	3.53	3.65	1.3	
VACANT	55.29	0		
VILLAGES		9.02		
TOTAL	281.5	292.9	100.0	



URBAN FORM
AND
THE PUBLIC REALM



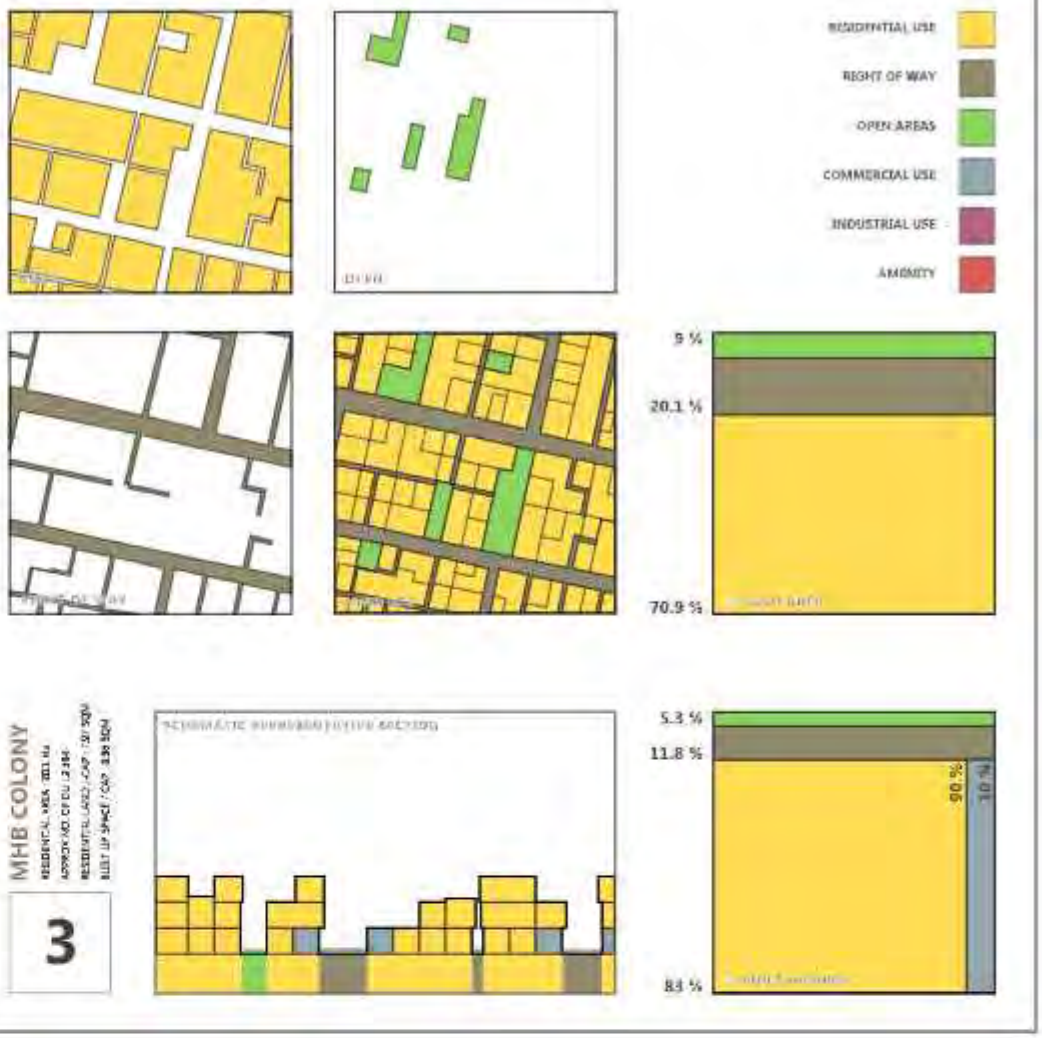
The swatches in the two boxes show an area of 75 m by 75 m in different neighbourhoods in the area of Malvani. The swatch in the middle shows land use, and the first three swatches isolate the built, unbuilt and circulation areas to understand the nature of the private and public realms, and their proportions. The swatches below show a representative section that indicates the use of built up space - and proportion of built, open and circualtion areas. The box on the left shows the urban village of rathodi, with its clustered dwellings around what forms a central court. The narrow sides of the dwellings face the court, and all houses have their entrances opening them up to it. Due to the sparse fabric, open areas are greater in proportion to the built, but when the areas are compared after considering built up spces, 56% of space is used for private residential purposes. The open spaces are still quite high at 31%.

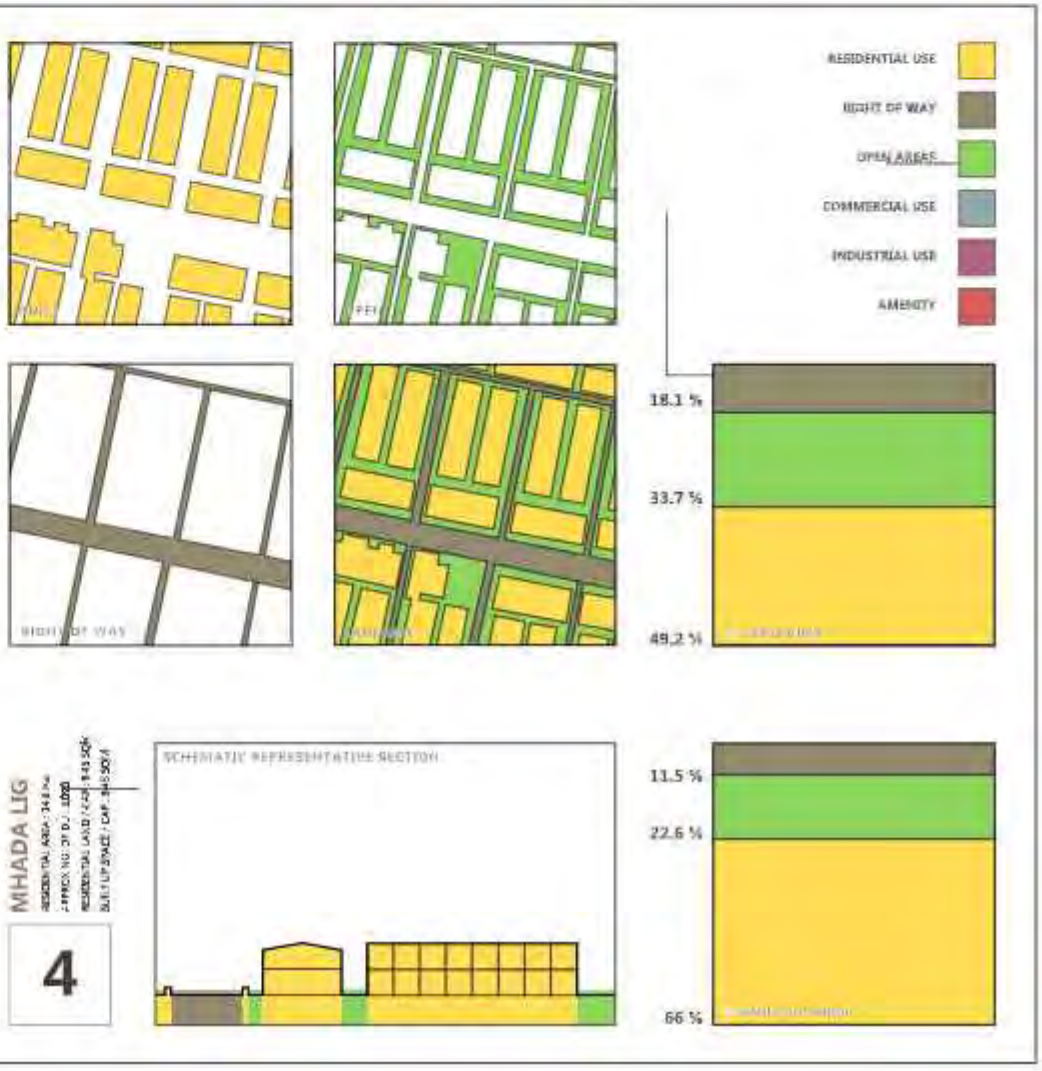
BMC Colony, shown below is predominantly residential, with very little comercial or industrial funtions. As a site and services layout, it has strips of residences, and a perpendicular strip of open space with alleys leading up to this large space. Houses open up into alternate alleys, making them front and back alleys, the front alleys form a

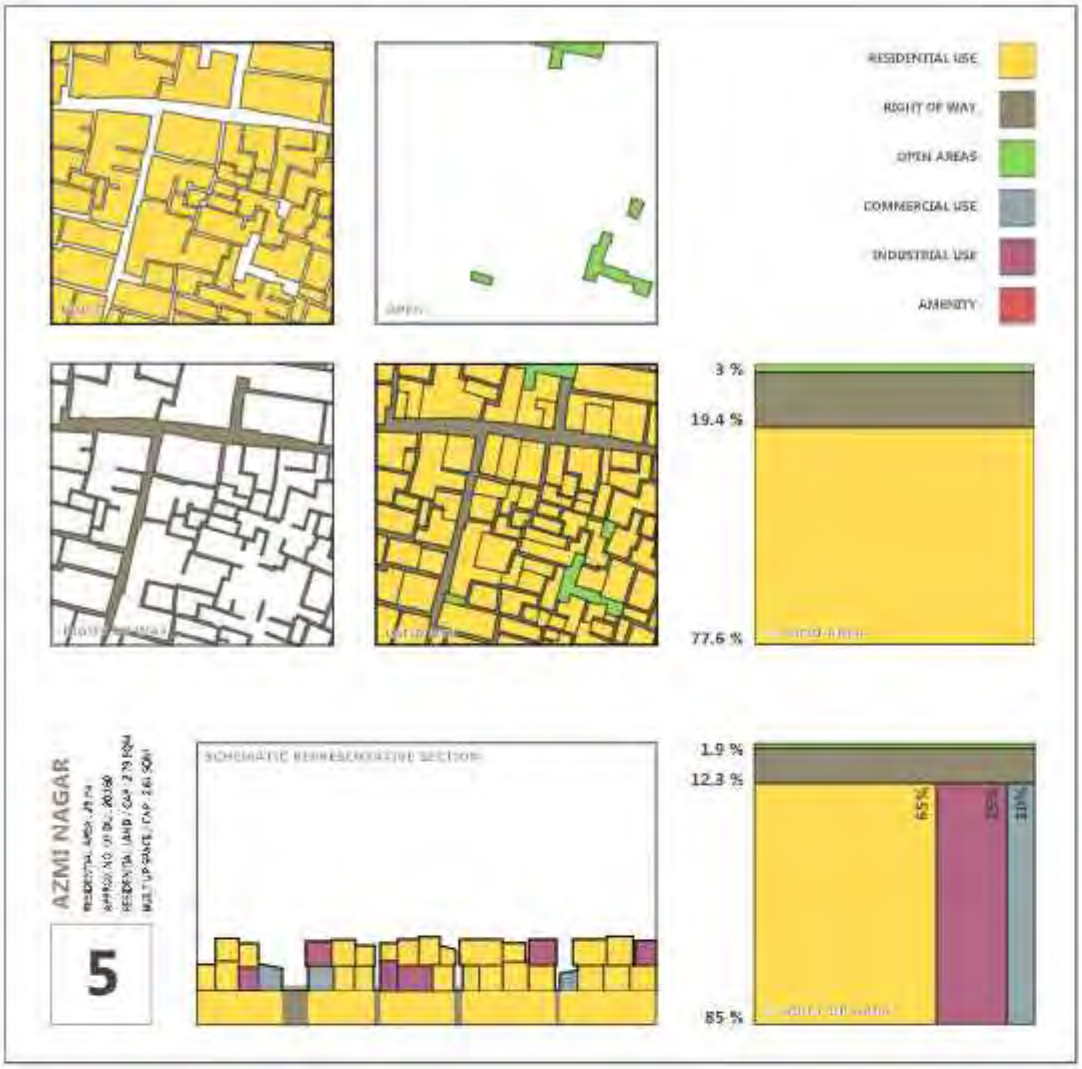
semi-private community areas that become active in the evenings, while the back alleys have been encroached and remain unused. Due to the large community level open space, the proportion of open remains fairly high, despite the compact residential layout.

The original layout of the MHB Colony provided a small open area outside the dwelling, and all of these have been enclosed and built upon. An example of poor design, these strips were not public enough to prevent this. As a result, very few open areas remain in MHB, though the pedestrian way that connects all the public toilets is wide enough to be used by the community as a recreation area.

MHADA LIG are layed out as row houses, in long strips with acess to the 9 houses in each row from the main streets. All of these units are G+1 with a small semi-open area in the back which is used as a storage or washing area. The open areas are all semi-private, and are wide enough to be used for playing or small gatherings. MHADA is purely residential, often private rental accomodation.

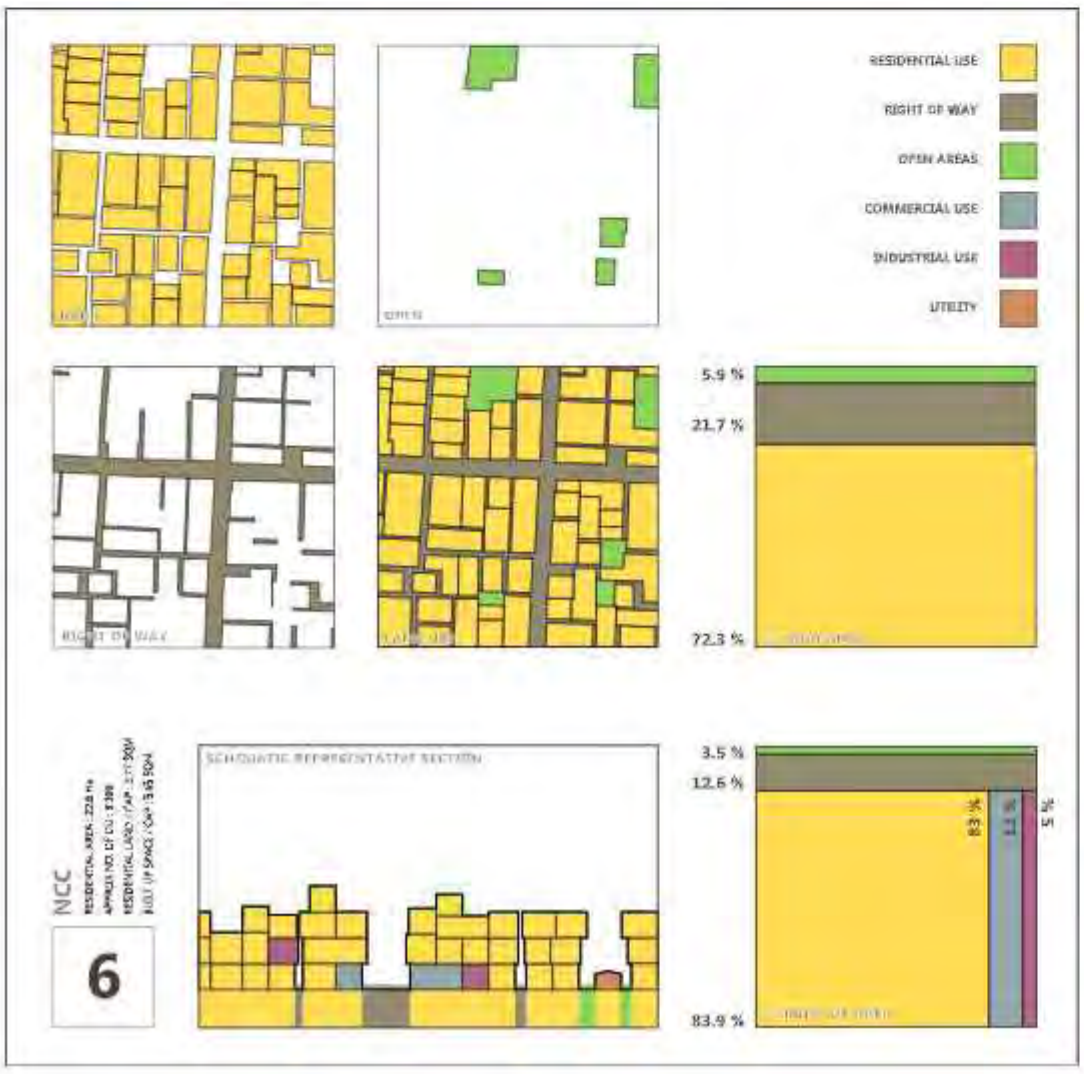






Here we see swatches for Azmi Nagar, a squatter settlement and New Collector Colony, which is a site and services scheme. Azmi Nagar is densly built up, with a main spine wide enough for two and three wheelers that recieve numerous pedestrian alleys. Being predominantly muslim, the blocks that are formed by the spine form commercial public streets, and the alleys tend to be quite private, often ending in cul-de-sacs. Open areas within these blocks are very small and private, and as a whole, there are very few open areas in the community. As an old slum, most of the houses here are pucca, and sometimes go to G+2. Quite a few households here are engaged in informal manufacturing activity, making it a mixed use settlement with some live and work units.

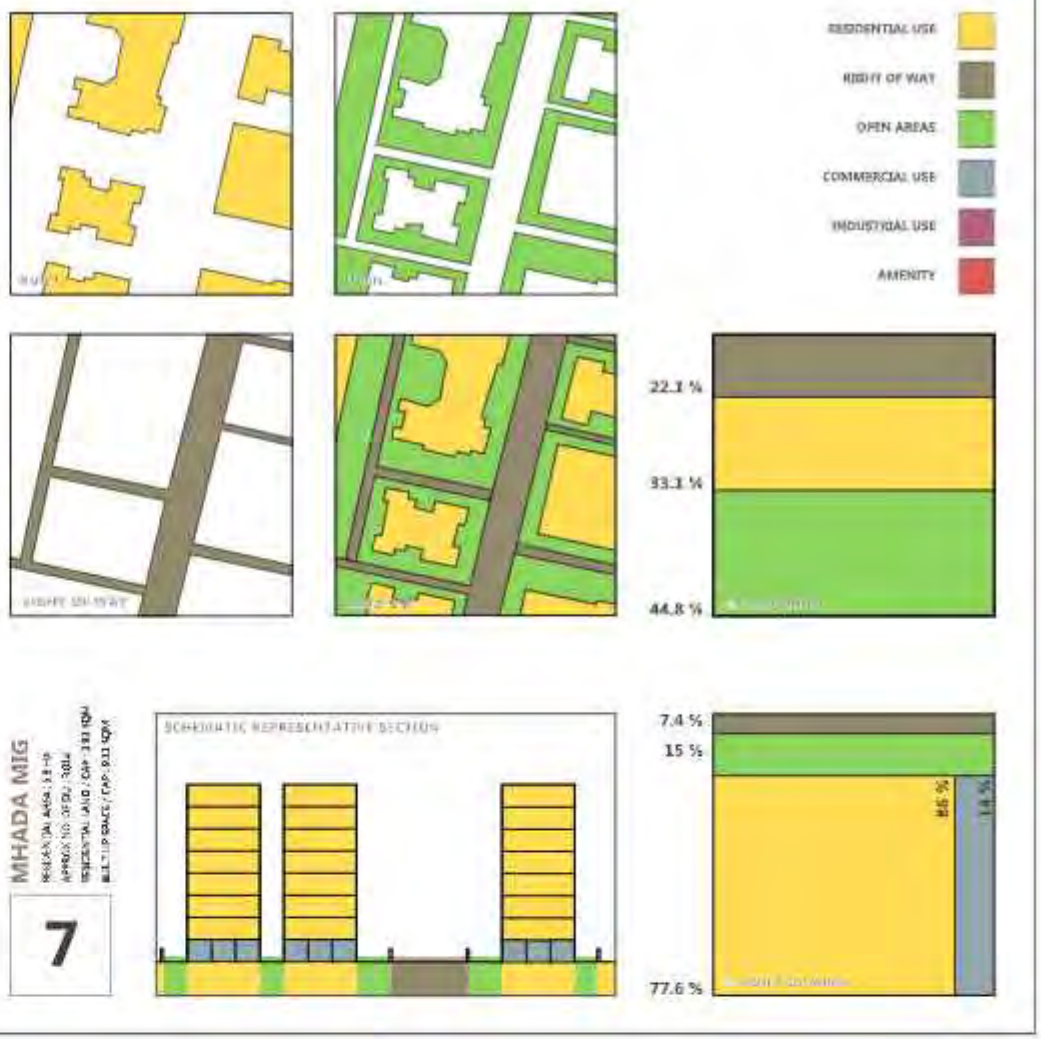
NCC was layed out as a site and services scheme, with square blocks that were sub-divided into lots and allotted to families. The main streets that are visible as a grid were about 6 m wide, and the corner plots were left open to form large open spaces. Today settlement has become quite dense, with all the open corner lots being built upon, and many houses going upto G+2. The main streets remain highly commercial, though the lanes that run through the blocks have become quite narrow, and the buildings almost

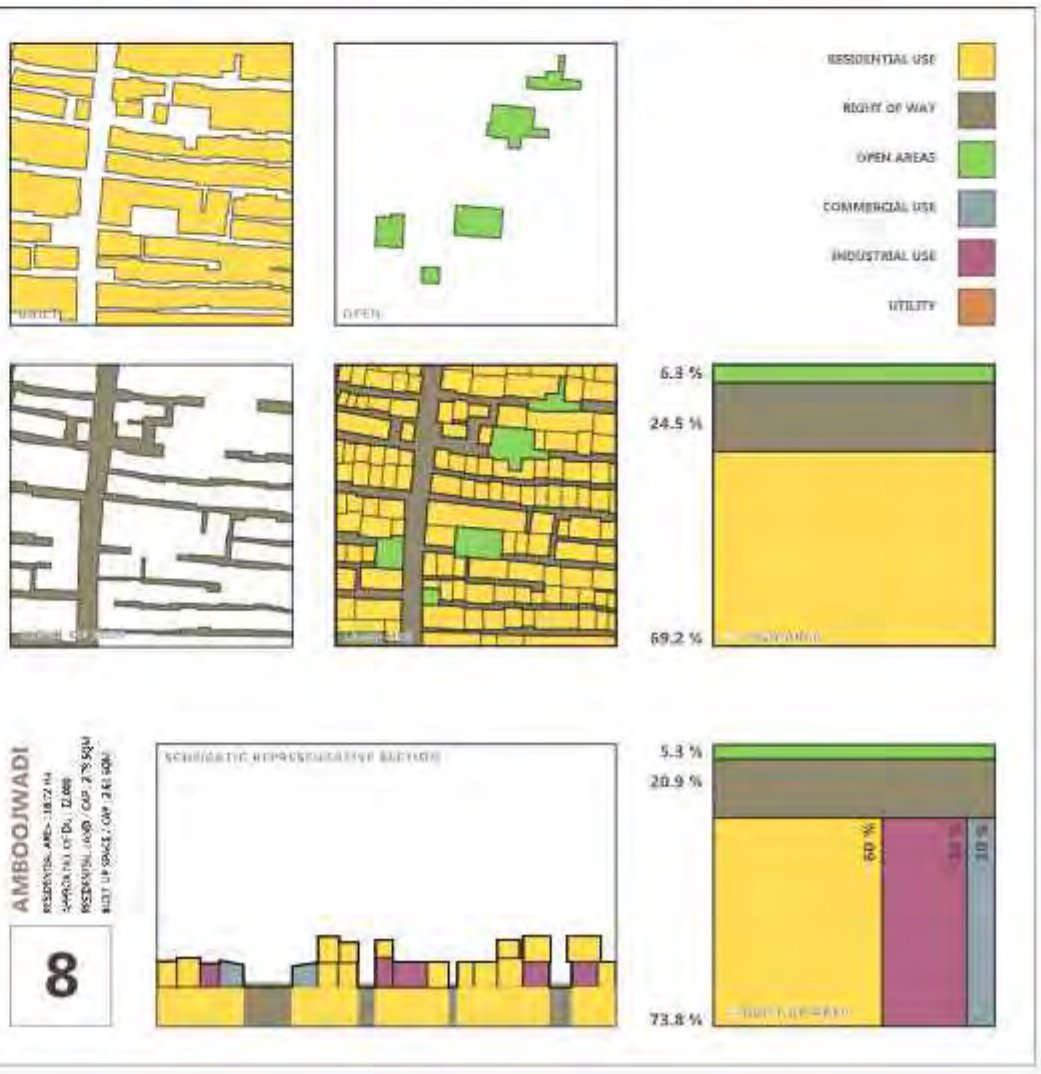


meet at the top depriving most houses of light and air. The proportion of built to circulation to openspace ares are comparable to Azmi Nagar.

The apartment buildings in MHADA Colony are organised in one or two rows along a single vehicular street, most buildings have commerce on the ground floor. The buildings are managed as individual societies, and all of them have gated compounds - the layout open spaces are used by the residents of the building for parking. The footprint area of the buildings are less in proportion to open areas, and the circulation area is also high, but due to the intensive use the residential + commercial built up area produced is high at 77 %, and circulation in comparision reducing to 7 %.

Amboojwadi on the other hand, is a mixed use neighbourhood with residential, commercial and industrial uses. It has very few open areas (though whatever is open is quite publicly accessible). Many houses in the area use residential space for live and work, and (our estimate is 30%), and some constructed units are used as retail and manufacturing shops.

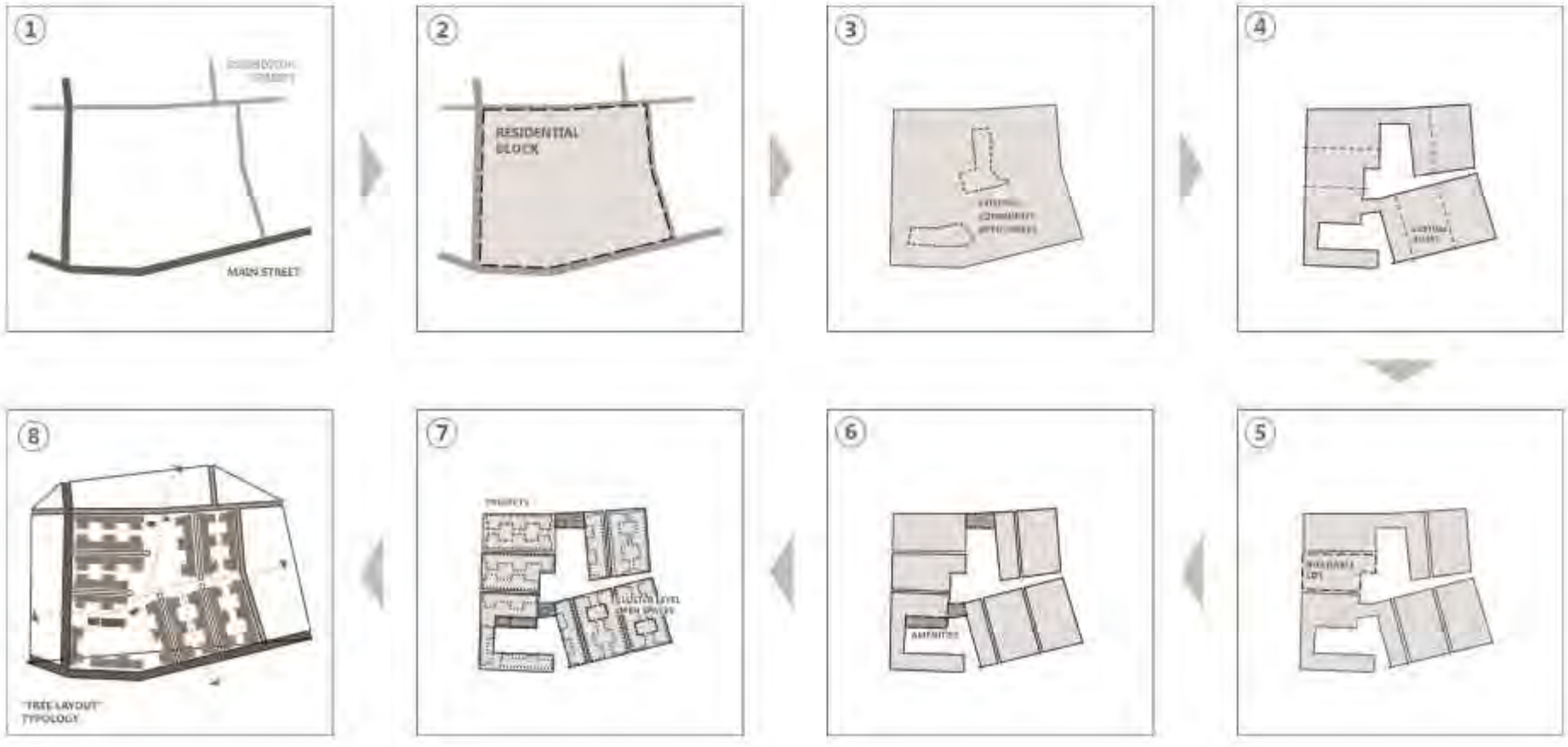


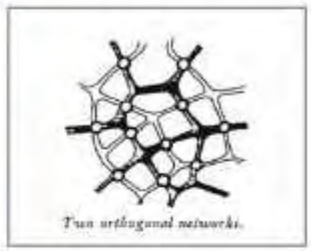


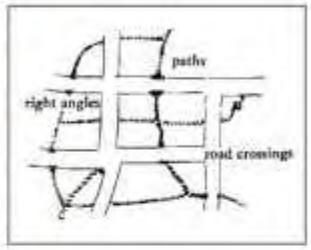
The "Free Layout" Typology

One of the ways through which higher settlement densities can be achieved, given a low rise fabric, is by ensuring that building plots remain free of enclosures. Private developments often result in gated compounds that require areas for circulation, parking, amenities and other service areas for individual buildings, and these turn out to be quite wasteful when replicated for every building society, apart from the more important drawback of creating insular and often exculsive environments. This is what squatter settlements and inner city areas do so well - achieving high densities despite being lowrise - by carving out open spaces and circulation areas through the arrangement of buildings, rather than through other circumscribing elements like compound walls.

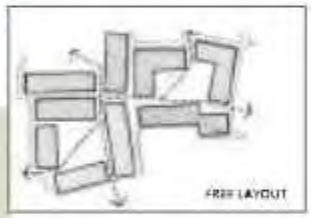
In the diagrams below, the way this layout is constructed, and its features are explained. Major streets (open to buses and four wheelers) and minor vehicular streets (two, three and four wheelers) form residential "blocks" - in existing settlements, the major streets are retained to make such blocks as shown in (1) and (2). The next step is to identify community spaces within the blocks, these are consolidated and better defined, also opened out onto the edges of the block as shown in (3) and (4). Smaller alleys and lanes that exist within the settlement can now be identified to dived the blocks up into "lots." These alleys remain open only to pedestrians and two wheelers, often they end up as cul-de-sacs, though they may also pass through the block. Some areas are identified for amenities such as dispensaries and community halls. The lots are now ready for "projects" or individual buildings, and these buildings may be constructed either as a whole by a large cooperative, or in parts by smaller willing groups. Only 50% of the lot area can be occupied by the buillding, and the rest must remain open - there are also no setbacks permitted, to ensure that the buildings abut the streets. This will result in open spaces within the lots, that could be connected with the community level open space. The end result will be a fairly open layout that can house densities upto 500 DU per hectare, in buildings with walk-up accomodation

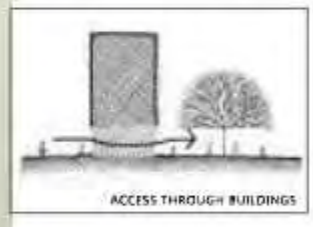






"Except where traffic densities are very high or very low, lay out pedestrian paths at right angles to roads, not along them, so that the paths begin to gradually form a second network, distinct from the road system." (Alexander, et al. A Pattern Language, p.274)

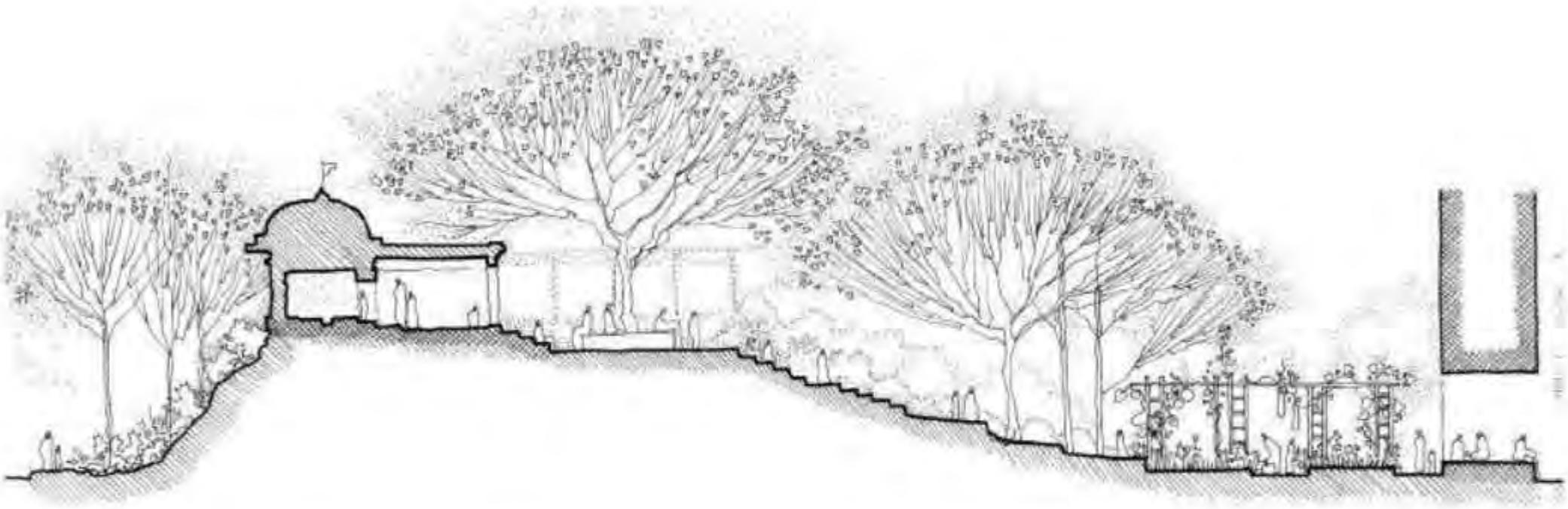




The map (above) shows the proposed pedestrian network (dotted green line) and the open space system in the Pathodi area. The network is designed to be more or less independent of the vehicular street network. The drawing (left below) shows the pedestrian network at the block level, where buildings carve out cluster and community scale open spaces, as a "free layout." The drawing on the right depicts the free layout typology in Azmi Nagar with arcades (abuting the vehicular streets) and short cuts through the buildings.

TYPES OF OPEN SPACES

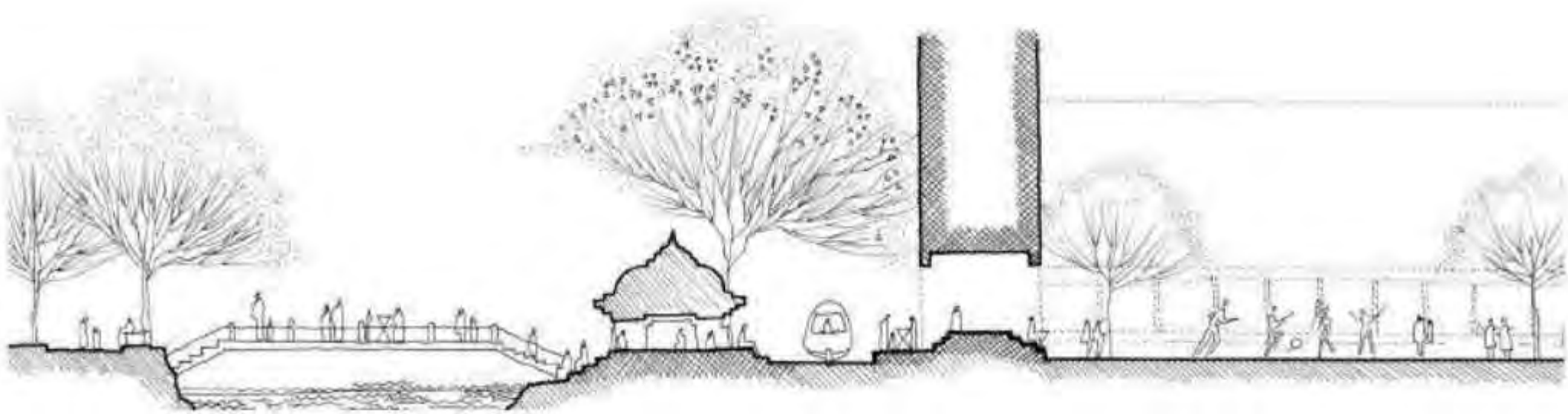
Sketch showing various types of proposed open spaces in Malvani



RATHODI TEMPLE

NEIGHBOURHOOD PARK

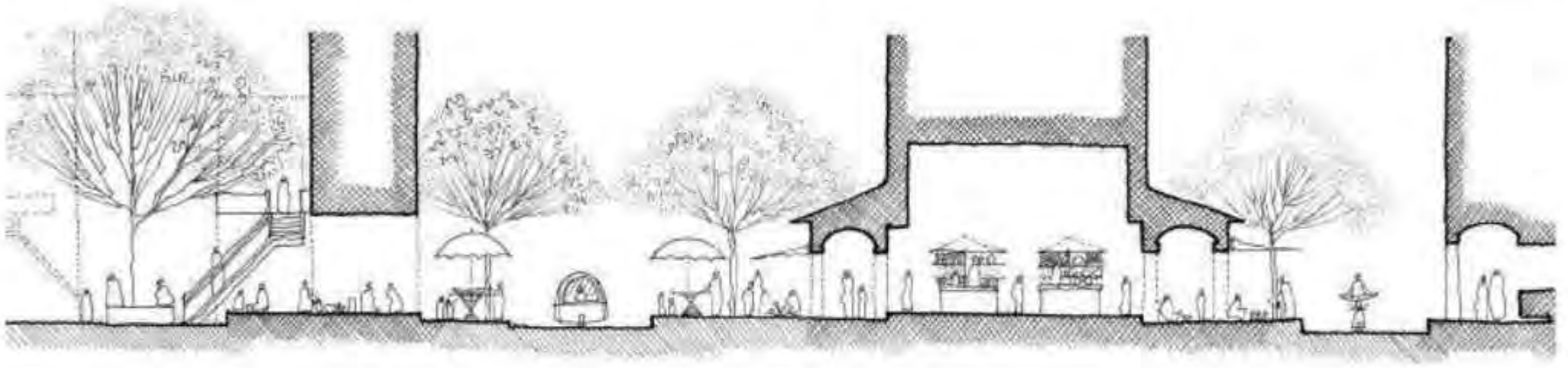
URBAN FARM



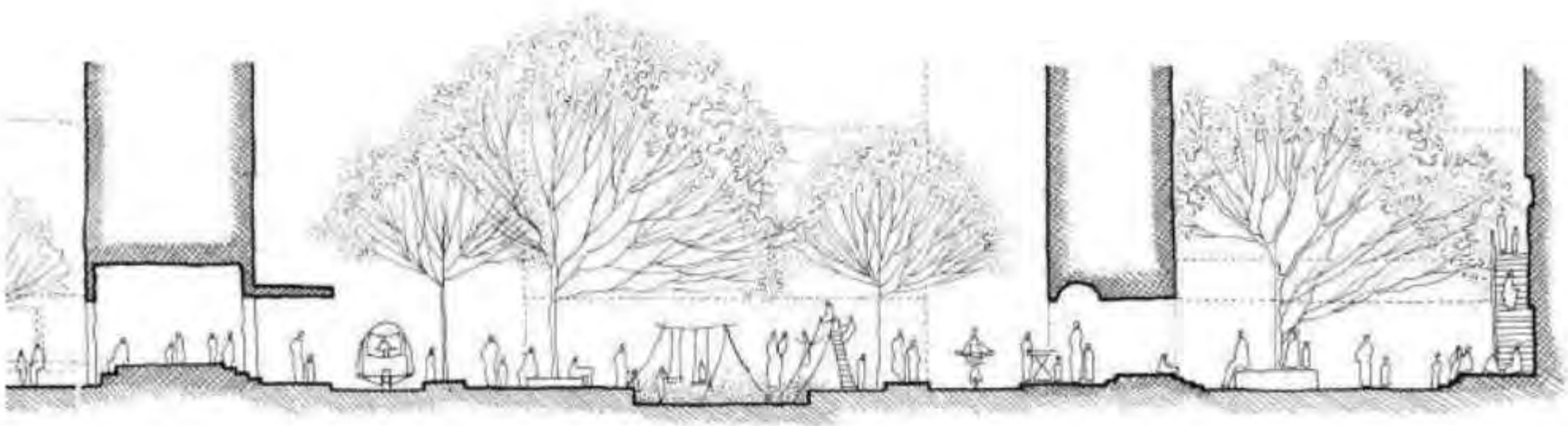
NATURAL EDGE

HIGH SCHOOL AND PLAYGROUND

Hierarchy of open spaces (Correa, Charles, 'The New Landscape,' 1989).



RESIDENTIAL CLUSTER | INFORMAL MARKET | MUNICIPAL MARKET | INFORMAL MARKET | SHOPPING ARCADE



NEIGHBOURHOOD PARK | RESIDENTIAL CLUSTER LEVEL OPEN SPACE

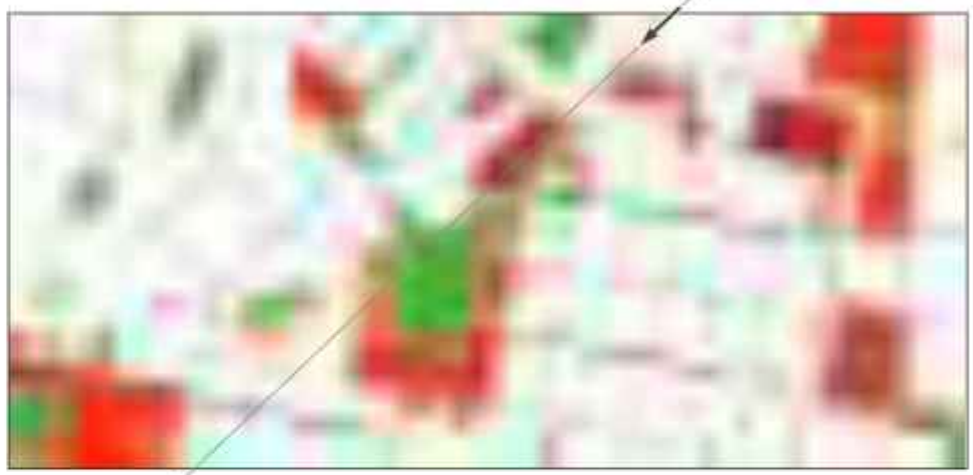
PROPOSED PUBLIC REALM

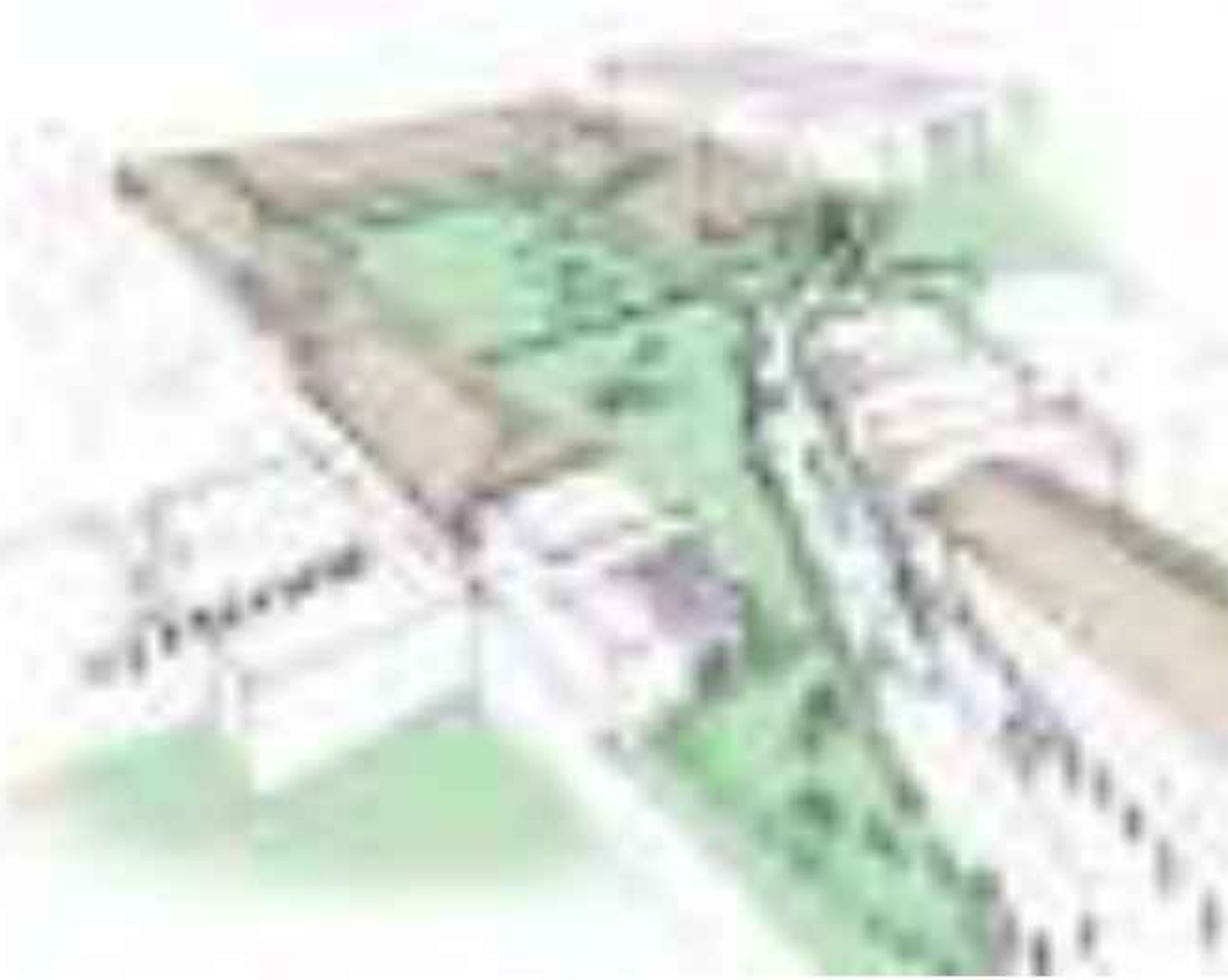
Sketch showing the public edge near Amboojwadi

Sketch showing the proposed public realm in Amboojwadi with the municipal market, informal market and open space along with other amenities

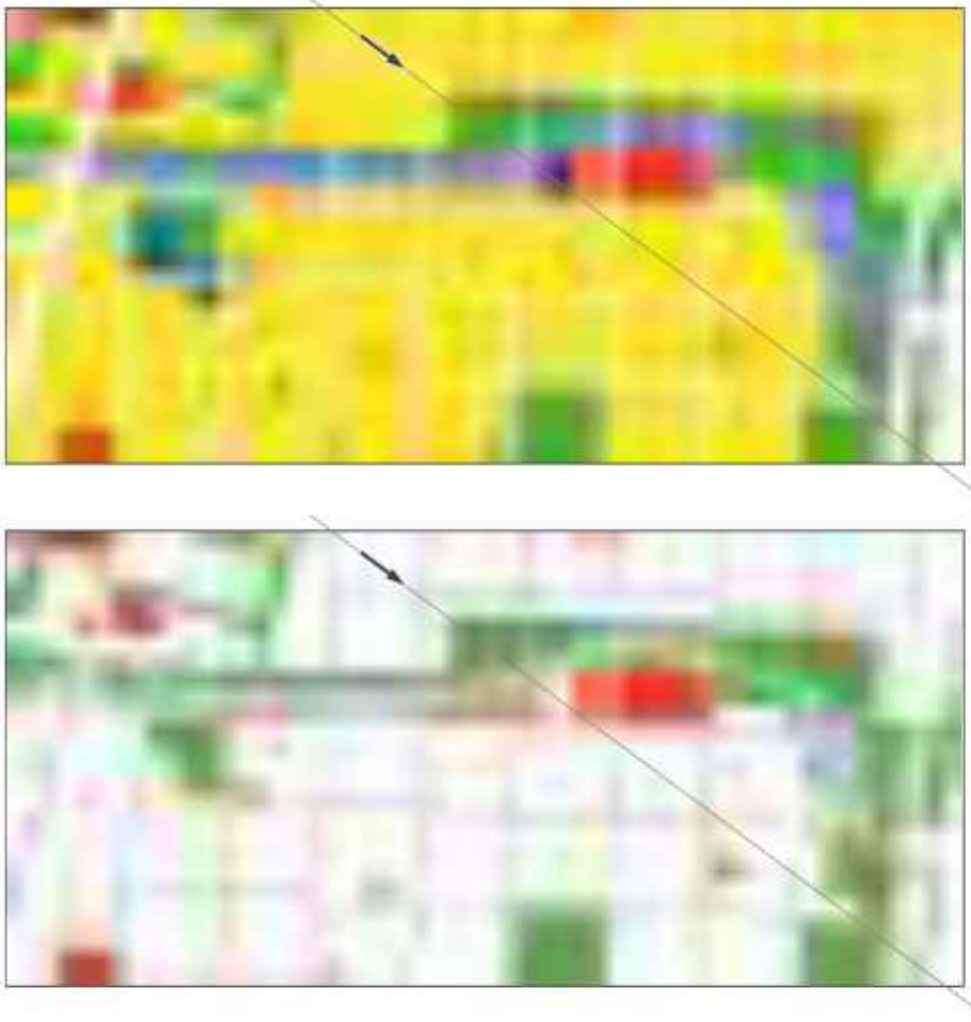
PROPOSED PUBLIC REALM

Sketch showing the public edge near MHB



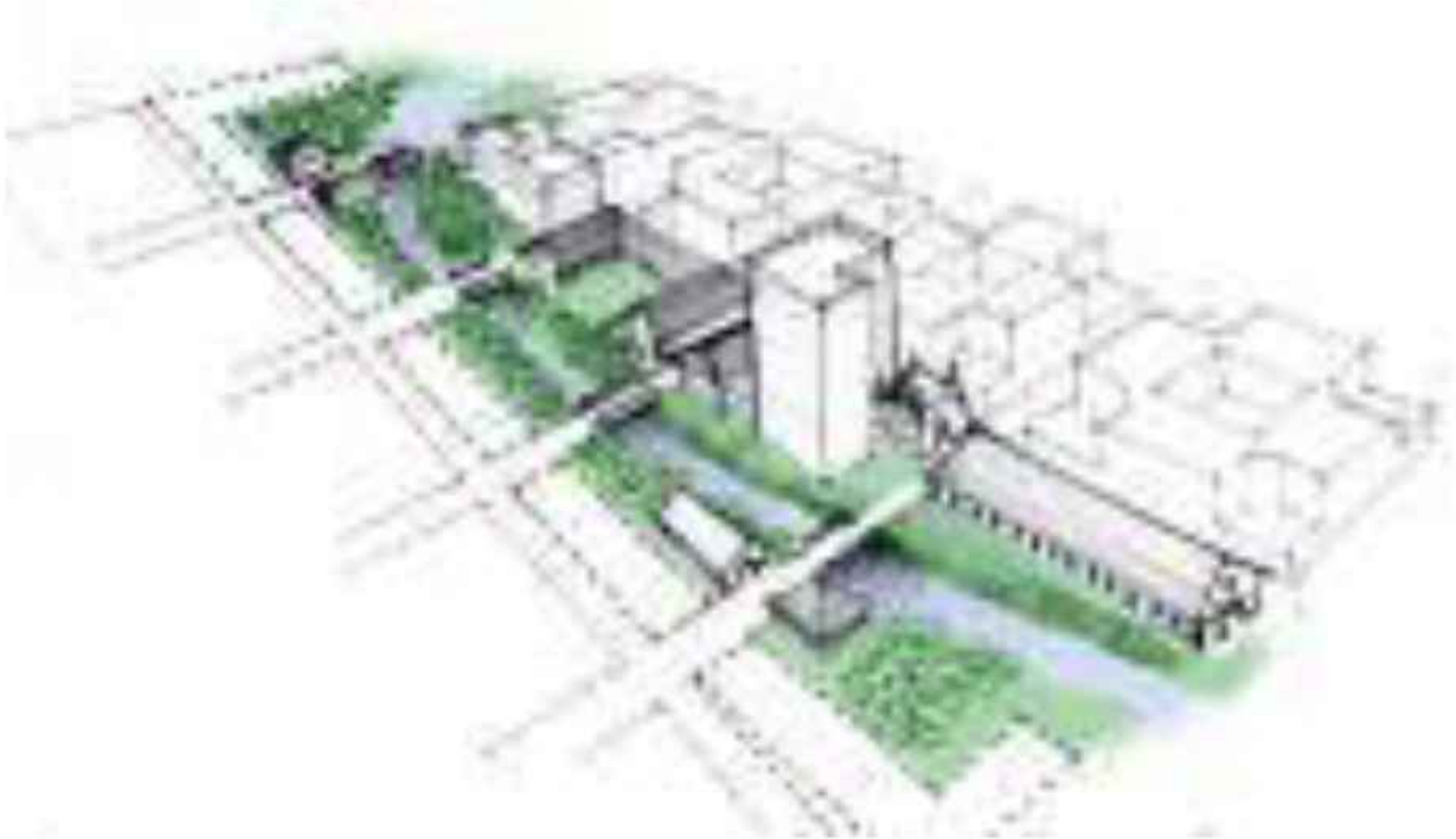


Sketch showing the proposed public realm near MHB Colony, with the municipal school along with other amenities



PROPOSED PUBLIC REALM

Sketch showing the public edge near NCC and OCC



Sketch showing the proposed public realm near the Old and New Collector Colonies around the stream, along with other social amenities. Housing blocks can be seen in the background

HOMES

MALVANI PEOPLE'S PLAN | 2013-14

The Egyptian architect Hassan Fathy once mentioned that "nobody should design more than 12 houses at a time."[1] His point was simple - homes are best built by people themselves, and not by housing agencies or developers. Most of what is called "housing," especially when it is built for the poor, is done with the aim of providing a unit - the problem of housing, it seems, is a math problem, where elaborate calculations are made to show how much land, investment and FSI will be needed to provide a "house" for millions of people in the city. As Paul and Pecival Goodman wrote in their book *Communitas*, "'housing' is the *reducto ad absurdum* of isolated planning."[2] Little consideration is given in these schemes of "affordable" housing to fundamental needs such as access to social infrastructure and services, and basic environmental norms are diluted to make them "viable." The poor are condemned to live in conditions that are either too high (high rises), too close (high densities) or too far (away from the city), and while the middle and upper classes complain about "quality of life," most people struggle to achive even a basic standard of living. It is for this reason that housing forms the last chapter in this report, as housing cannot be isolated from livelihoods, amenities, the public realm, transit or services - all of these, along with a safe and secure shelter, come together to make a home in the city.

Social Disparities and Physical Conditions

There is a great deal of ambiguity in the use of the word "slum" except in a general sense, when it is used to signify poor living conditions. There have been many definitions used by different agencies, and some of the definitions that the Pronab Sen Committe Report[3] lists out are as follows:

1) The Registrar General of India has adopted the following definition for the purpose of Census of India (2001). A slum, other than areas alread defined as such by public agencies, is "a compact area of at least 300 populations or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities."

2) The NSSO, for the purpose of survey in 1976-77 defined slum as "declared" and "undeclared" slums. The declared slums were areas which have been formally declared as slum by the respective municipalities, corporations, local bodies or the development authorities. The undeclared slums were defined as "an aerial unit having twenty five or more katcha structures mostly of temporary nature, or inhabited by persons with practically no private latrine and inadequate public latrine and water."

3) For the purpose of the survey in 1993 and 2002, NSSO adopted the definition of slums as "A slum is a compact settlement with a collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facilities in unhygienic conditions. Such an area, for the purpose of this survey, was considered as "non notified slum" if at least 20 households lived in that area. Areas notified as slums by the respective municipalities, corporations, local bodies or development authorities are treated as "notified slums."

4) UN-HABITAT defines "A slum is a contiguous settlement where the inhabitants are characterized as having inadequate housing and basic services. A slum is often not recognized and addressed by the public authorities as an integral or equal part of the city." Slum households as a group of individuals living under the same roof that lack one or more of the conditions listed below:

- Insecure residential status
- Inadequate access to safe water;
- Inadequate access to sanitation and other infrastructure;
- Poor structural quality of housing;
- Overcrowding

The Report of the Committee on Slum Statistics describes a slum as a "cluster of hutments with dilapidated and infirm structures having common toilet facilities, suffering from lack of basic amenities, inadequate arrangements for drainage and for disposal of solid waste and garbage." but provides this as a technical definition: "A slum is a compact settlement of at least 20 households with a collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facilities in unhygienic conditions."[4] Interestingly, the description seems to be simpler, more specific, and yet

1 Quoted by Charles Correa in his book The New Landscape: Urbanisation in the Third World, 1989 p.90

2 Paul and Percival Goodman Communitas: Means of Livelihood and Ways of Life, Vintage 1960 p.51

3 Govt Of India Pronab Sen Committee Report: Of the Committee on Slum Statistics/Census, Ministry of Housing and Urban Poverty Alleviation 2010

4 Pronab Sen Report ibid

potentially wider in scope than the definition itself. If the description is used for understanding whether a settlement qualifies as a slum or not, many of the areas in Malvani that are not notified or mapped as slums will fall under the category. The diagram on the right shows the communities in Malvani and the variations in their disadvantages using a framework used by the UN Human Settlements Program.[5] (The framework has been modified to include "social infrastructure," and what was simply "services" has been separated into "water and sanitation" and "services.") As the report states, the "experience of 'living in a slum' consists of a combination of these multiple dimensions, not only one. Many slum areas may show only a few of these negative attributes, while the worst may have them all." Communities like Amboojwadi, Azmi Nagar, Kaccha Raasta and others, are faced by almost all the disadvantages (the colors indicate level of deficiency, red is most severe), while NCC and OCC and MHB, that are not considered slums, have a few.

The Habitat report insists on understanding what are called slums as multidimensional, relative and often transient socio-spatial settlement conditions. But it must be remembered that the term has most often been used to suggest a neighbourhood that requires redevelopment to "improve" the social desirability and image of the area and of the city generally. Slums have been considered "problems" as they dampen investor interest in the city by creating an impression a lack of proper planning and governence.[6] The bulldozer approach was seen as the only way of "solving" this problem, but there has been a shift in recent times, with a realisation among big business groups and government agencies that upgradation and improvement efforts are more fruitful in the long term as a way of providing affordable housing, livable conditions and opportunities for millions of people in Indian cities. The Planning Commission has identified slum-upgradation in its 12th Five Year Plan "as the solution of choice" with a focus on conserving livelihoods.[7] It fails to rid itself of its fundamentally flawed assumptions when it recommends redeveloping slums and economising on "prime urban land" occupied by slums with a high FSI, as these lands have "multiple socially productive uses." Why homes and livelihoods for large numbers of people are cannot be considered "socially productive" is impossible to understand.

The Principles and Purpose of Intervention

It is necessary therefore to rethink the term and perhaps do away with it, and find ways of mapping the multifarious conditions of urban neighbourhoods for appropriate interventions. The purpose of intervention and the principles on which our own proposals are based in this plan are as follows:

(1) Health : a general improvement of health conditions of urban dwellers through the provision of health infrastructure, and the adjustments necessary in the built fabric to provide for formal municipal sanitation and services such as waste management and disposal.

(2) Safety and Security : improvement in the built environment to ensure the basic needs of physical safety (from fire and natural hazards) and psychological security (security of tenure, livelihood opportunities)

5. UN Habitat, The Challenge of Slums - Global Report on Human Settlements, 2003.

6. See CRISIL and Bombay First, 'Transforming Mumbai into an International Financial Centre ' 2001.

7. Planning Commission, Twelfth Five Year Plan (2012-2017) Vol 2, 2013.

(3) Public sphere and Right of Way: improvements to establish a clearly understood and accepted hierarcy of private to public spaces and safeguards to protect these.

(4) Livelihoods and work: Most low income neighbourhoods in our cities - whether formal or informal - support or are readapted to the livelihood needs of the residents. Any intervention must understand this reality, conserve, consolitate and create livelihood opportunities.

(5) Adequate, affordable living space: Sufficient living space (a minimum of 5 sqm / person to a maximum of 10 sqm / person) for a comfortably sized home that is affordable to maintain and has mechanisms in place to prevent eventual gentrification of the area.

(6) Social infrastructure for socio-cultural activities: improvements have also to keep in mind the socio-cultural needs of residents, in the form of enclosed and open community spaces, social centres, markets and formal and informal cultural institutions.

Housing: Organising, Producing, Delivering, Managing, Controlling

Housing is a complex subject, simply because it is a complex *process*. John Turner spoke about housing as a verb: "to house" is the process or activity of housing, in contrast to "housing" as a noun that "describes a commodity or a product."[8] When people are able to house themselves, he wrote, they have three freedoms that other urban dwellers have lost, namely "the freedom of community self-selection, the freedom to budget one's own resources and the freedom to shape one's own environment."[9]

The creation of a home, from the simplest shack built by a poor family to a housing unit created by a large scale public housing program involves the organisation of resources and finances, the partial or complete building of the tenement, the stage in which it is handed over to the eventual occupant, the way in which it is to be managed and maintained, and the rights over the various aspects that have gone into producing it. Understanding the various ways in which homes are produced requires an classifying the various opreational *models* for each of these aspects; these could be called (A) institutional models, (B) physical or typological models, (C) Provision-delivery models, and (D) tenure and management models. The institutional models describe the various actors and agencies and their relationships as they collaborate or handle various aspects of the development and management of homes. Physical and typological models describe the formal aspects of the homes - heights, sizes, arrangements, functions, densities, configurations, materials, etc. Delivery models describe how the house was financed and in what form was it delivered or provided to the occupant - whether as a piece of land on which the family is supposed to self-build, as a partially built shell, or as a completed apartment. In case of an existing settlement, the delivery models would describe the nature of intervention undertaken - whether improvement with minimum disruption or through incentive schemes for developers to provide a "free house" to existing dwellers. Finally, tenure and management models describe how the house is allotted, whether it is owned or rented, and how it is managed, and who does it.

Though we shall briefly touch upon all these different models, we will discuss physical and typological models in some detail, though not comprehensively. Our intention here is to emphasise three things: one, the disadvantages of high rise construction for residential purposes, especially for low income housing. Two, the mechanism of "conservative, incremental and cooperative self-development" for the improvement of physical conditions in contexts such as Malvani. And three, the advantages of what we call a "free-layout typology" of development for achiving high densities through low rise development with sufficient and accessible amenities and recreational areas. All of these are the reasons for the proposals for housing, which will be presented in the following pages.

Physical Typologies (B)

Most housing built in the city for low income communities is provided in high rises. A combination of high land prices and a development model that incentivises private developers to build housing are responsible - though high rises have also been made to become symbols of prosperity and status by those who profit from them, and there is an uncontrolled frenzy of tower building in the city for both commercial and residential

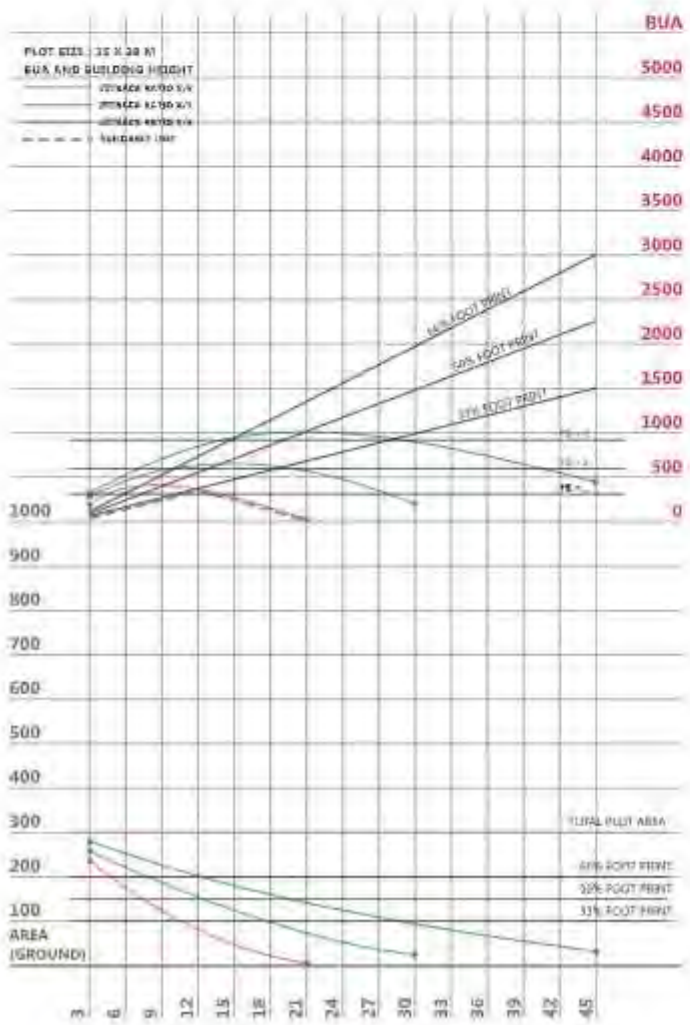
8. John F. C. Turner and Robert Fichter, Freedom to Build (Collier Macmillan Ltd. 1972) p.151

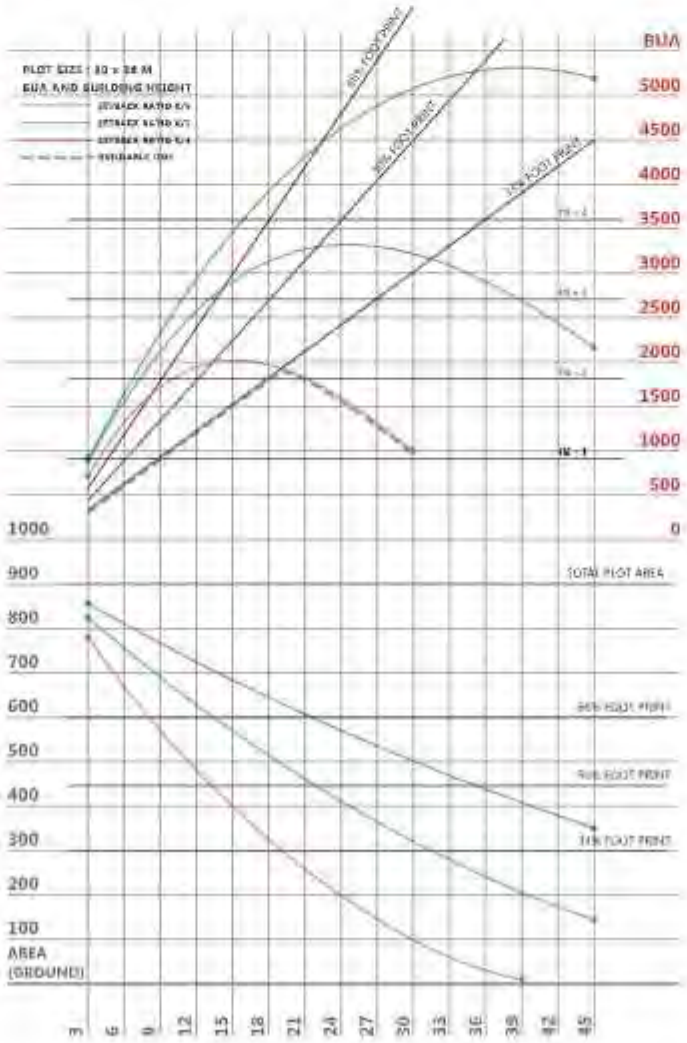
9. John F.C. Turner as cited in Colin Ward, Housing an Anarchist Approach (Freedom Press, 1976) p. 80

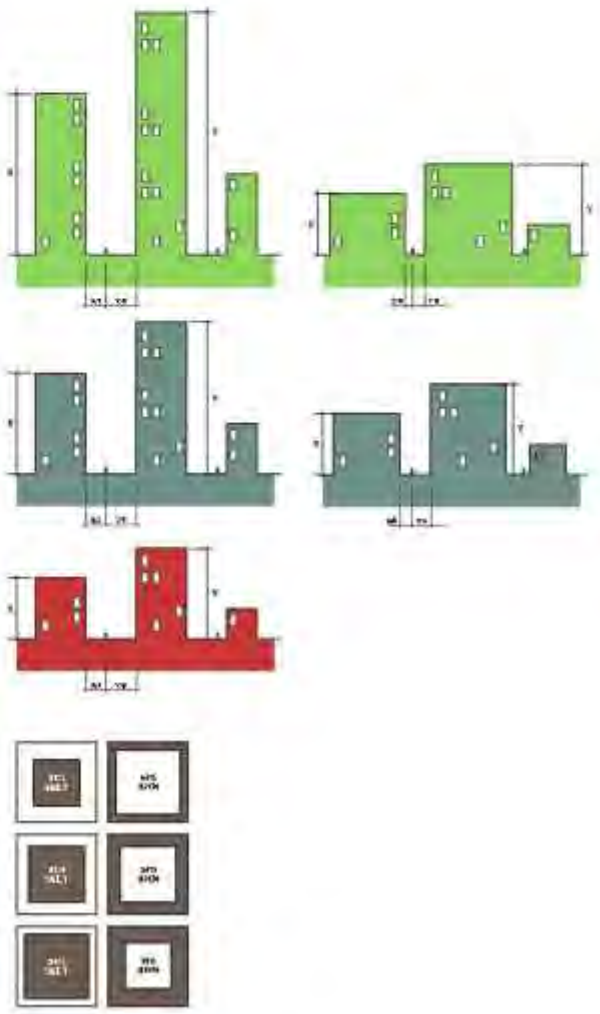
purposes that seems to be only getting worse. The percieved scarcity of land is the standard excuse for permitting higher FSI, but there are good reasons why high rises may not be the most optimum solution for urban development, especially for residential functions.

1) The first reason is that high rise construction does not automatically result in generation of higher floor space - if set back rules are followed, there is a point beyond which going higher yeilds diminishing returns in terms of floor space. This is shown in the form of a graph below. The usually complex building regulations are simplified to 2 simple rules: (1) footprint ratios (33%, 50% and 66%) and (2) proportional setback regulations depending on the height of the building (X/3, X/5 and X/8 where X=height of the building). Land areas and built up areas that can be generated from a plot of 15 X 20 meters are plotted on the left, and the areas that can be generated from a plot of 30 X 30 meters is plotted on the right. The diagrams on the right illustrate the footprint ratios and setback ratios in the form of sections and plans. It is clear that if the setback rules are adhered to, beyond a certain building height the gains in terms of floor space decline. If the setback ratios are 3:1 for a plot of 30 X 30 a maximum of 2000 sqm can be built with a G+3 or G+4 building. Interestingly, by using an arcade typlogy with a 66% footprint area (the building is built along the periphery of the plot and the open space becomes a courtyard within the building, like in DN road), upto 3,500 sqm of built up area can be generated through a G+4 building. It would take a 12 storey building with a 33% footprint area (by violating setback norms) to generate that much built up area. There are only two ways by which taller buildings can be made with a 3:1 set back ratio: either environmental norms be diluted (by permitting buildings to be built closer that deprives residents of light and ventilation), or if larger and larger plots be created by amalgamating smaller plots to be able to build much higher. Both are undesirable, as the former compromises the quality of environment, and the latter promotes large grain development irreversibly altering the scale of the built fabric.

In any urban area, no matter how dense, keep the majority of buildings four stories high or less. (Alexander, Christopher. A Pattern Language, p 119)





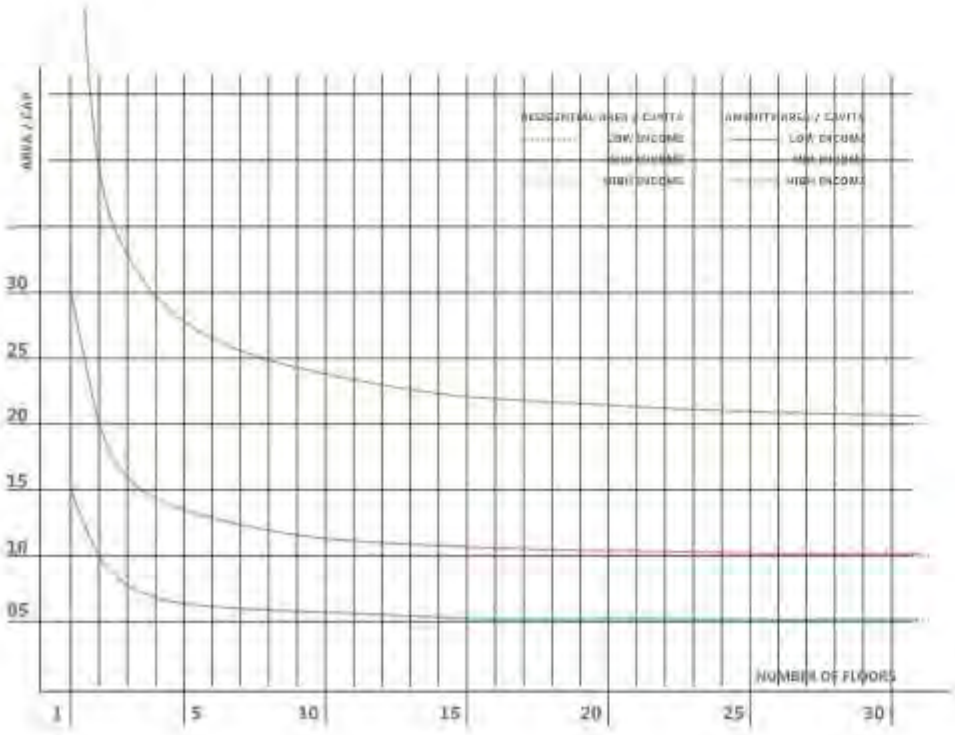


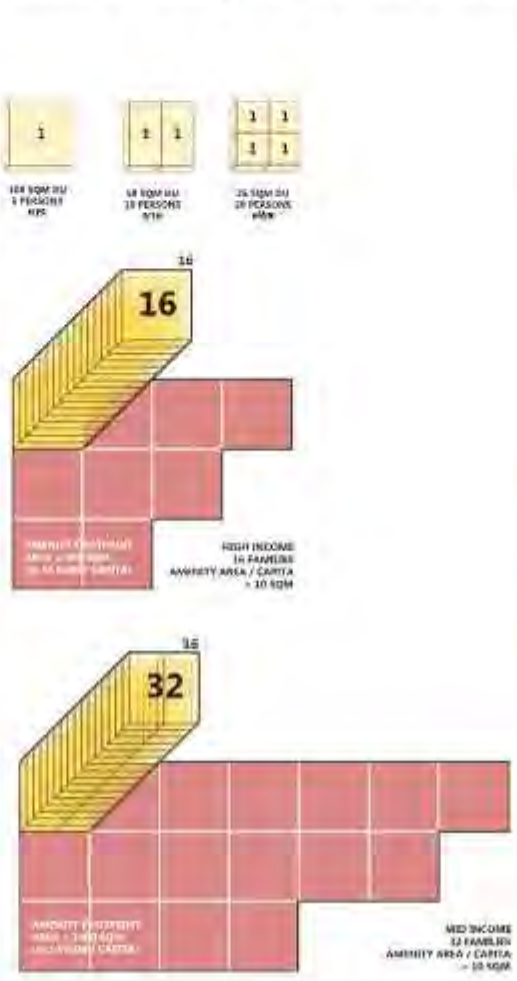
2) With higher FSI values being offered for urban development (upto 4 FSI), the expectation of planners is that the cost of living space in the city will eventually reduce (high prices are attributed to scarcity of space due to a restrictive FSI regime) amount of average residential space consumed per capita in Mumbai will increase. This has been suggested by the MCGM's Preparatory Studies report as well. However, it can also be argued that this increase of FSI will increase population densities especially in poorer areas where more people tend to share space and average per capita residential space consumption is very low.[10] Redevelopment of slum areas is already creating this situation, where new residents are brought into an area to cross-subsidise low or free housing for existing residents. Since social infrastructure provision as per national norms is to be made on a per-capita basis, higher densities result in less and less per capita land area for amenities - Charles Correa[11] has shown this through a chart and illustrations reproduced below, with three curves representing persons of low, middle and upper income levels living in high rise buildings, by assuming that the house for a low income family is 25 sqm, middle income is 500 sqm and upper income is 1000 sqm. Every building has its amenity "footprint" in terms of land area depending on the number of people that live in it, and since the poor are provided smaller tenements, high rise accomodation for the urban poor would require a much larger amenity footprint. Since all the land freed up due to high rise construction is taken up for more high rise construction, the amenity area per person remains very low, and gets worse for lower income groups.

3) Highrise construction means greater living costs for urban dwellers for vertical transportation, electricity costs for illuminating common areas, fire safety and pumping water, and building maintanence. The embodied energy per unit area of residential space increases with the height of the building, which means that highrises have a greater carbon footprint as opposed to lowrises.

The modes of development

Urban renewal and comprehensive redevelopment of neighbourhoods in the city have been held to be the only way by which affordable housing, amenities and more living space can be created. Urban renewal has had an infamous history, and in western cities urban renewal had been attacked by critics such as Robert Goodman and Jane Jacobs as being means of "driving the poor out of town,"[12] but the Development Plan





10. This has been argued forcefully by Shirish Patel et. al. 'Urban Layouts, Densities, and the Quality of Urban Life,' EPW, 2007

11. Charles Correa 'High Rises Offices or Residences?', Powerpoint Presentation.

makes this form of redevelopment central to its strategy of acquiring land for so called "public purposes." These policies are aimed largely at areas such as the rent controlled buildings, old working class quarters, slums – all of which form the *currently existing* low income housing stock in the city.[13] Though these redevelopment policies make rehabilitation a necessary part of the process, it is likely that rents in "renewed" areas will be unaffordable for the rehabilitated dwellers. The redevelopment schemes[14] also do not take into account the fact that informal work and small enterprises and businesses that are an integral part of these neighbourhoods provide employment to a large number of residents, and these will be totally eliminated as a result of development. These two factors will almost certainly result in a gentrification of these areas, forcing the gentrified to find other areas to live and work in the city. Also, importantly, there are enormous social and psychological costs of this form of redevelopment that breaks up the social ecology of the neighbourhood. Loss of the entire network of friends and extended family, work relations and associations with the place are impossible to replace.

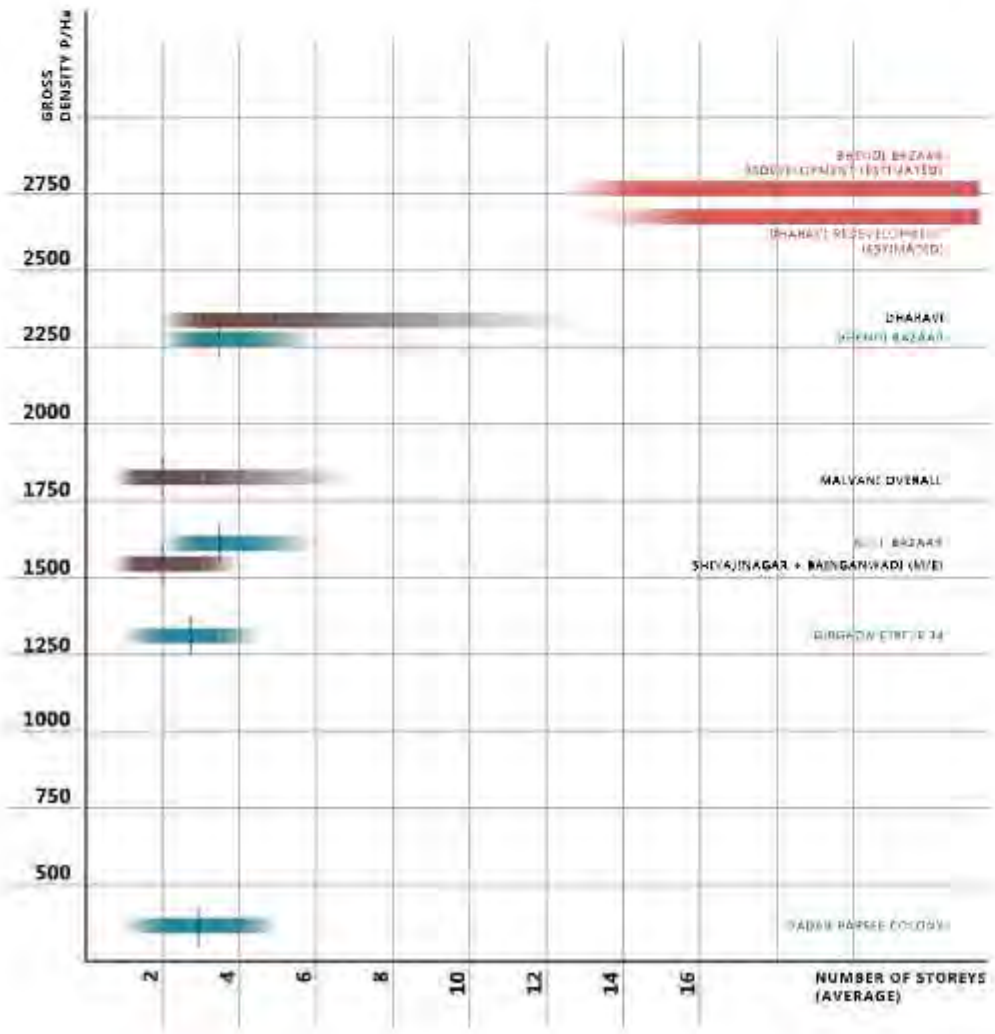
To add to this, redevelopment with high FSI brings in more people to an area that already has high densities, making it impossible to provide the required level of social infrastructure. It is important, therefore, to find models of redevelopment that are best suited for the improvement of run-down areas with little or no disruption, that facilitate and strengthen the live and work patterns of residents, and the character of the neighbourhood. The chart on the left below[15] shows and compares the gross densities of areas in the city and the range of building heights that accomodate these densities. Areas such as Malvani (282 Ha) and Dharavi (214 Ha) are much larger areas unlike precints such as Bhendi Bazaar (6.7 Ha) or Null Bazaar (10.8 Ha) and must be considered a separate category as these do not include low density areas such as open spaces or natural areas. Though we do not have data on what densities will be after areas like Dharavi or precincts like Bhendi Bazaar will be after they are redeveloped according to the present proposals, their increased densities and high rise development will move the horizontal bars in the direction

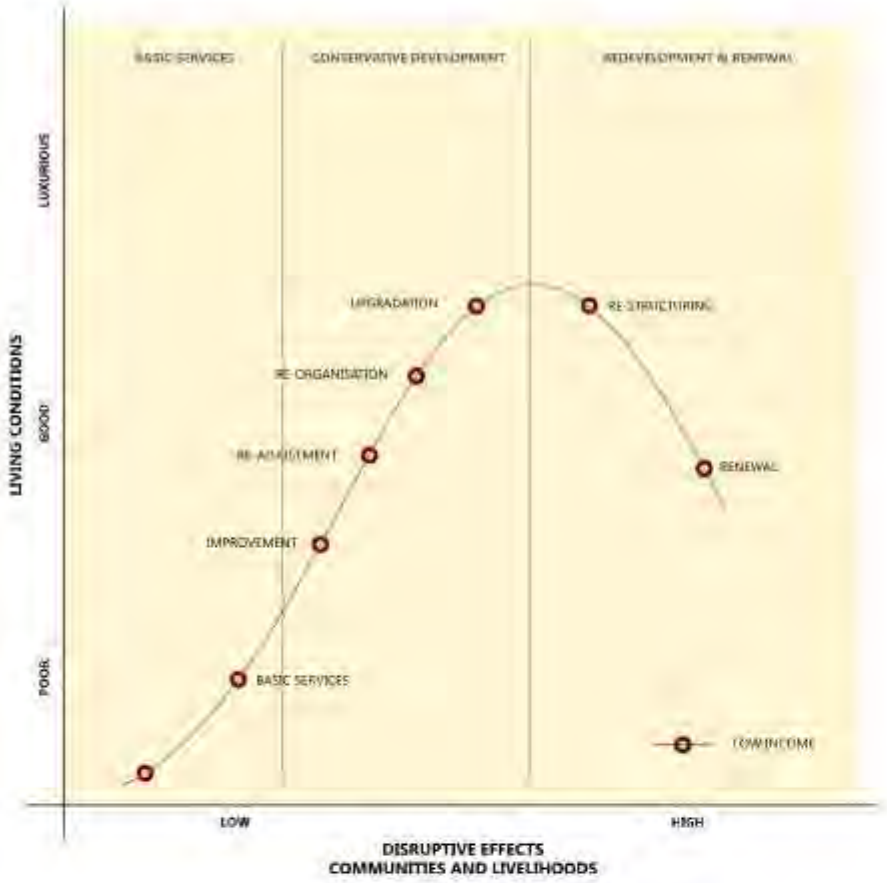
12 Colin Ward, 'Talking Houses', Freedom Press, 1990, p.125.

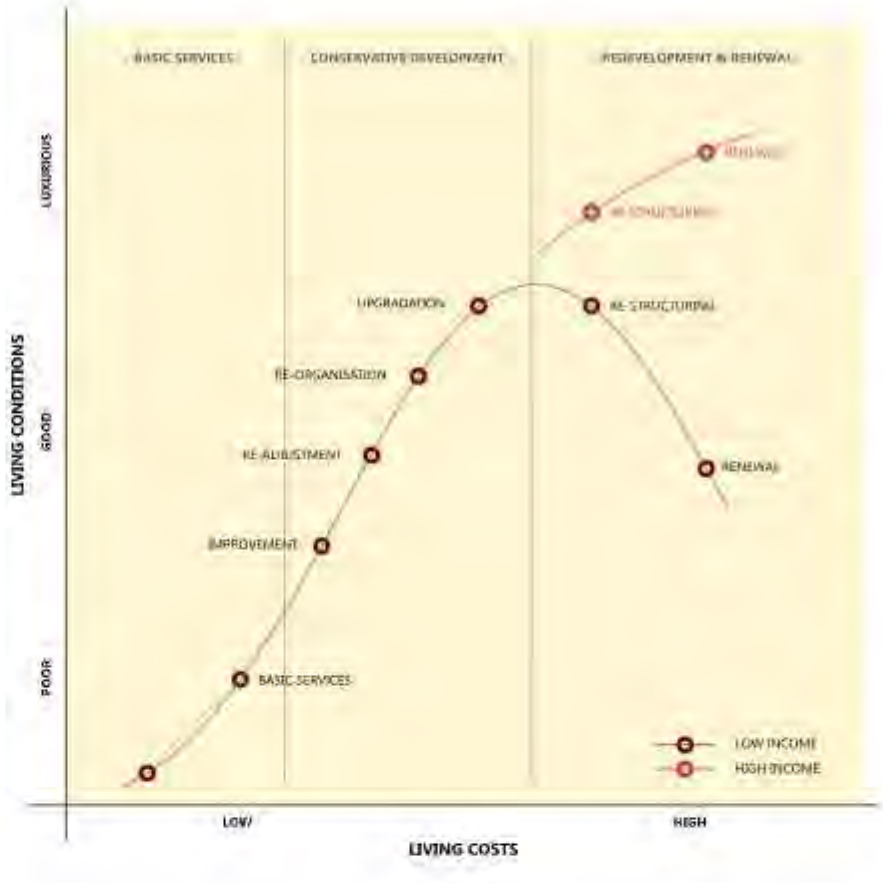
13 Hussain Indorewala, 'Urbanisation Without Cities,' forthcoming.

14 Sunevaa Nergish 'Is the Bhendi Bazaar Redevelopment Project a Good Model for Other Clusters in the City' Time Out, February 1 2013.

15 Data on Null Bazaar, Girgaon, and Dadar Parsee Colony from KRVIA, 'Urban Renewal – A Study of Four Precints in Mumbai' 2006-07. Data on Dharavi from Shirish Pate, 'Dharavi: Makeover or Takeover' in Joseph Cernapana ed. 'Dharavi: The City Within', Harper Collins, 2013. Data on Shivajinagar + Baingarwadi TISS estimates (unverified). Data on Bhendi Bazaar from the website of the Saifee Burhani Upliftment Trust.







shown in the graph. High FSI and development based on profit making will inevitably lead to this outcome - with disastrous consequences for the people living here and for the city as a whole.

In the diagrams above, some modes of development have been shown and their relative effectiveness and consequences have been depicted. These are no doubt "hypotheses" that need to be methodically investigated and verified. However, what is important is to understand the differences of approach and intervention between these modes. What we are calling "conservative development" lies between the provision of basic services and urban renewal - from slum improvements to a more intensive upgradation. All the modes within conservative development retain the living patterns and built fabric of the existing settlement, and build on what already exists.

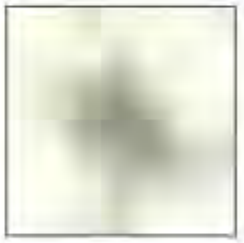
1) Basic Services: Basic services involves providing the absolute bare minimum of services needed for a community to survive in a city. This includes the provision of water, public toilets and waste disposal. Very little or no intervention is made in the built fabric.

2) Improvement: In addition to the provision of basic services, two or three storey structures are regularised, some houses are cut and permitted to go higher to widen lanes for improving light and ventilation, and to improve access for pedestrians and two wheelers. Basic infrastructure like paved streets, street lighting, sewer lines, etc. are provided.

3) Re-adjustment and re-organisation: Some houses are removed and stacked above or relocated nearby to provide amenities (dispensaries, pre-primary schools, etc), improve and enlarge community spaces and access for pedestrians and two wheelers. The difference between adjustment and re-organisation is a matter of degree.

4) Upgradation: Upgradation involves the amalgamation of 3-5, 10-15, or 15-30 households on a street, to come together and form a cooperative for reconstructing their houses. The guidelines for reconstruction are provided, and this transformation happens in a piecemeal and incremental manner. Gradually, as more families acquire the means and the willingness for development, they join in as well.

The modes development and their consequences. Two Hypotheses. The vertical columns show the various modes that fall within the category of 'basic services' 'conservative development' and redevelopment and renewal. The differences between the modes are explained below.



5) Restructuring: is what is commonly refered to as "re-development" through a private developer. Here, the entire settlement area is cleared up and rehabilitated in-situ, usually in high-rise blocks. The cost of doing this is recovered by building middle income or luxury apartments on the same site for sale. Non-fiscal incentives such as higher FSI or TDR are provided to make such developments profitable to the developer. No trace of the old settlement is retained

6) Renewal: is where a large area is comprehensively re-developed as a mini-township or a "planned" district. All the existing dwellers are rehabilitated in-situ, however, like re-structuring, a part of the development is put out for sale to make the scheme profitable.

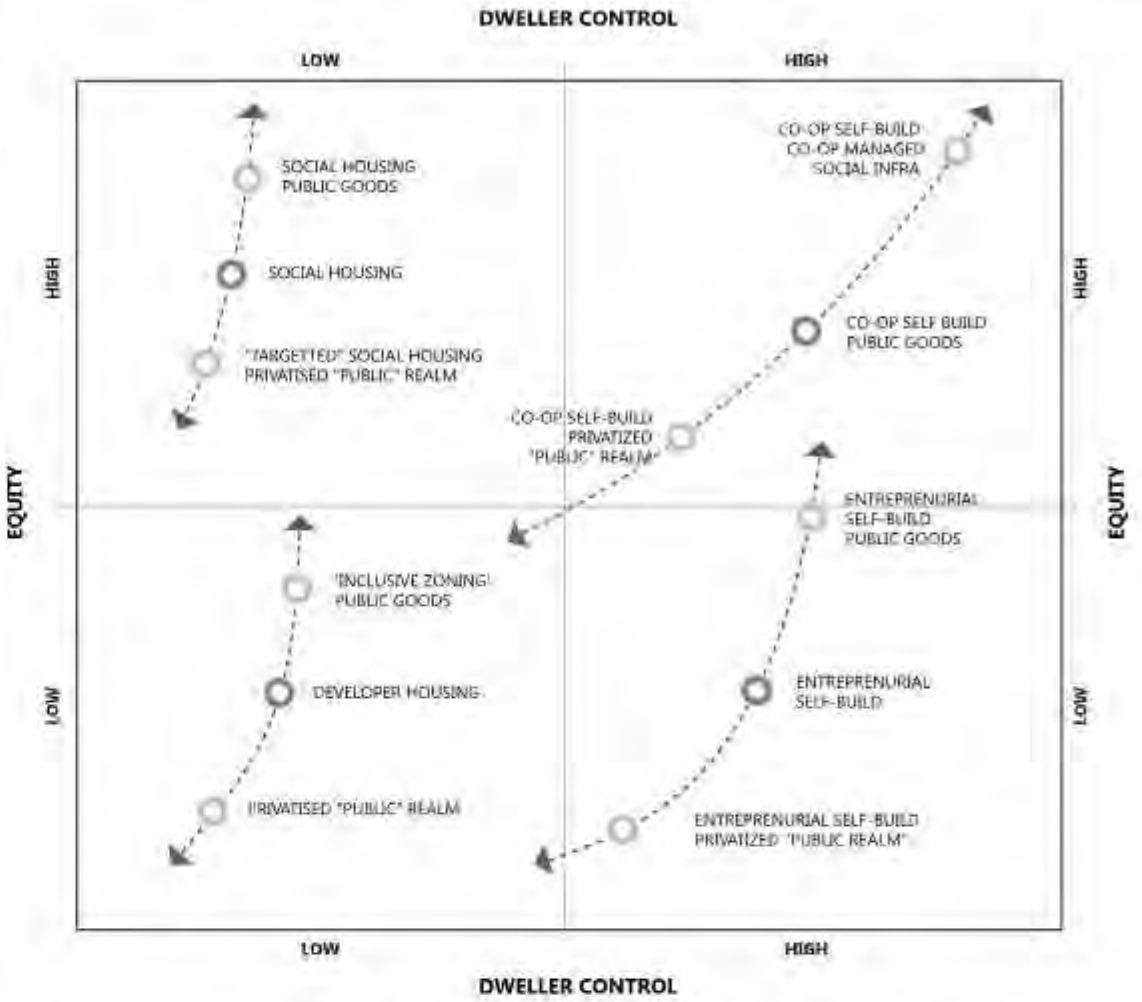
Criteria for evaluating development proposals:

Any proposal for physical development must be evaluated based on at least the following four criteria:

1) Dweller Control : which is the amount of control (not simply participation!) a resident has in the shaping of her / his environment - a factor that is almost always missing in both developer driven development schemes and government plans and programs. Areas such as Malvani and Dharavi are places that have been shaped over the decades by people themselves, and despite the extreme constraints they have built mixed use, low-cost environments that work better than redevelopment schemes proposed for them (However, this is a result of the kind of schemes proposed for them and not due to the fact of redevelopment itself). Urban environments change according to the needs of dwellers, rather than forcing residents to live according to dictates of the physical environment.

2) Access and equity : Private sector led development has produced environments in recent times that have completely turned inwards and detached themselves from the public sphere of the city. This is a disturbing trend, representative of the material and symbolic exculsion inherent in the neo-liberal model. The creation of a universally accessible and cosmopolitan public sphere that ensures safety, health, literacy and cultural diversity is central to any transformation of the built environment. In addition to this, it is important to provide more or less equal means (land, built up space, amenities) to all urban dwellers - the well to do and the poor - rather than the generally accepted notion that different income groups must be offered different living standards. Equity does not result in homogeniety, and disparity is not diversity. While most recent redevelopment has exacerbated urban inequities, there are possibilities of progressive redistribution that is much needed in our cities.

3) Economy, affordabity, incrementality: Transformation of a neighbourhood must be within the economic means of its residents - albeit with some assistance - this will ensure a gradual, need based evolution of the area as opposed to sudden disruptive change (however, safeguards in poorer areas against gentrification are necessary).



The graphic compares different modes of development using the critera of dweller contro and equity. It also suggests the effects of privatised or public modes of socia infrastructure provision based on the two critera

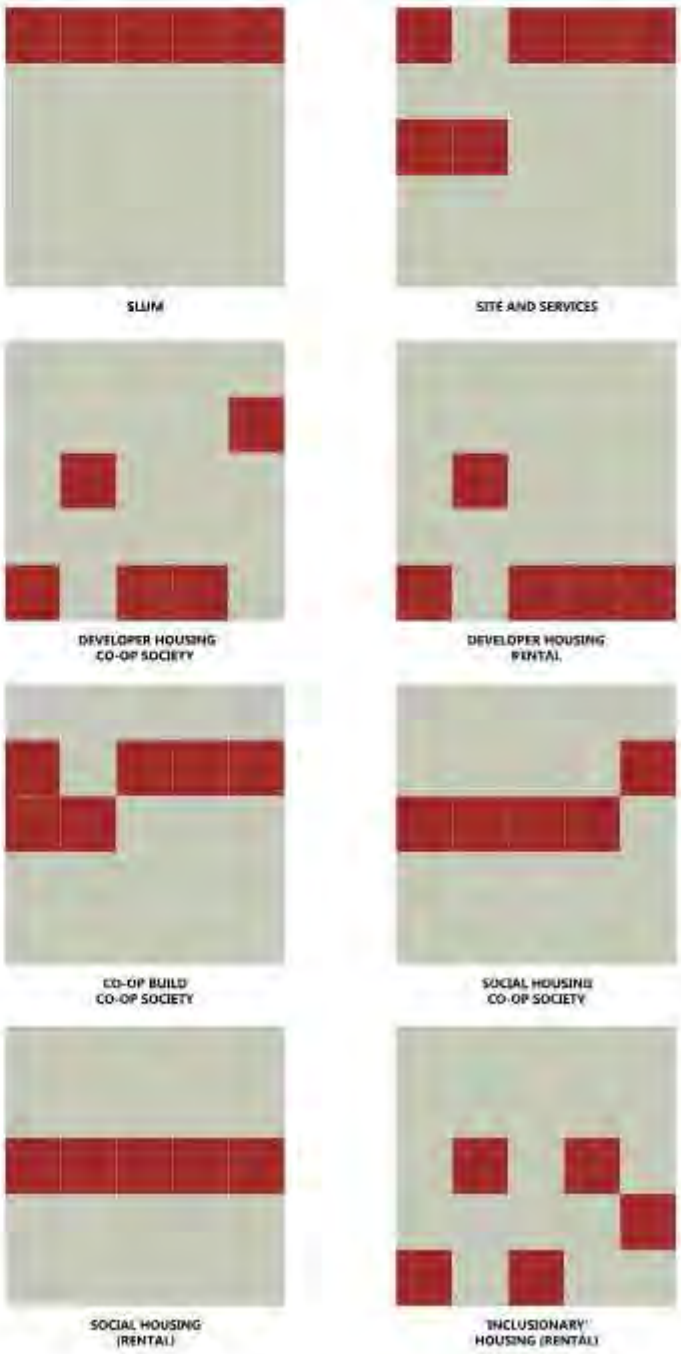
Incremental change that allows people to decide when they want to invest in their own homes or communities seems far more sensible than the majority "consent" methods that are currently employed. All of this ensures that investment will have to be made only for public functions – building and running hospitals, schools, public transport, etc - and development will be cheaper, less disruptive and more effective.

4) Access to livelihoods and employment : Access to means of livelihoods is crucial, and much of the employment in poor neighbourhoods happen in mixed use residential areas - something that most redevelopment schemes ignore. Plans for improvement must ensure a range and hierarchy of livelihood options and infrastrucure - from live and work types at the household level, to community spaces for cooperatives, to neighbourhood livelihood centres, infrastructure for street vendors, formal and informal markets, as well as access to cheap and efficient public transportation for travelling to work elsewhere in the city.

Institutional Models: A Comparision

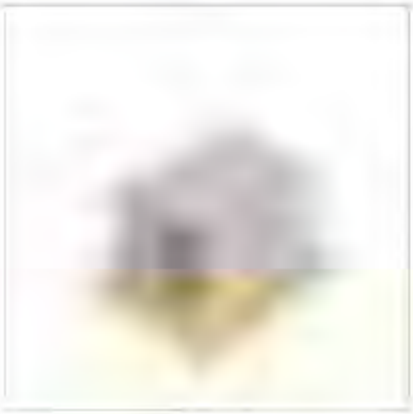
In the illustrations below, the institutional models of different kinds of housing that exist in the city are described. The illustration to the left is the key to the ones on the right - the columns indicate agencies involved (individual, community, public agency, NGO's or firms) and the rows enlist different components of the housing development process (financing, basic infrastructure, building, allotment and management). Though schematic, they illustrate the roles agencies assume for various types of housing developments. In general, the top two rows suggest greater dweller control and the middle three rows suggest greater equity.

	FINANCE / INVESTMENT	BASIC INFRA / FACILITATION	BUILDING	ALLOTMENT	MANAGEMENT / MAINTAINENCE
INDIVIDUAL					
COMMUNITY					
PUBLIC AUTHORITY					
NON-PROFIT PRIVATE					
FOR-PROFIT PRIVATE					



Mode of provision

In Malvani itself, there are quite a few examples of how housing can be provided, especially on greenfield sites. There are numerous examples of site and services schemes in the city, and apart from NCC, OCC and MHB in the Malvani area, other notable examples include the Charkop scheme (that has become a middle income neighbourhood today) and Shivaji Nagar in M/E ward where conditions are very similar to those in NCC and OCC. In a site and service scheme, only land titles and common services are provided, and the house itself is built by dwellers. In some schemes, financing, materials and even design guidelines may be provided (Aranya housing project designed by B.V.Doshi is a good example). Another provision method is a "shell and services" scheme where the framework or structural grid is built with circulation areas and services, and the families alloted a house can build the infill walls and furnishings as per their wishes. Shell and services work better in areas where land is in short supply, and housing needs to be built at higher densities. The most common mode of provision is the apartment where the house is complete when delivered to the dweller. The earlier types give much more freedom to residents to design and build their own homes, and are incremental in nature, the house changing with their needs.



Proposals for Housing in Malvani:

From the above discussion it is clear that any development process will have be based on the following principles:

A) Incremental

B) Equity

C) Mixed use (retaining and enhancing livelihood opportunities)

D) Cooperatively self-devloped and self-managed

E) Low rise - high density[1]

The way an incremental, co-operative self-development could be undertaken is illustrated below. Drawing (1) depicts a typical site and services cluster (the process can be identical for slums as well), with residential units being depicted in yellow, the common utilities in brown, open areas in green and roads in grey. Three families on the nearside and five on the far side agree to undertake their development cooperatively (2). They then clear their units and ammalgamate their individual plots (3), and new, larger plots allow them to carve out some area as openspace (4). Then, based on the guidelines provided for redevelopment such as height restrictions and necessary setbacks (5), they build a G+2 or G+3 block that povides them larger living and work areas, private toilets, as well as amenity and commercial spaces shown in blue and pink (7).

By now, the two neighbours of the families on the nearside have the means to reconstruct their homes, and they build their own block that adds on to the construction carried out already (6) and (7). Slowly, as every family carries out their own construction, the block is completed, with the entire inner lane becoming a pedestrian open area with two courtyards, and areas for amenities and commerce. If the stairs are made external, the roof can become a semi-private open space for the residents, and if bridges are built, some of the roofs could be connected to provide a network of overhead open spaces that can be used by cooperatives for livelihoods, recrecreation and festivities (8). The blocks can now be cooperatively managed, and some of the new spaces in the block can be rented out to pay for building maintainence or as a small

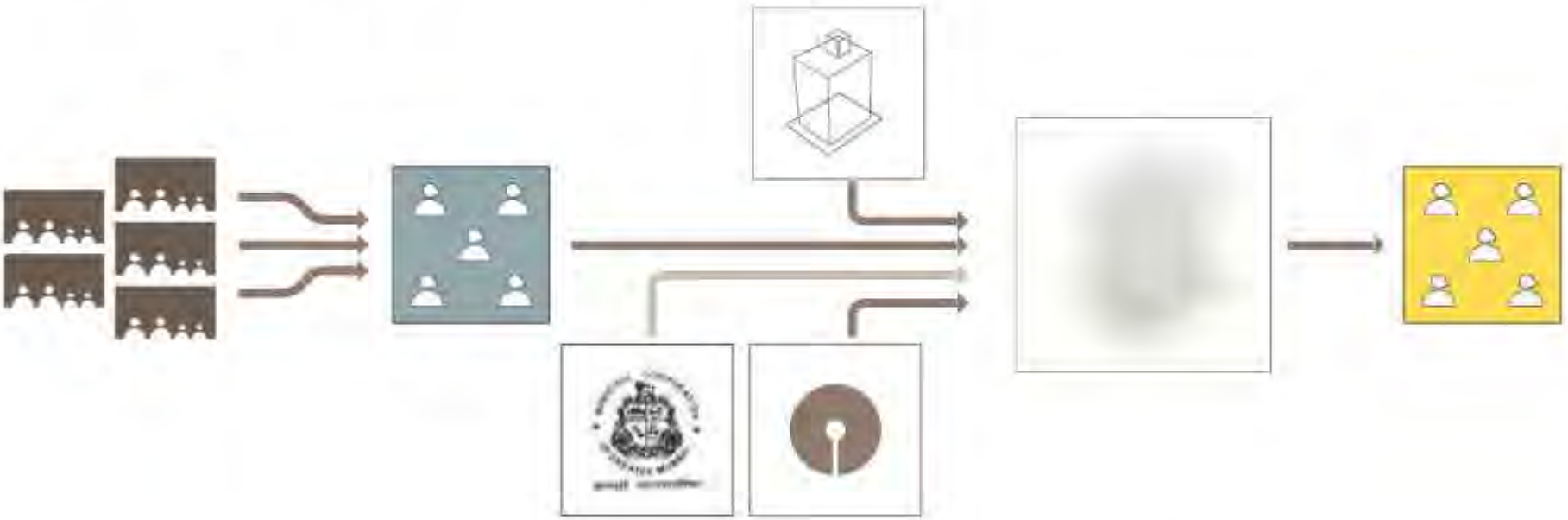
1 Some of these have been suggested by Charles Correa in his 1989 book 'The New Landscape.'

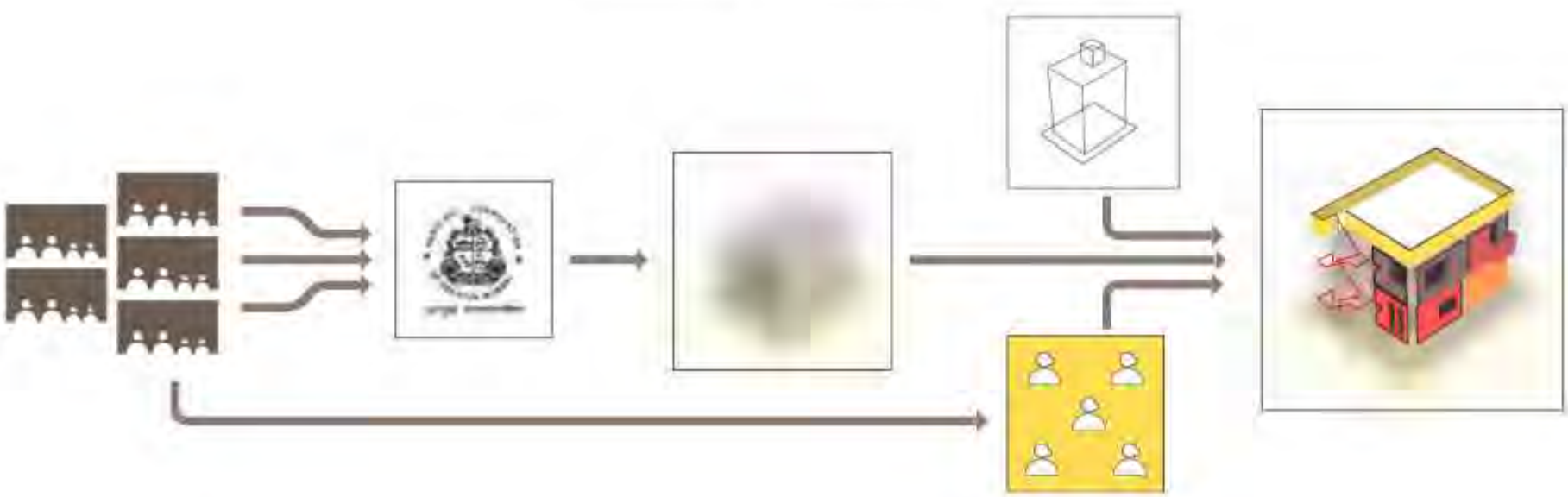
income for the cooperative.

For a process such as this, families will have to invest some money into their building cooperative - and such a process can be facilitiated by the public authority through the provision of low-interest loans or subsidies. Another way by which the self-development process may be facilitated is by the financing of the construction of a "shell" as a "shell and services" scheme - and individual families will complete their own allotted homes. But rather than the public authority undertaking this enormous task of buiding thousands of these "shells" itself, it could simply finance and regulated them and let the construction and management be undertaken by the cooperative.

The diagrams below explain the two methods through which housing can be developed in Malvani. The first method would be a co-operative self-development and self-management model, where a few families come together and form a co-op, and with some financial assitance and based on building codes, develop their homes by amalgamating their plots. Once the building is ready, the families become a dweller coop to manage their apartments - alternatively, when more modules get added to their block, the whole building could form a dweller coop.

The second model is where dwellers that wish develop approach the public authority, that builds a shell with services for the residents. The dwellers form a coop to manage and regulate their building, that is completed by the residents based on building codes.

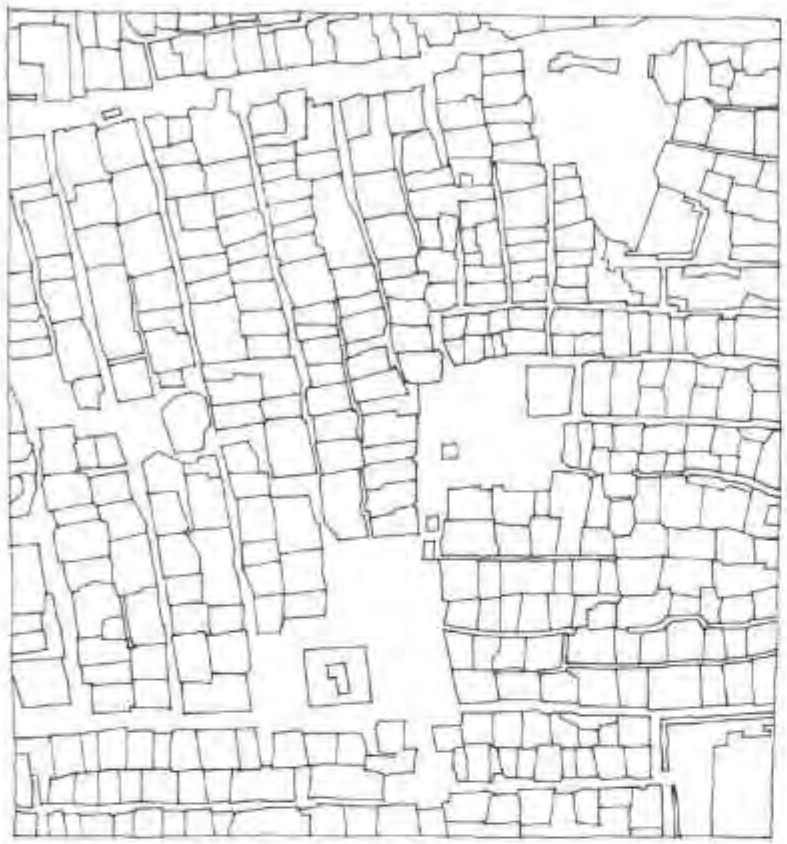


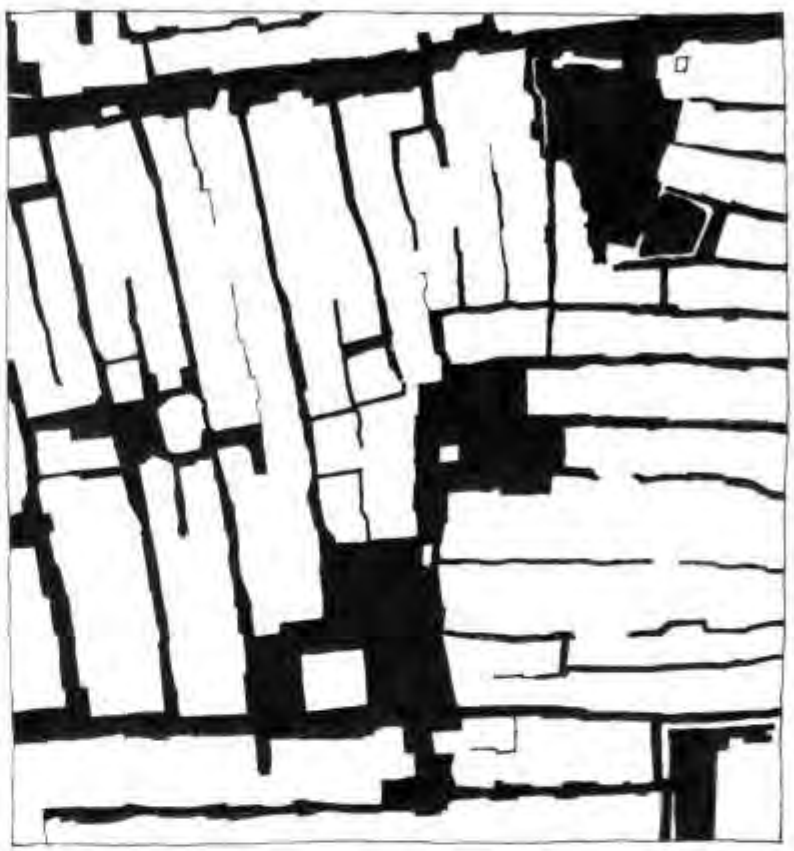


The following pages will describe some improvement and upgradation strategies for five communities in Malvani. A area of 100m X 100m has been considered and proposals have been suggested. These 'swatches' have been located on the map on the left. The communities are Amboojwadi, Azmi Nagar, OCC, BMC and MHB

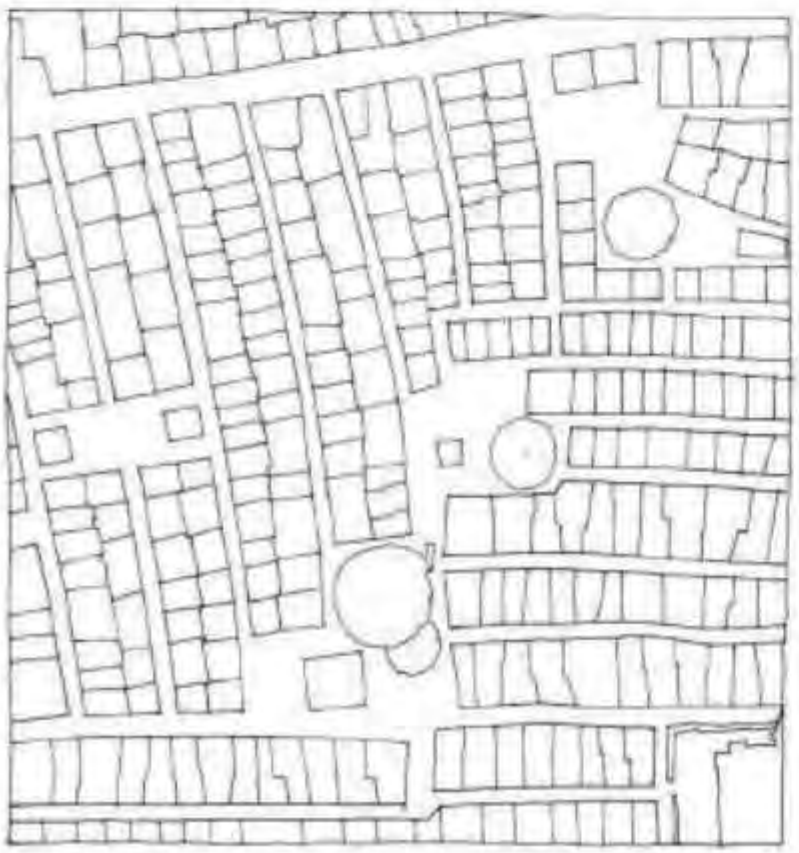
Amboojwadi

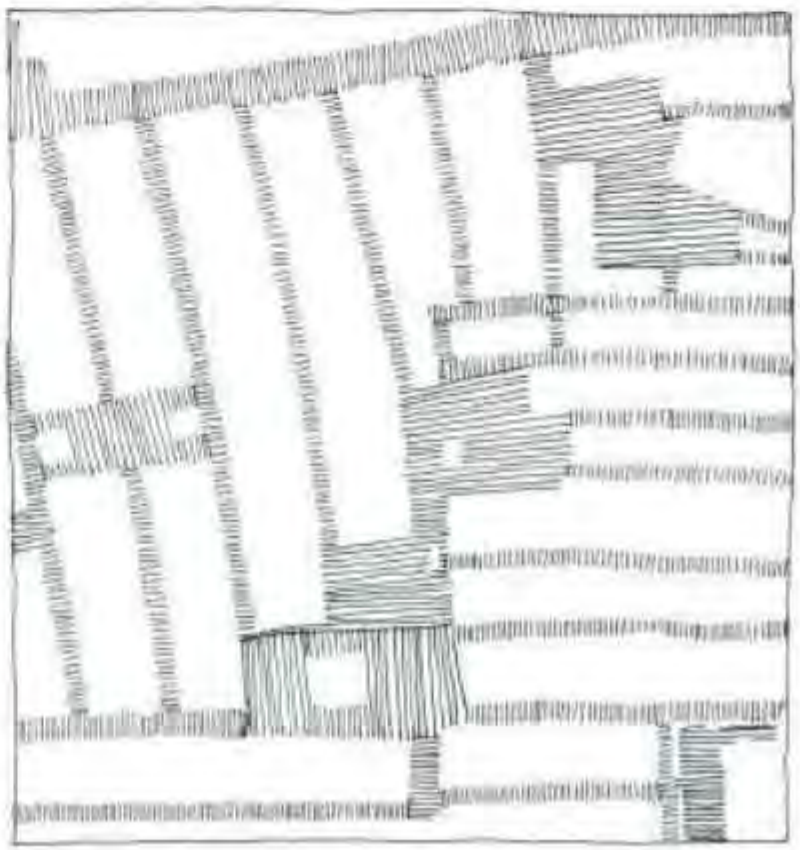
The range of possible development options





These swatches show the existing settlement structure and pattern in Amboojwadi. The drawing on the left shows the dwelling units, while the one on the right contrasts the built and the unbuilt areas. There are some community open spaces in this area. However, access is poor in a quite a few places.

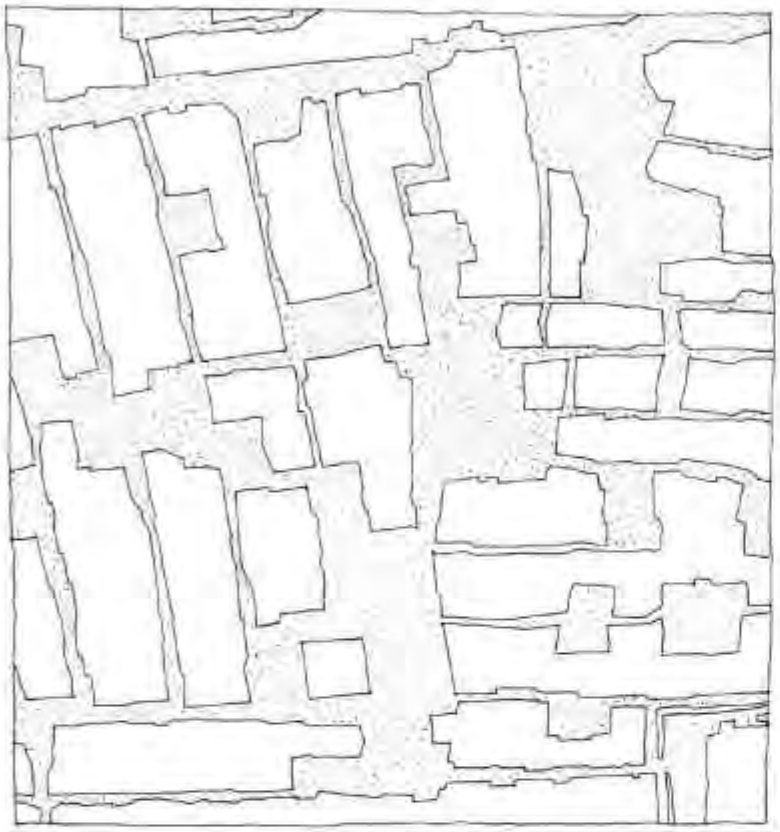


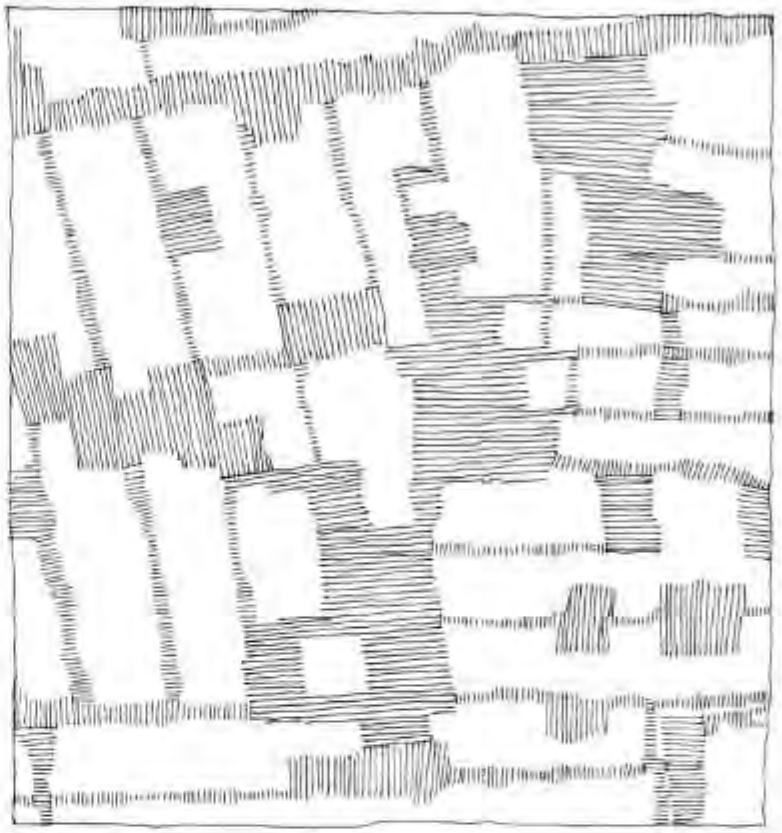


The drawings on the left show the proposed outline of homes in Amboojwadi after simple improvement measures that would involve paving all the major roads and alleys improving access and allowing houses that were cut due to widening to go a storey higher. Improvements would provide better sanitation, street lighting, and streets in the settlement.

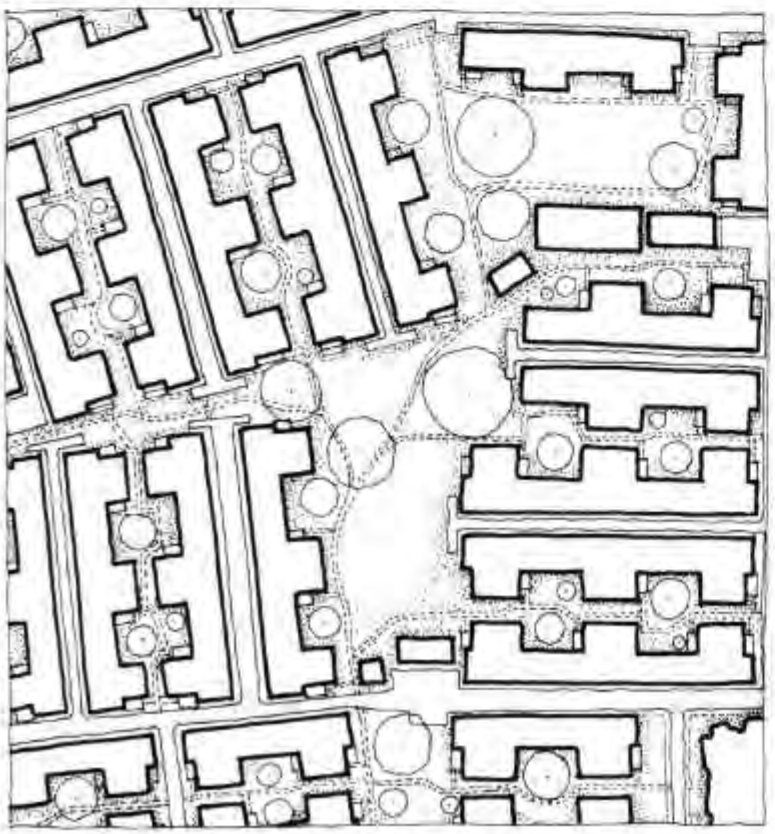
Amboojwadi

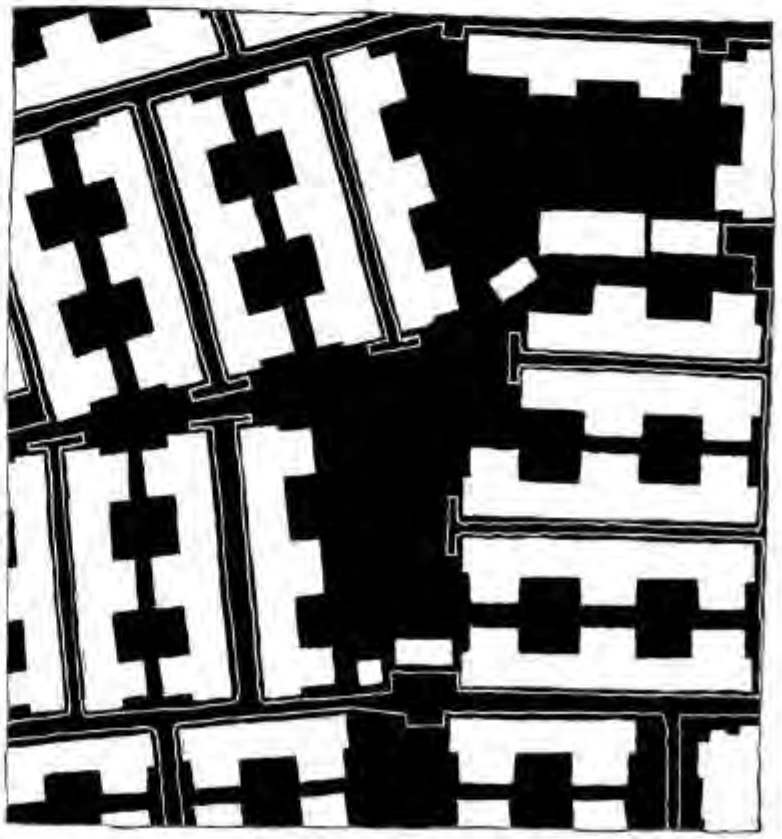
The range of possible development options





Here the same settlement is shown with proposed readjustment and reorganisation measures. This involves going beyond simple improvement by creating open areas in addition to those that already exist, laying out sewer lines to enable households to build private toilets and creating some amenities for basic health and education. In this process streets may be widened by cutting or moving back houses a few houses can be moved elsewhere in the vicinity to create open areas or some units may be converted to amenities by providing the family another unit etc. Homes may be permitted to go higher by a storey or more to accomodate relocated homes or to provide more space to existing homes.

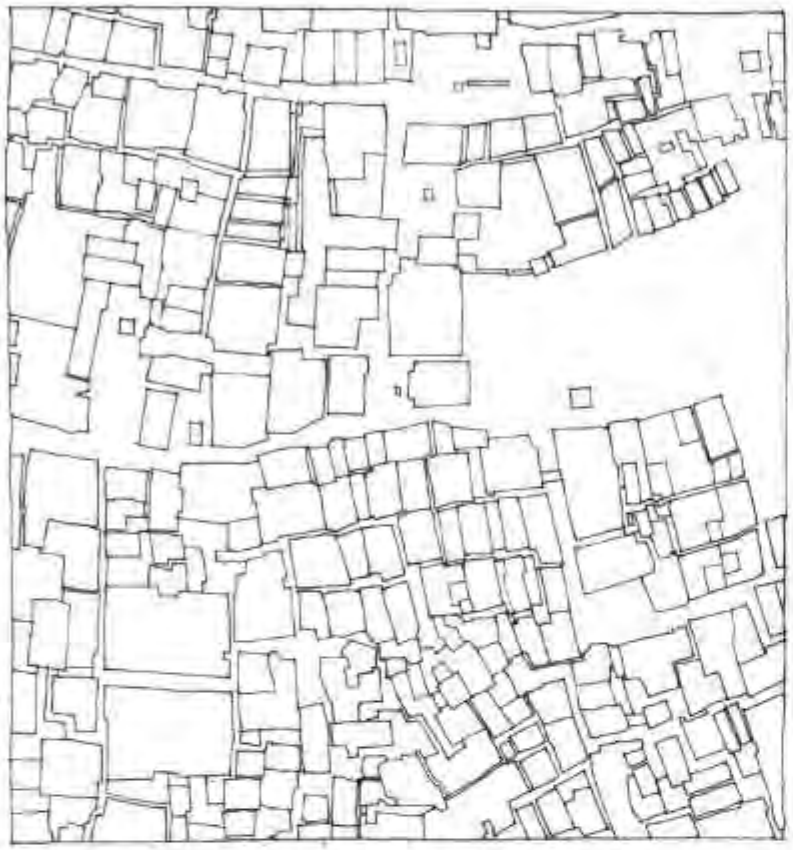




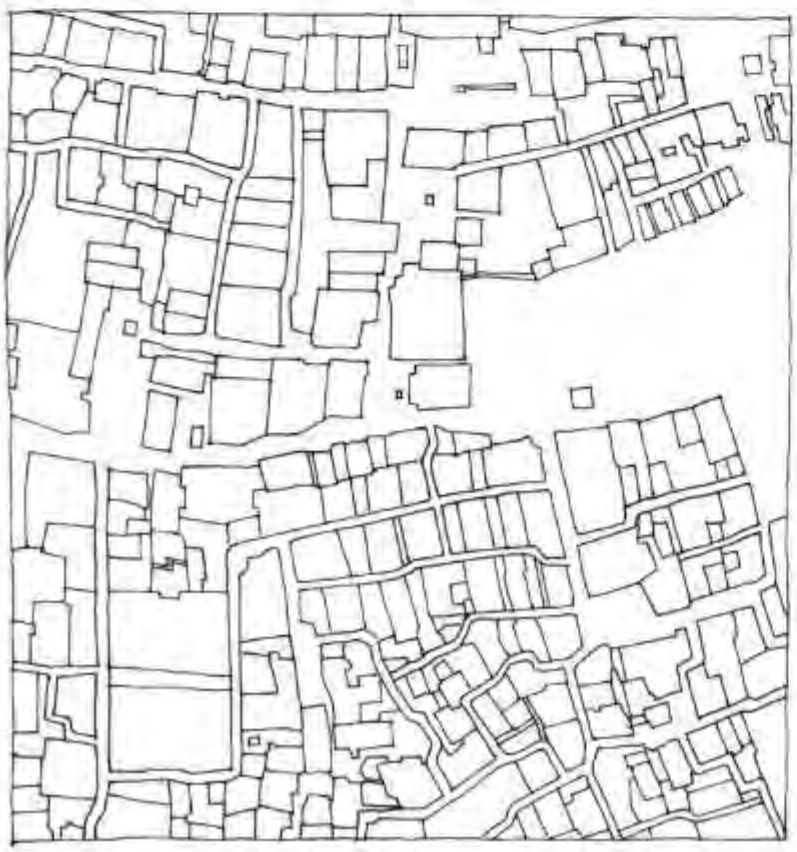
Finally the drawings on the left show a possible layout if communities undertake self-development based on a process that has been illustrated in the chapter on urban form (free layout typology). Here neighbouring units can come together as a cooperative and build according to simple guidelines provided to achive larger homes (by building upto G+3) with walk up accomodation, more amenity and open areas, improved access and movement, greenery, private toilets, terrace spaces, commercial functions etc. The drawing on the right shows the improved pedestrian network (curved paths), amenities and open spaces. The details of the housing units are shown in the next section

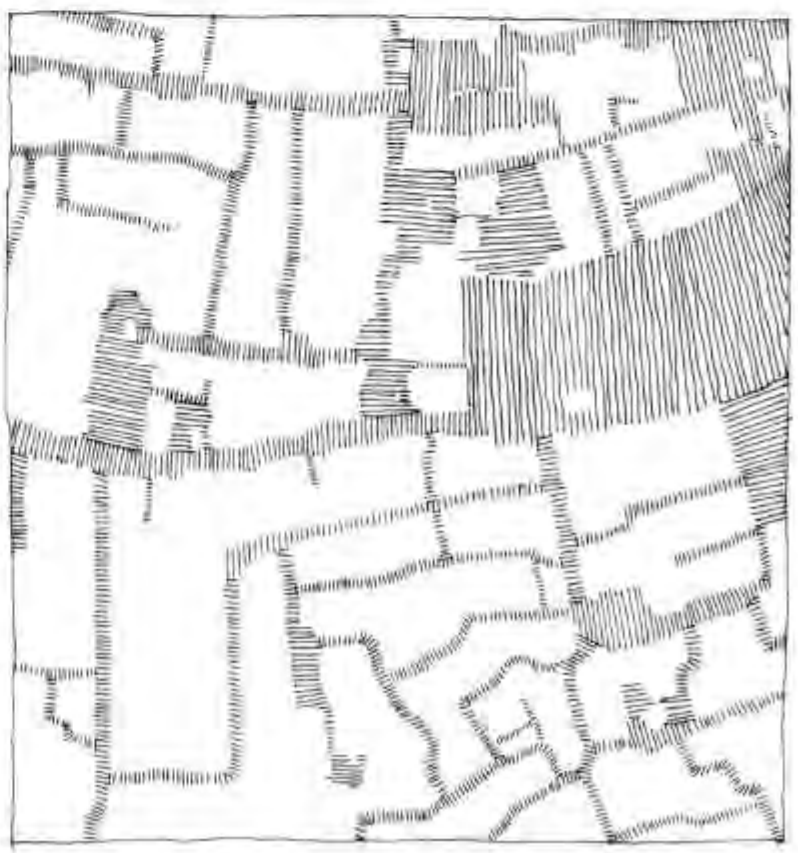
Azmi Nagar

The range of possible development options



These swatches show the existing settlement structure and pattern in Azmi Nagar. This swatch covers the area on the periphery of Azmi Nagar that has some open areas - most of Azmi Nagar has very few open spaces. However the settlement blocks in Azmi Nagar tend to be more intesively built up on the edges but tends to be more open as one goes in. Unlike Amboojwadi that has a strip like layout (it is also a "newer" settlement) Azmi Nagar is more block like with a series of courts within the blocks

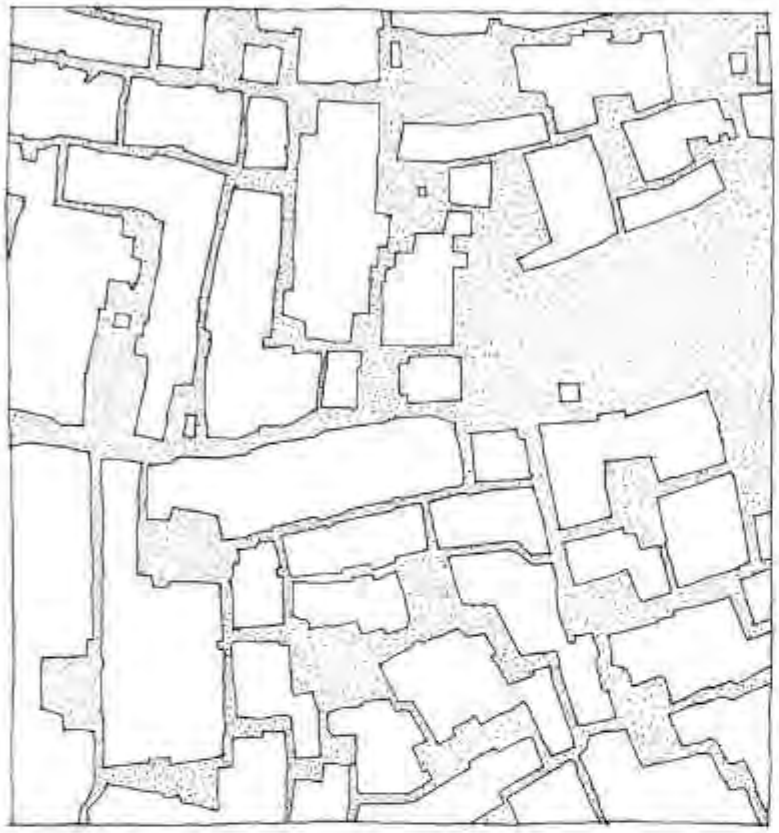


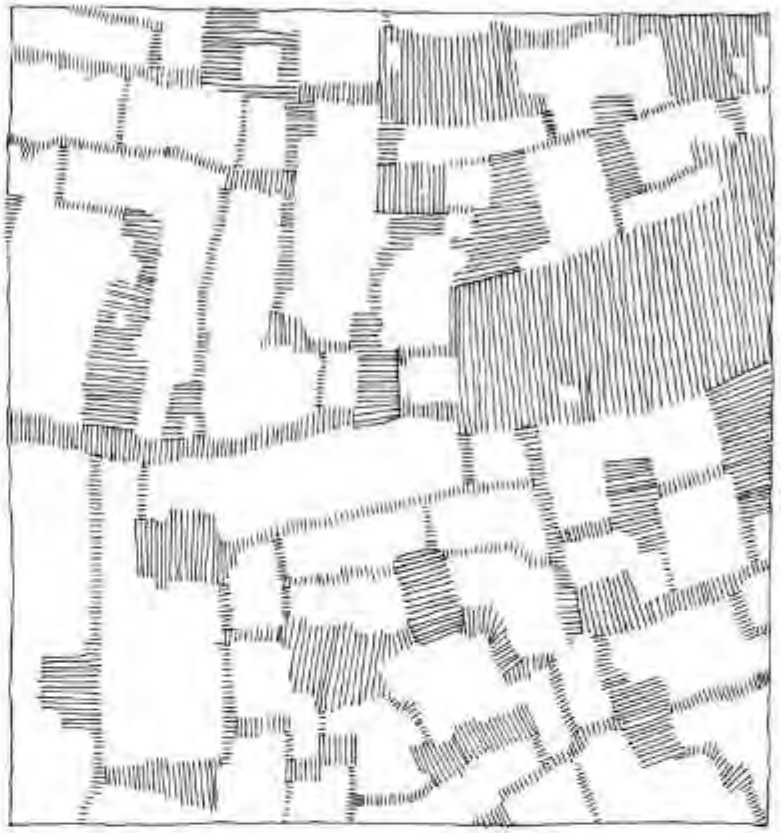


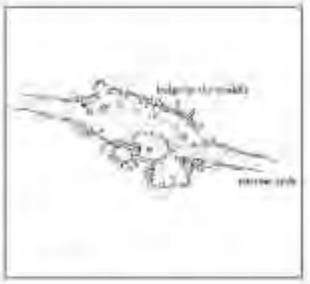
Here as improvement measures the pathways within the blocks and the main roads are paved and in some places widened to improve access, and allow for light and ventilation for the lower storeys.

Azmi Nagar

The range of possible development options

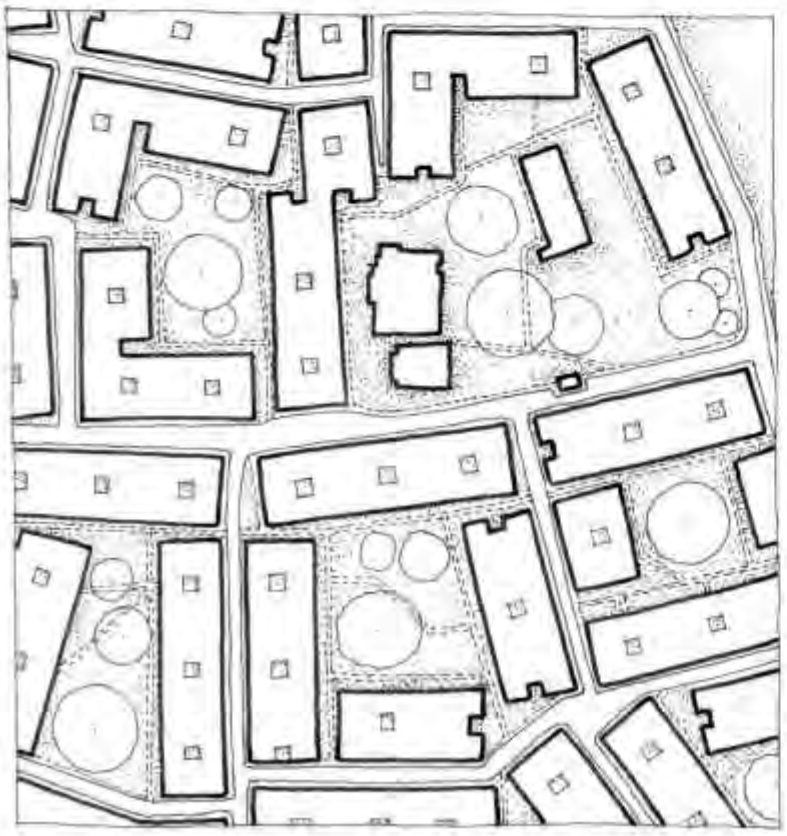


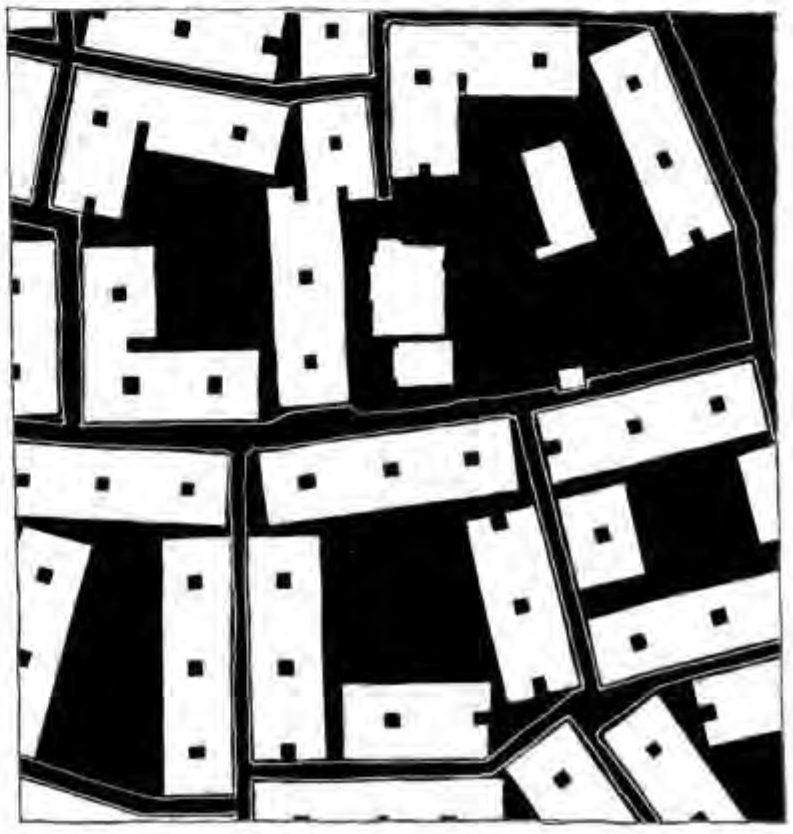


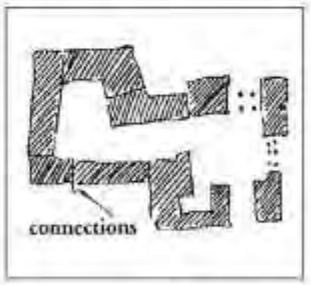


'Make a bulge in the middle of a public path, and make the ends narrower. [that forms] a place to stay, not just to pass through.' (Alexander et a. A Pattern Language, p 591)

In this option, readjustment and reorganisation measures are proposed. This can create many new small courts within the residential blocks and existing alleys may be improved and occasionally widened. This can open up spaces for circulation, light and ventilation without disrupting the inward facing nature of the residential blocks.





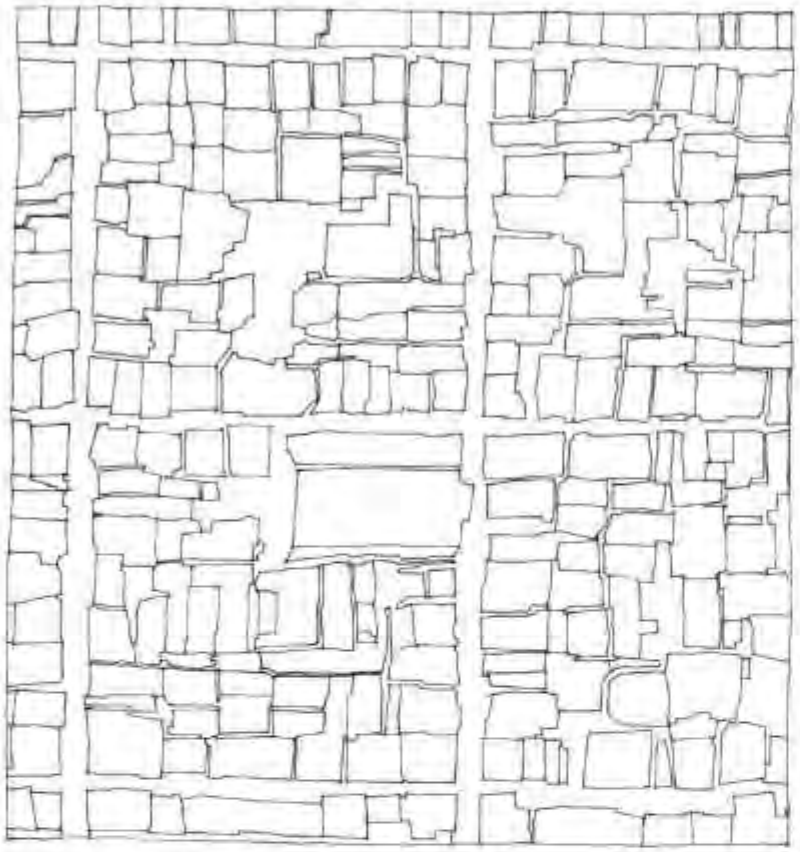


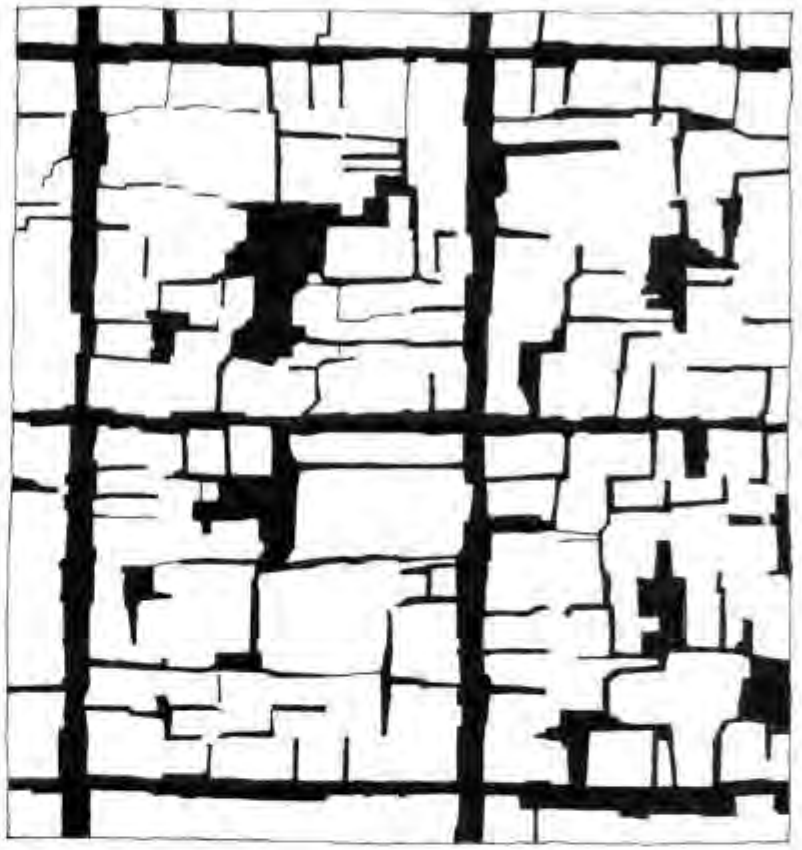
'Connect your building up, wherever possible, to the existing buildings round about; try to form new buildings as continuations of the older buildings.' (Alexander et a. A Pattern Language, p 534)

In this upgradation option, small clusters of homes come together and rebuild their homes as a cooperative. The upgradation option results in small enclosed blocks that have a semi-private court within, that results from the existing settlement pattern.

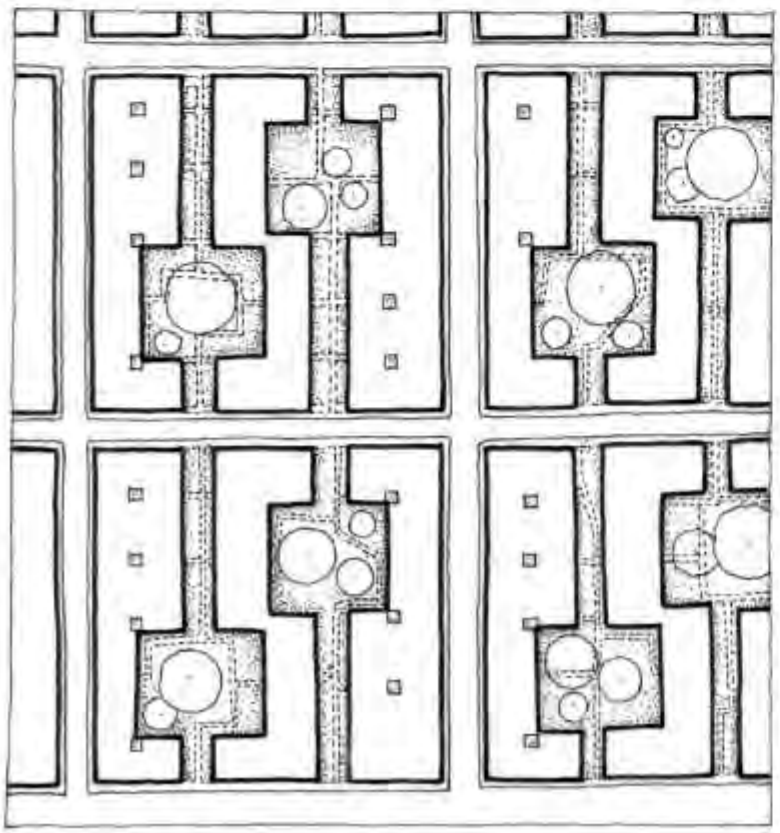
NCC - OCC

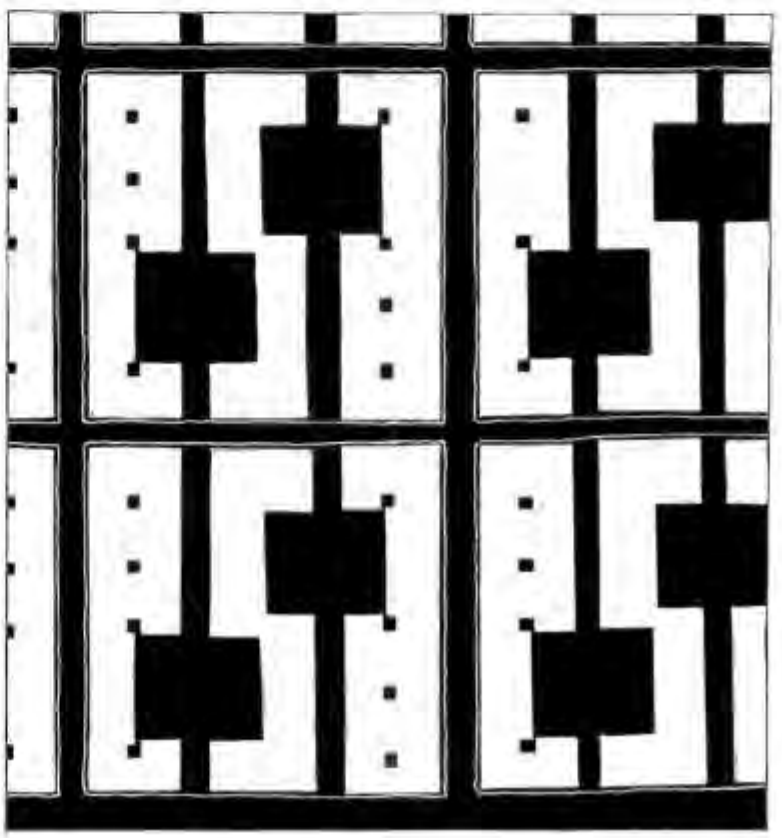
The existing settlement and proposal for upgradation

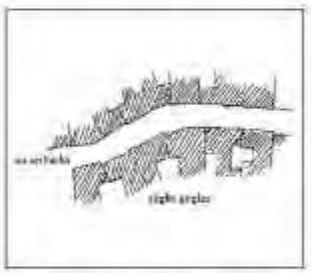




These swatches show the existing settlement structure and pattern in New Collector Colony (NCC). A resettlement colony, the low density scheme has been transformed completely and many of the open areas have been taken up for building homes. Sanitation is a serious concern here as the common facilities provided prove inadequate for the increased population and many of the residents have built private toilets that have outlets in the storm water drains due to the absence of a sewer line. Furthermore, the 2 or 3 storeys that have been constructed completely block of light and ventilation and some of the homes are unlivable in summers.





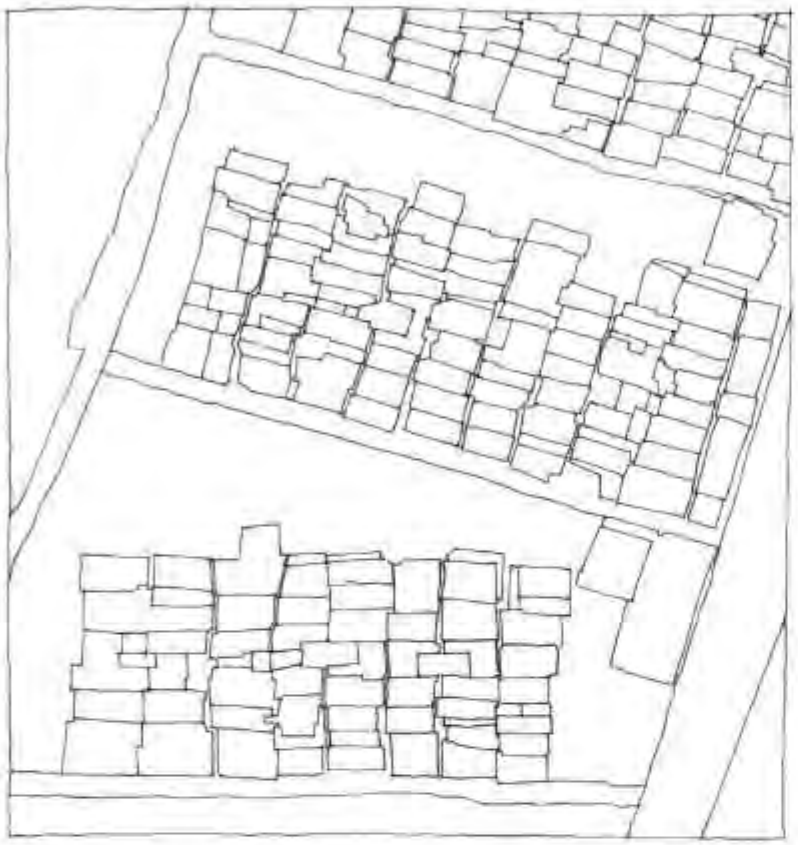


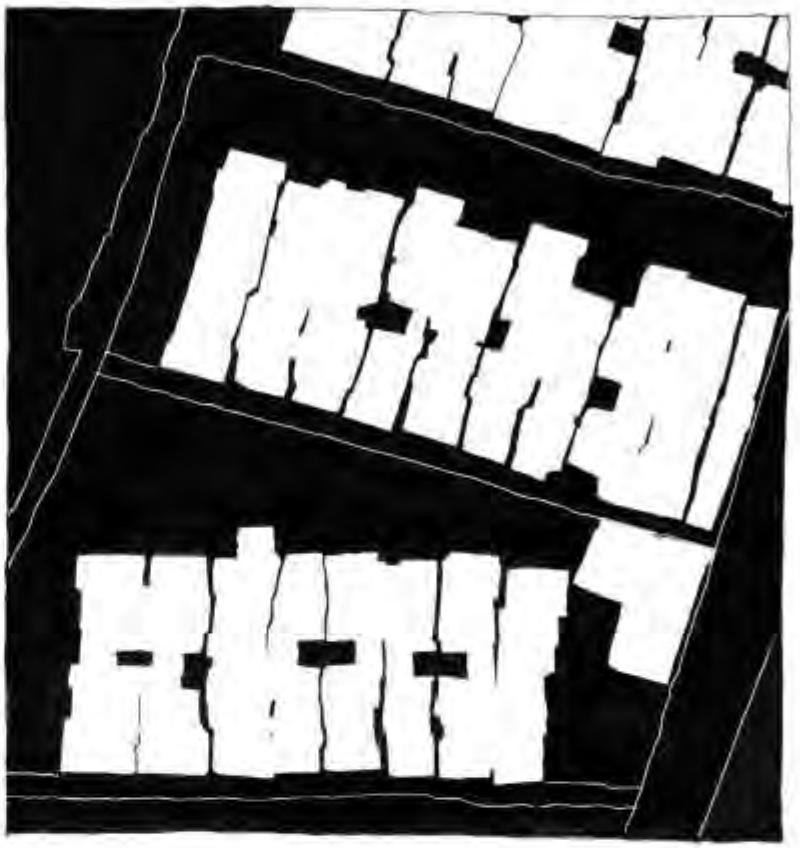
"The setbacks do nothing valuable and almost always destroy the value of open areas between the buildings." (Alexander, et al. A Pattern Language, p. 521)

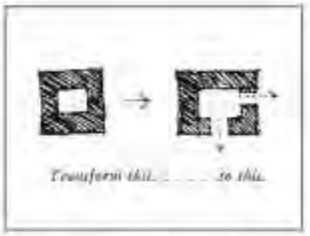
The upgradation model could create open spaces within the block. With a 50% ground coverage rule, no setbacks and 4 storey limit, a continous building along the edge of the block will open up building cluster level open areas within the block. Since the blocks are already laid out as an orthogonal grid, the buildings that accomodate the shape of the street will produce an orthogonal layout.

BMC Colony

The existing settlement and proposal for upgradation

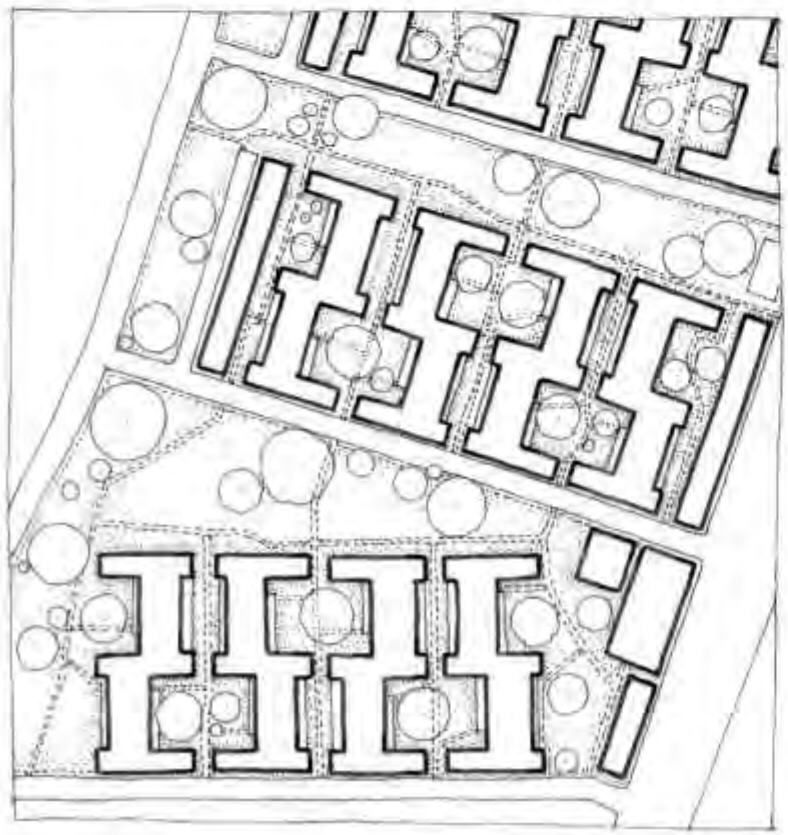


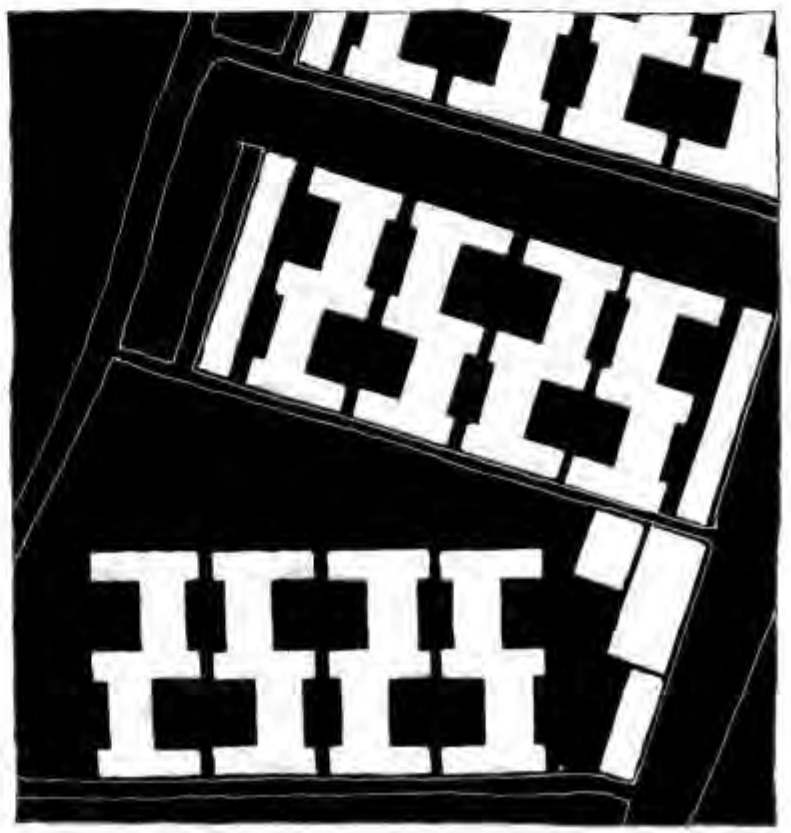




(Alexander et al. A Pattern Language p. 520)

BMC Colony retains its medium density layout though small extensions especially for building toilets have affected the alleys, especially the back alleys that have now become in many cases completely unusable. Residents have also added storeys due to expanding families and some have rented out these extensions. Common toilet facilities are used very less as residents have built their own toilets. Upgradation will need to incorporate all these requirements - more space, private toilets and some additional units.

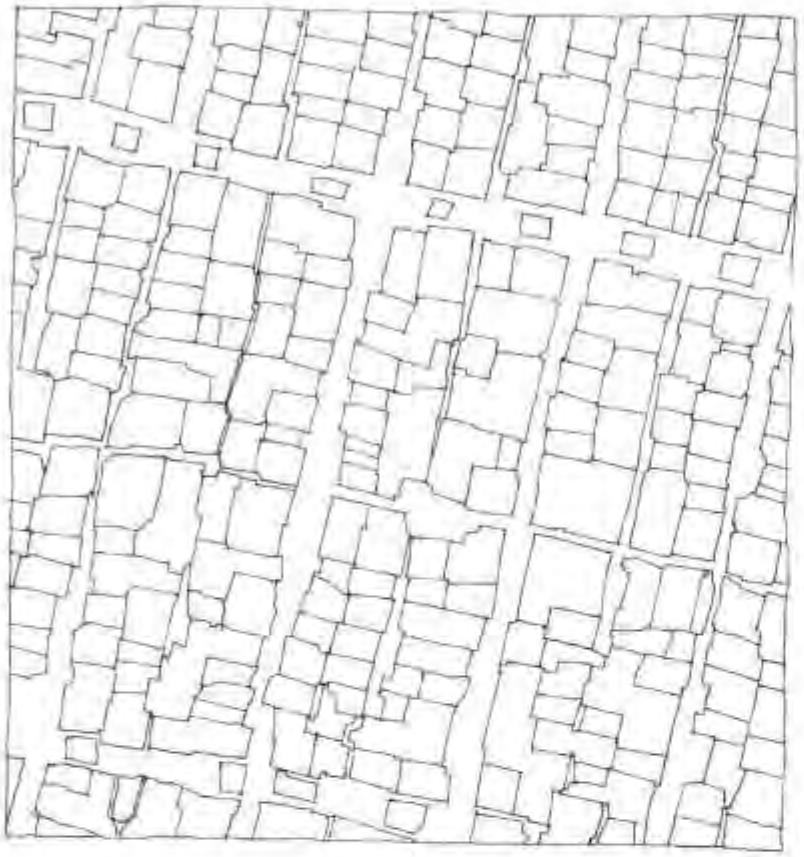


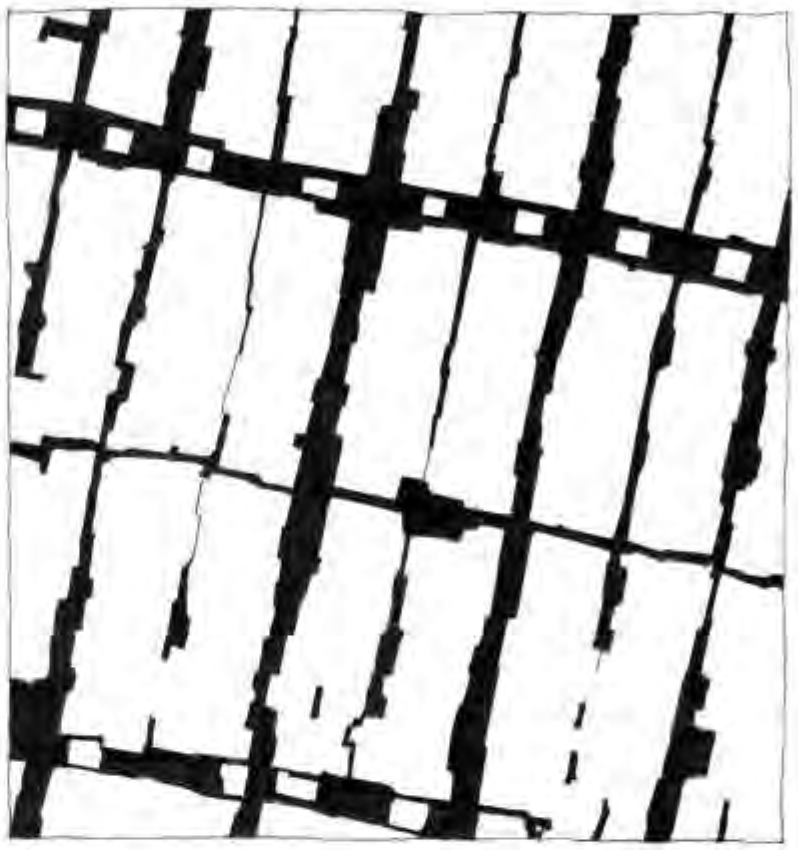


"Make all the outdoor spaces which surround and lie between your building positive. Give each one some degree of enclosure." (Alexander et al. A Pattern Language p. 521)

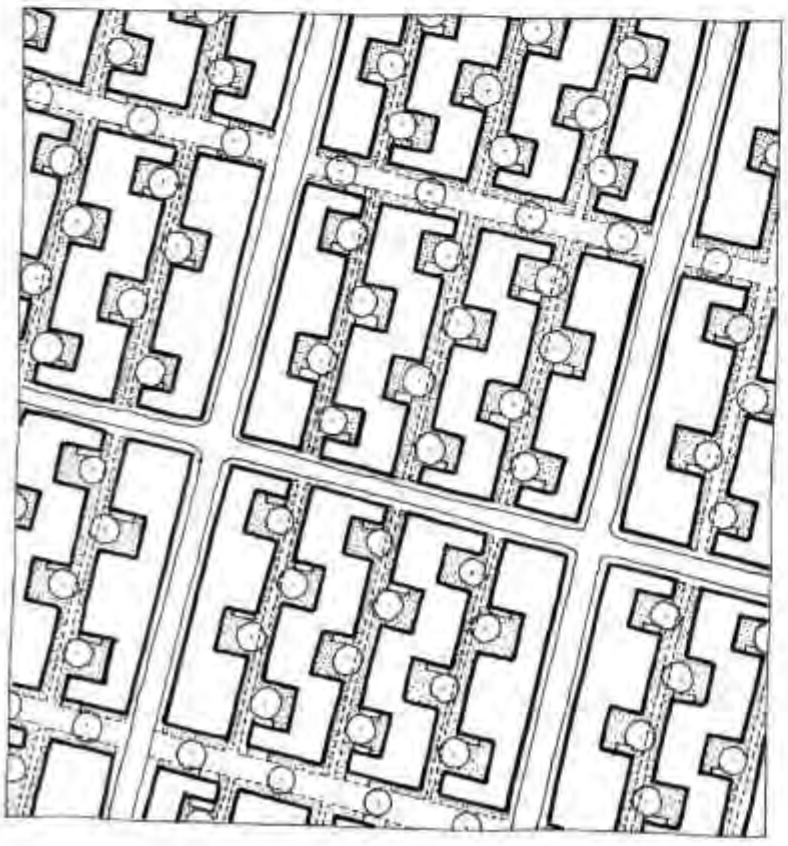
Like NOC and OCC on the previous page, the site and service layout when developed in an incremental manner results in an array of similar buildings. However the blocks in BMC Colony are arranged to create triangular open spaces, and there is quite a bit of openspace available here. Cluster open spaces between buildings on both sides will ensure that none of the paths become back alleys.

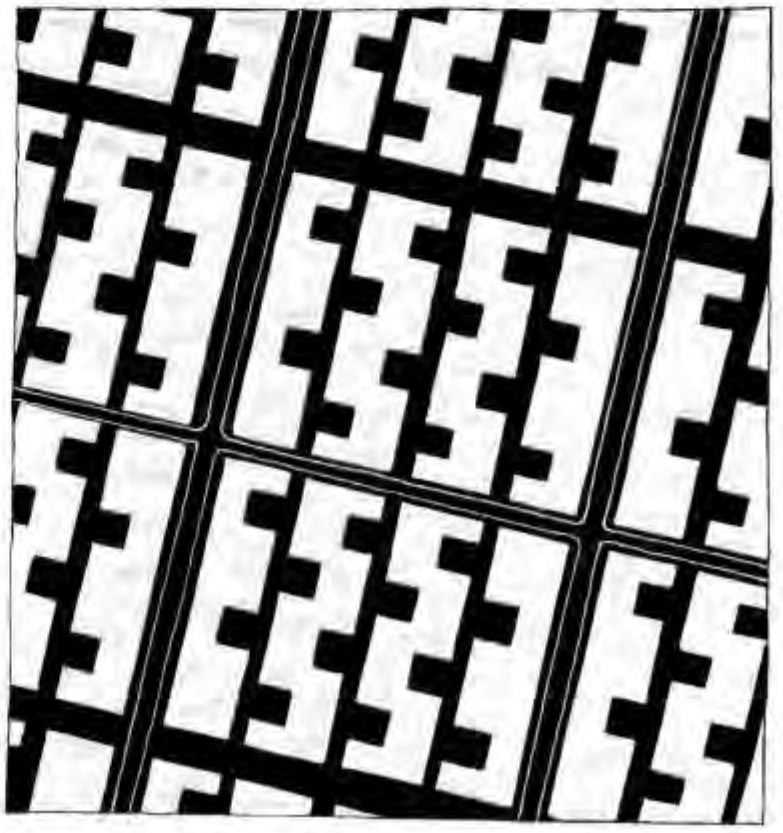
MHB Colony
The existing settlement and proposal for upgradation





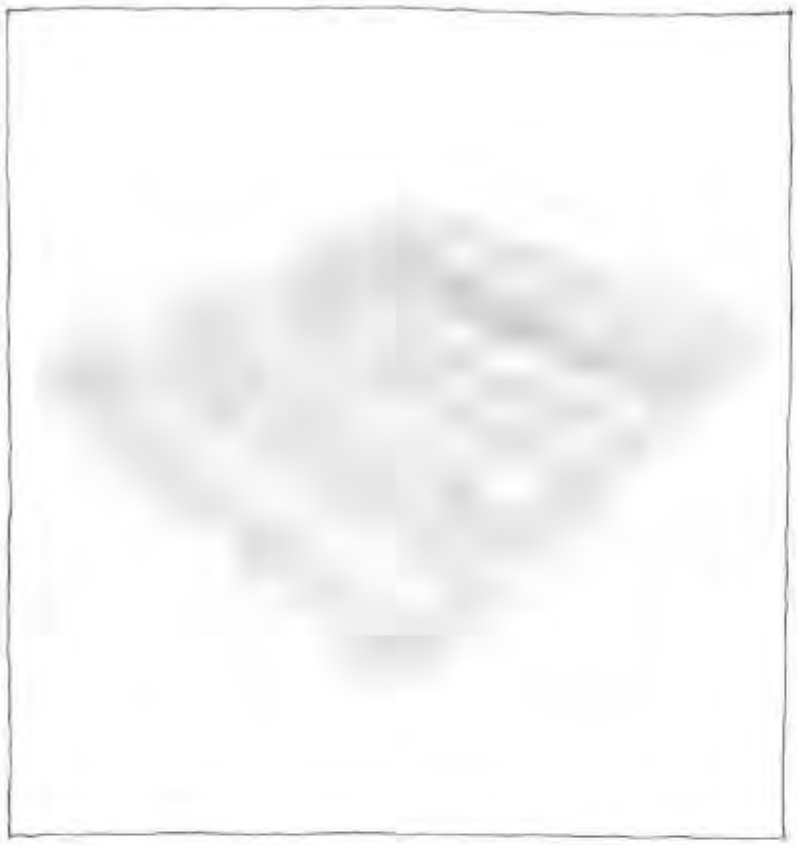
Though private space in MHB is quite limited, and almost every family has taken in the private open space just outside their doorstep, there is quite a bit of common open spaces. Like BMC and IVCE, many have built private toilets and residents generally aspire for more residential space and an improved public realm.





Similarly a good bit of openspaces at the building cluster level can be created in the MHB, with commercial and amenity functions at the ground level to make it more mixed in use that it presently is.

MHB Colony
Three dimensional views of original and existing community

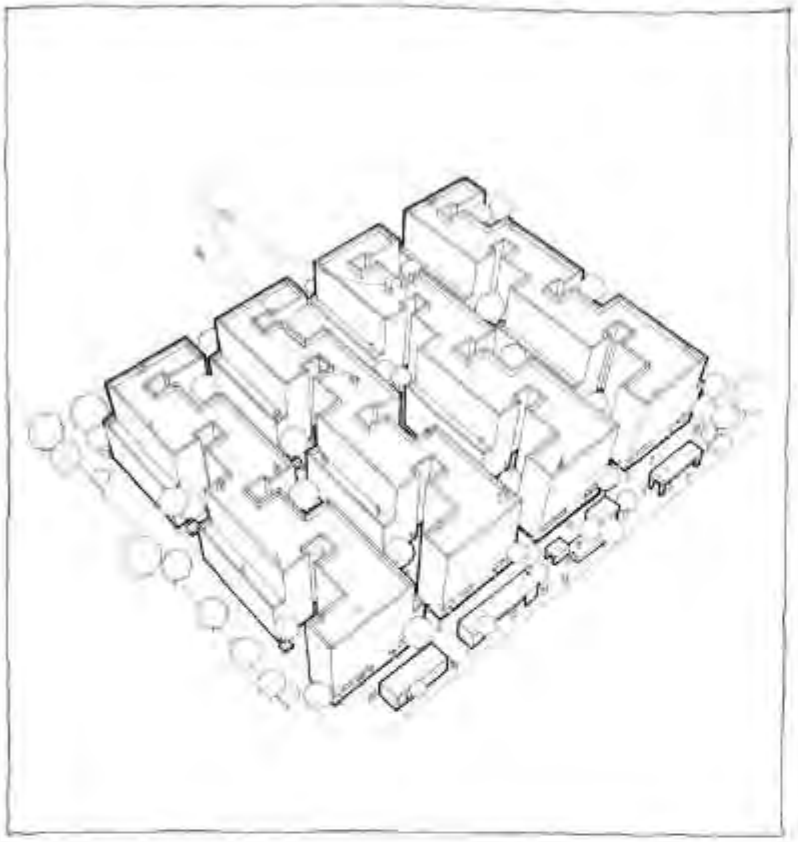


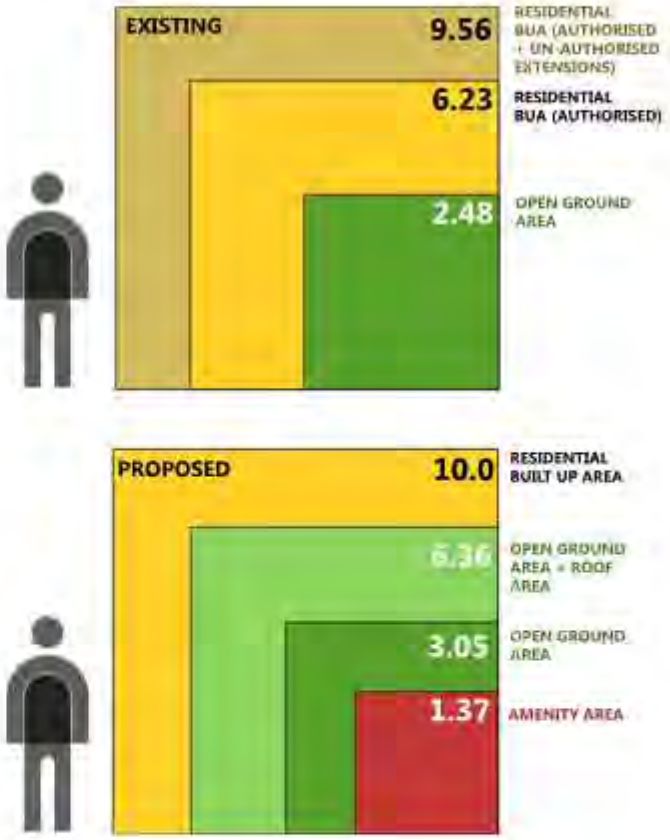
The drawings on the left show the MHB Colony as they were originally planned (left) and as they have become today (right). Every household was provided 4m x 5m tenement with a 2m x 5m private open area outside the entrance that most have enclosed due to an increasing need for residential space. Many have added one or two storeys, and some have given these extensions partially out for rent. The small blocks on the near end of the second drawing are the shared toilets and these are less used as people prefer to have private toilets in their own homes.

MHB Colony
Section through the existing community

This section illustrates shows the growing need for living space in the MHB Colony, and the way the community has coped with it presently. Since the homes are arranged in a back to back format, the depth of the house (after enclosure of the little open space outside) has become too much for light and ventilation in the inner room. Improvements in sanitation and water supply are other important priorities.

MHB Colony
Proposed three dimensional views of community

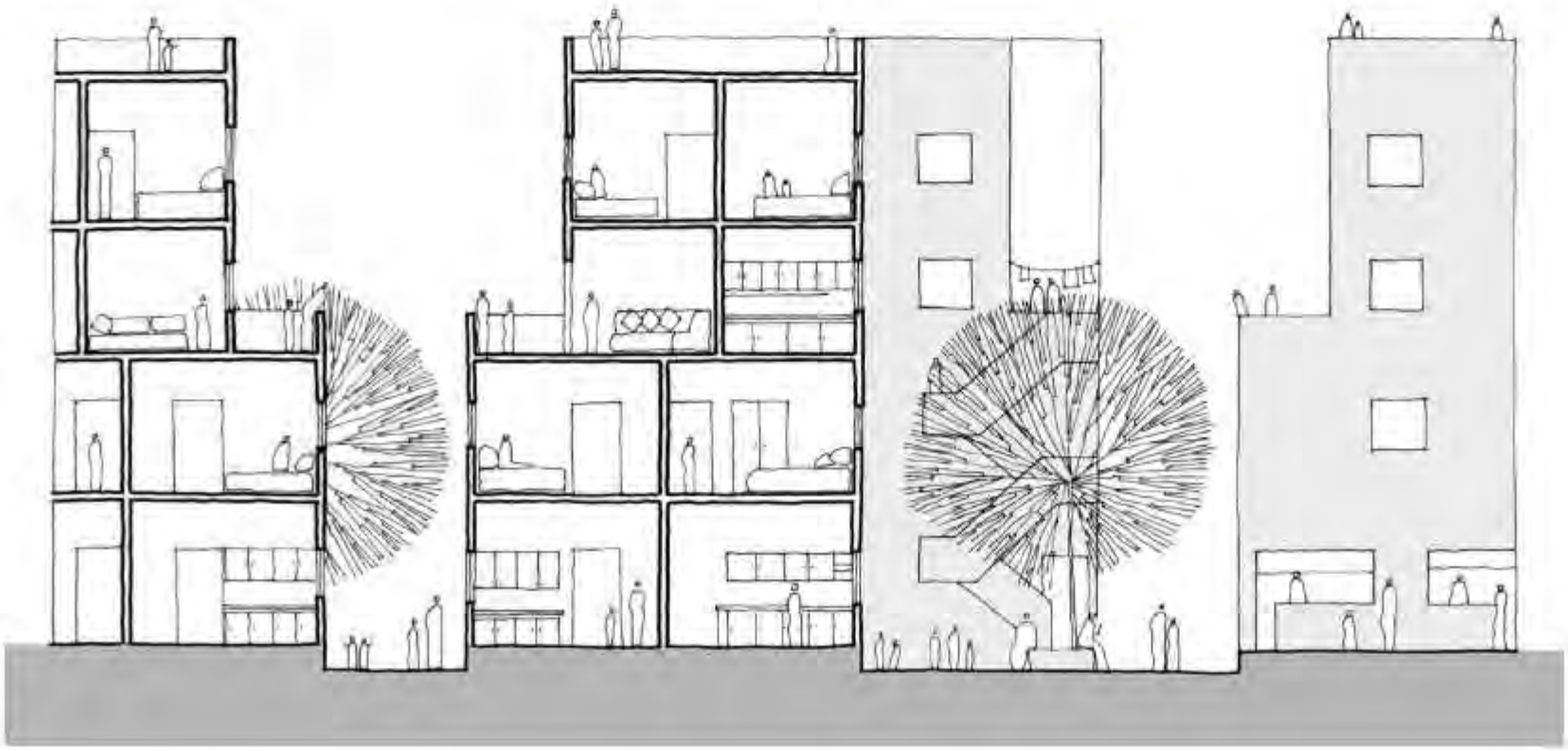




The graphic on the right compares the existing areas available per capita with the areas that can be achieved in the proposal

The upgradation proposal shown on the left (as a 3 dimensional view) and below (as a section) might overcome some of the current problems in MHB - Walk up accomodations are suggested, to make the terraces usable, and with private toilets, the areas used presently for toilets become amenity and commercial areas

MHB Colony
Section through the existing community

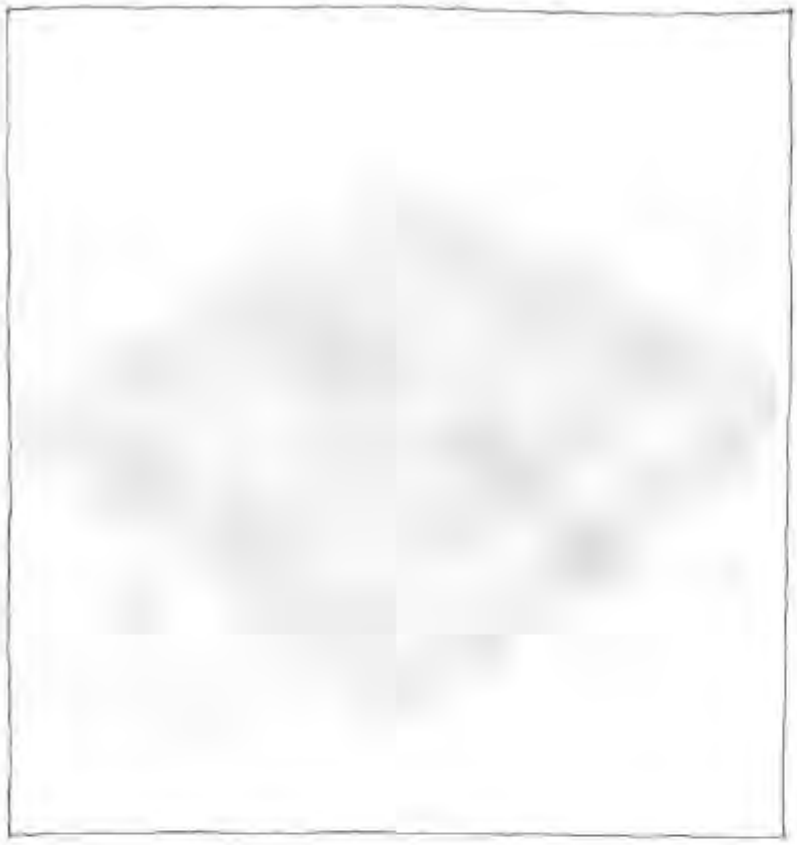


The proposed section shows the shared courtyards that provide access to multiple homes. This prevents the cluster level open spaces from getting enclosed. Though the proposal is a back to back house, the orientated layout will ensure that the longer side of every house will face either the courtyard or the street, improving light and ventilation to every house. The upper two storeys are setback from the streetline, creating a passage for the houses on the upper floors

This enlarged view of the proposed MHB building type shows the crenelated layout and public access (stairs) to the terrace. This way, the terrace becomes a semi-public open space. Shops and amenities at the ground level can be seen. The small cluster level courts become active in the evenings, and lots of sitting options could be created to enable this.

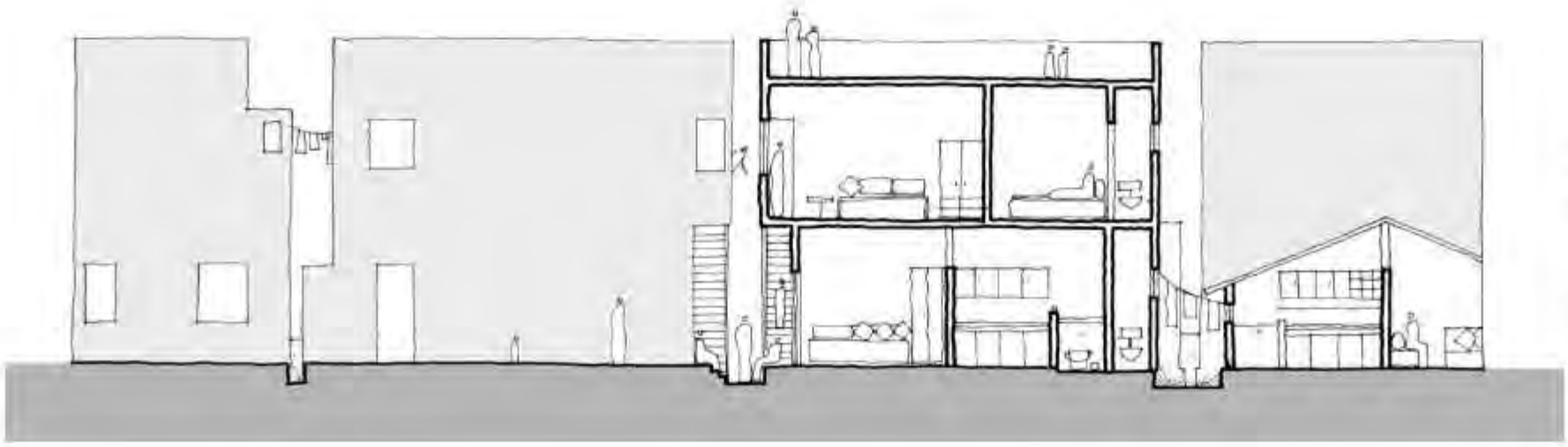
MHB Colony
Three dimensional view of the proposed building typology

BMC Colony
Three dimensional views of original and existing community



These drawings show the BMC Colony as planned earlier and what it has developed into today. Once again, the smaller units in the middle of the rows are the shared toilets. Unlike the MHB however the BMC colony was provided with community scale open spaces (can be seen in the swatches above). The alleys that lead to the shared toilets now become the gathering space - and residents have constructed platforms outside their homes to facilitate this. Additional storeys have been constructed by many and private toilets have been made that encroach on the back alleys, blocking access and making them unusable.

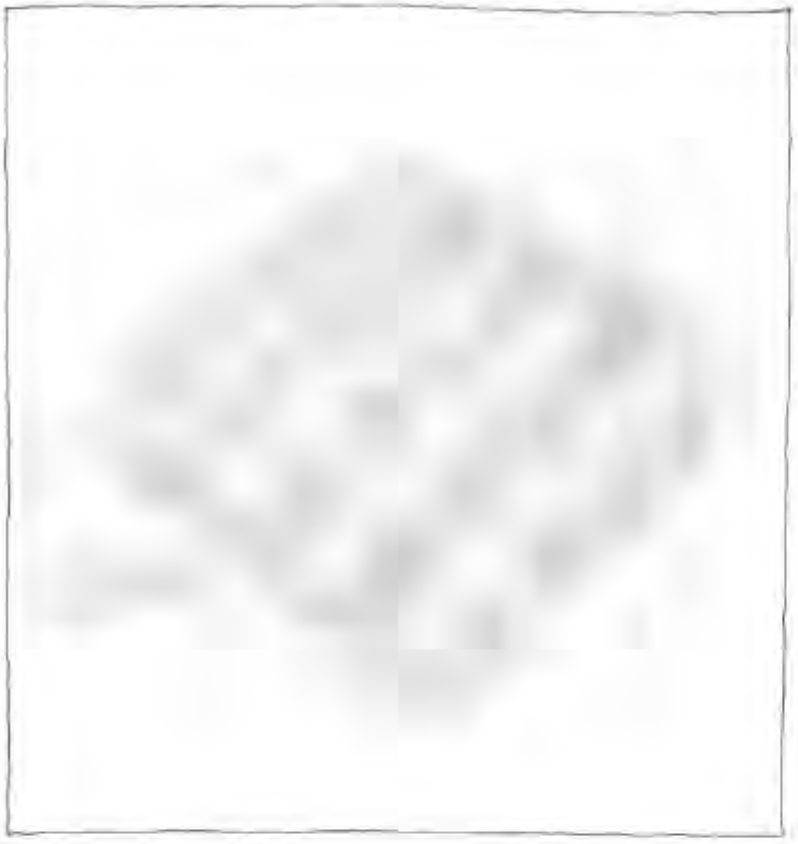
BMC Colony
Section through the existing community

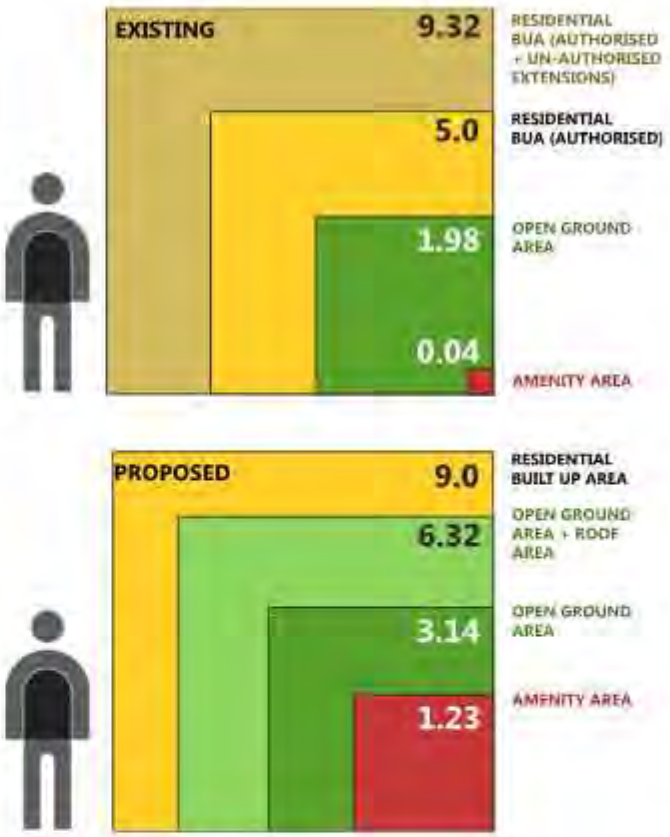


The existing section shows the front and back alleys - one actively used and well maintained, the other rendered unusable due to unauthorised extensions. Increase in living space, private toilets, amenities and better cluster level open spaces are some of the needs of the residents in this community.

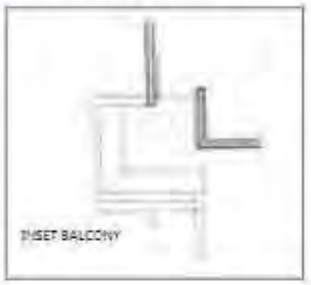
BMC Colony

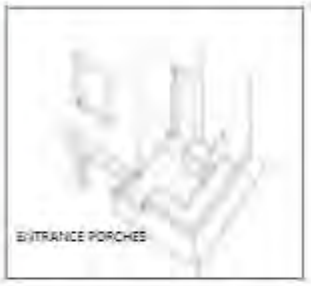
Proposed three dimensional views of community type (A)





The graphic on the right compares the existing areas available per capita with the areas that can be achieved in the proposal.

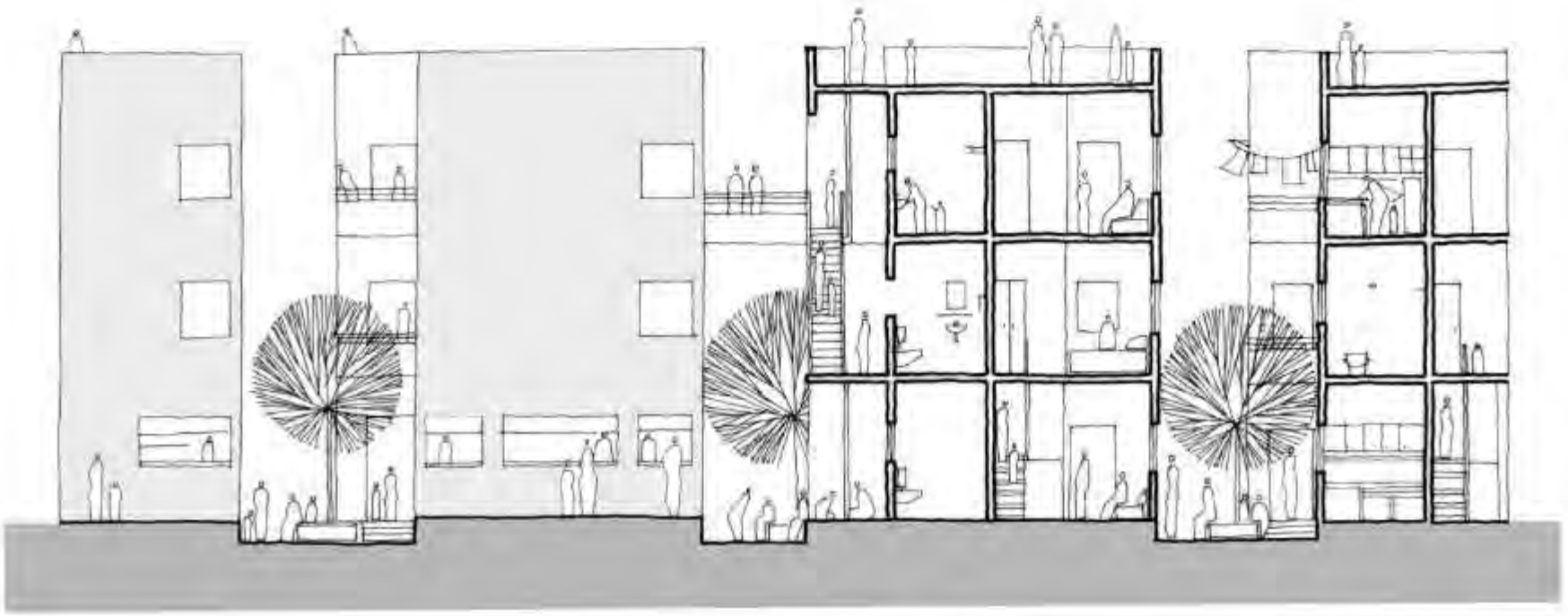




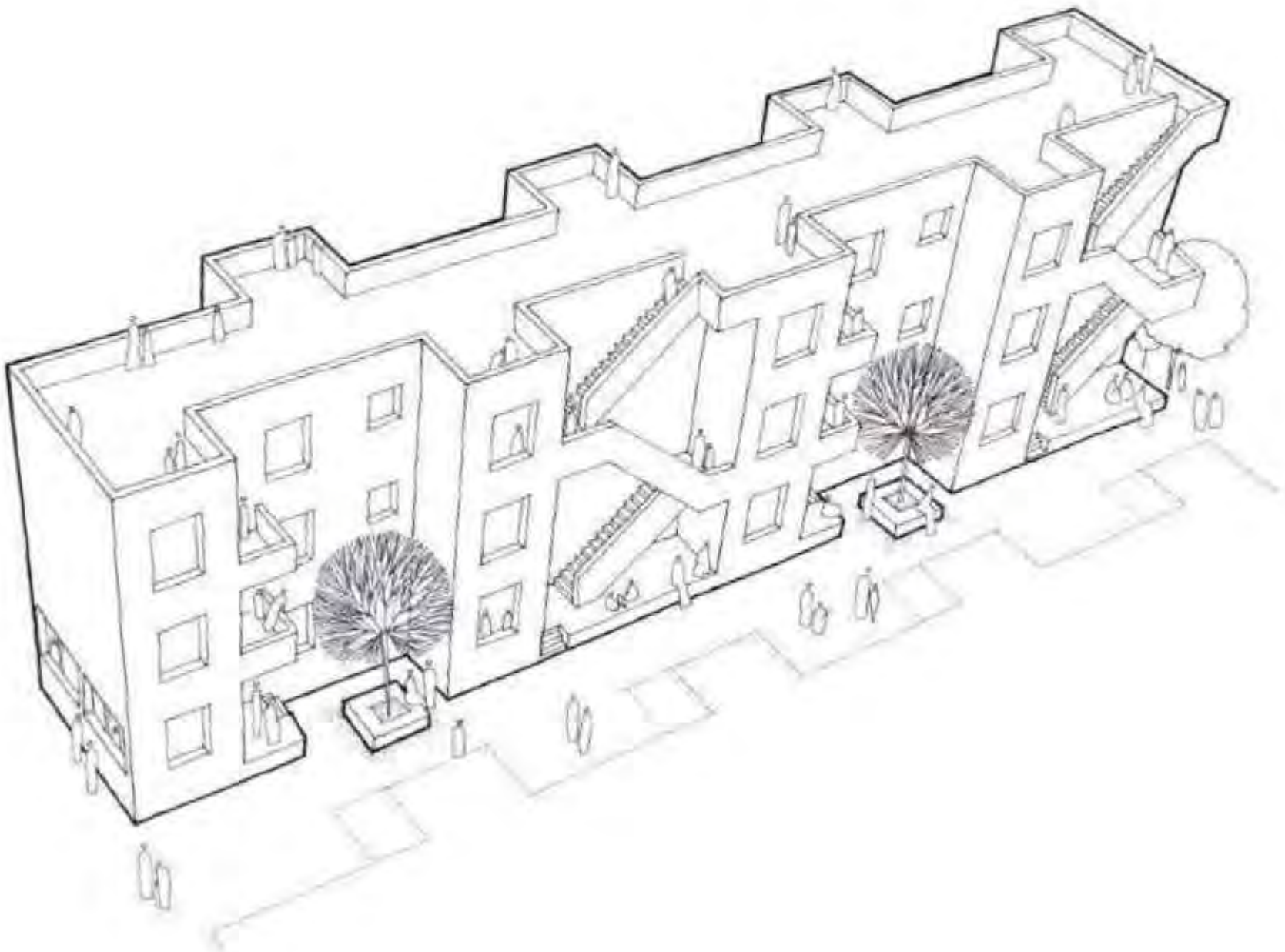
Two types have been suggested as proposals for the BMC one following the existing lot layout the other by combining two parallel rows of lots to create larger open areas. Improvements in the gathering spaces and increase in living space can be achived, and shared amenities and shops can be created in every building.

BMC Colony

Section through the existing community type (A)



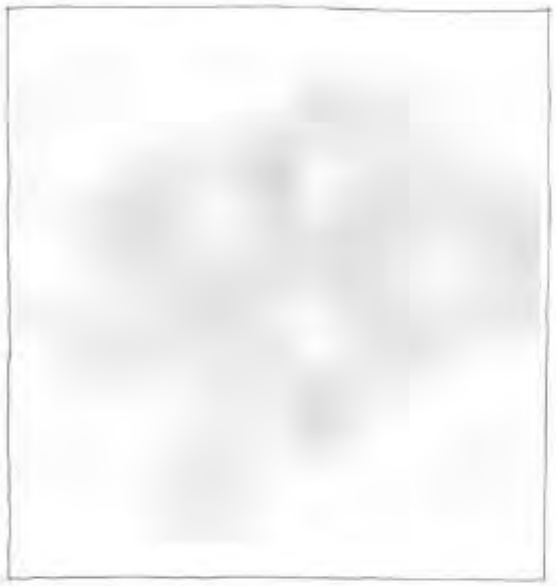
A three storey type with slightly larger homes can be created for the existing densities, while retaining the existing character of the colony. Three long plots have been combined to make two doubble storey houses that are more square by widening the alleys. The third house is stacked above these two, making the third storey of the building but this third house takes the entire three plot area. This way the lower houses get access to the ground, and the third house gets proximity to the terrace. Semi-public access to the third storey and terraces by keeping the stairs outside the house will provide additional open space to residents. These terraces can later be connected to make them contigious.



This enlarged view shows the improved gathering areas and access to the roof. Shops on the side of the building (live and work commercial units) and balconies overlooking the common open areas create intimate community spaces.

BMC Colony
Three dimensional view of the proposed building typology (A)

BMC Colony
Proposed three dimensional views of community type (A)

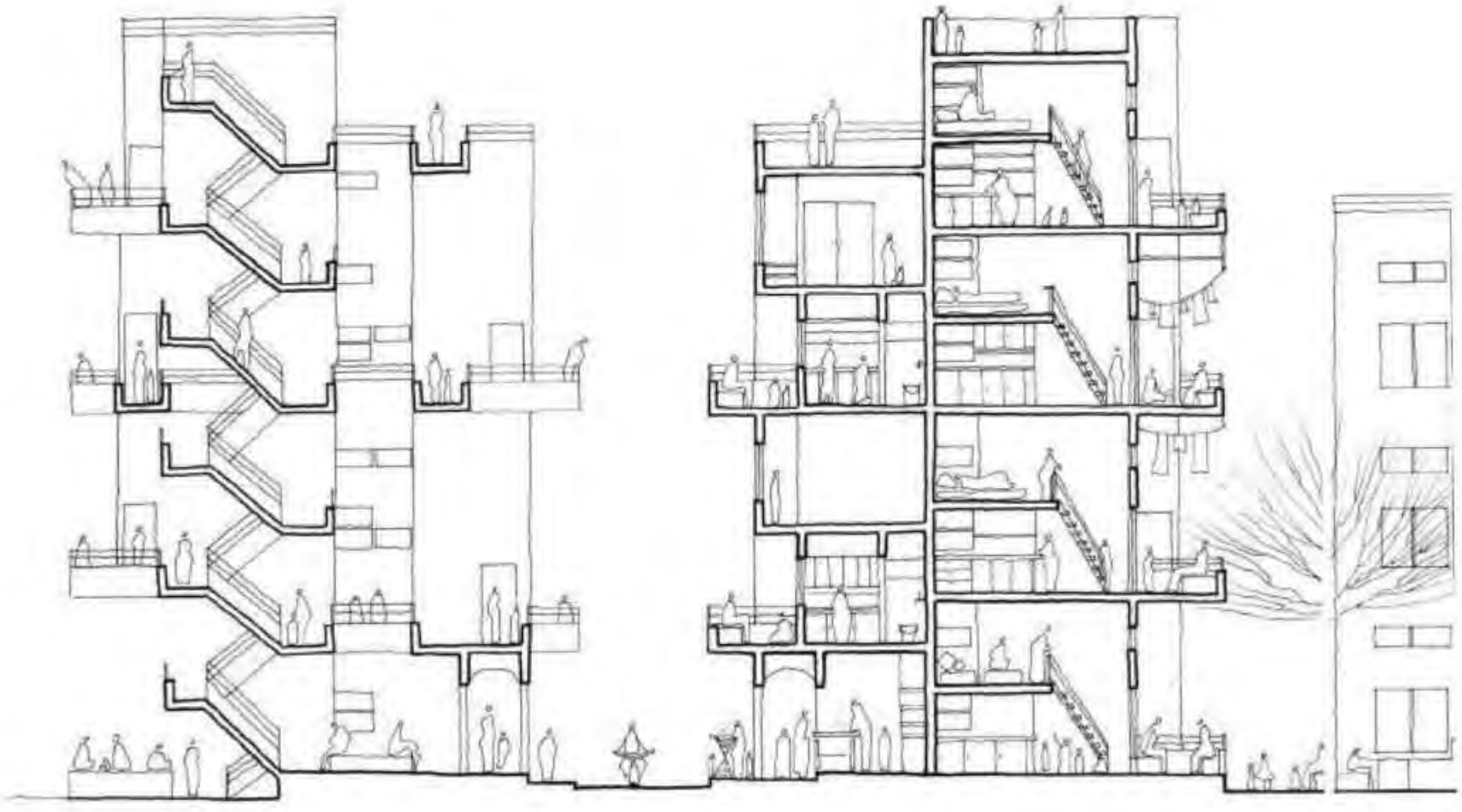


ENTRANCE PORCHES

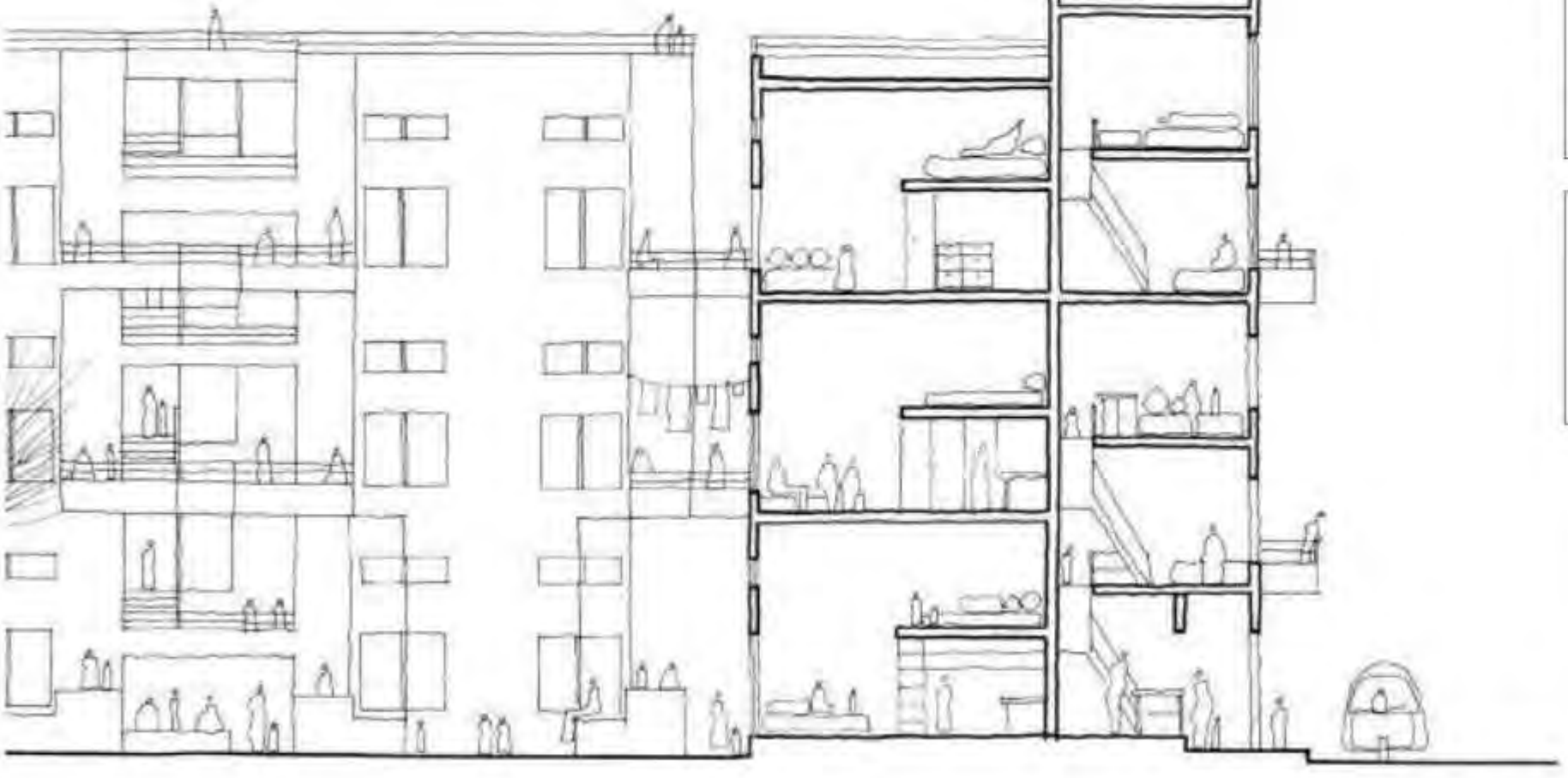
CONNECTED OPEN SPACES

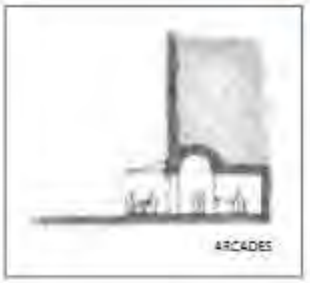
The second option makes the same built up and open space ratios work better - larger open areas are possible and more flexibility in layout can be achieved. Multiple levels of terraces can be created to make the layout less monotonous.

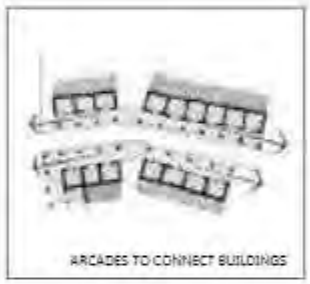
BMC Colony
Three dimensional view of the proposed building typology (A)



Azmi Nagar
Proposed section



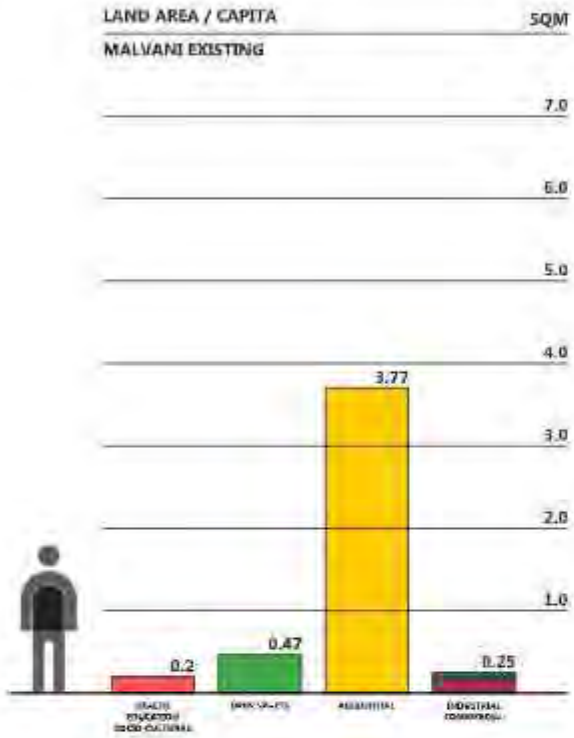


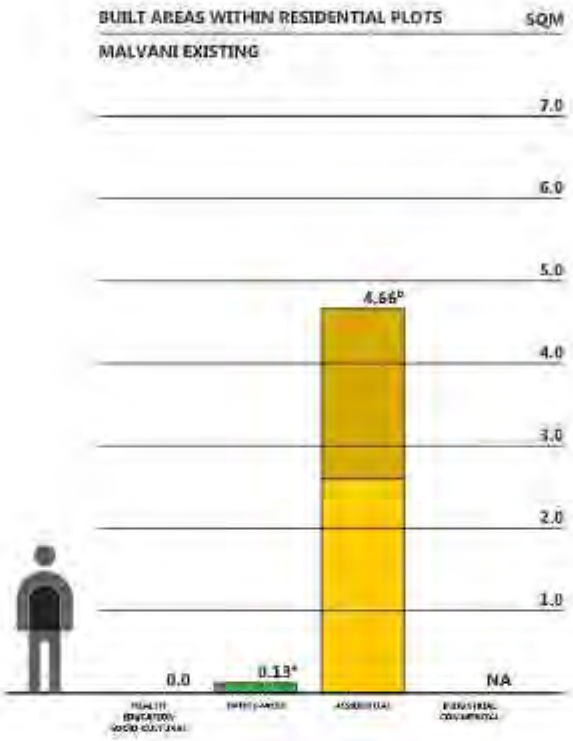


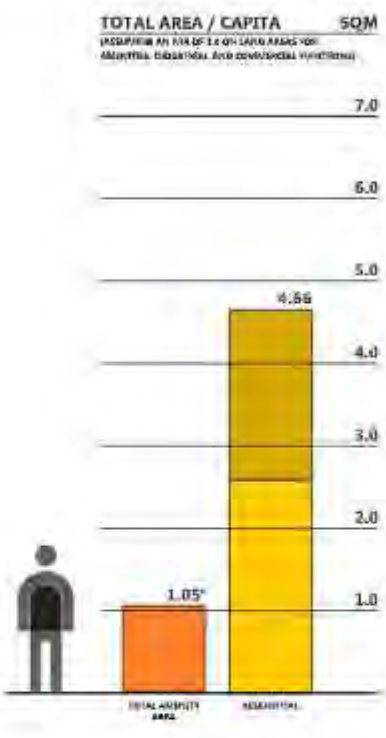
A section through Azminagar shows the mixed-use live and work type of dwelling. Work areas are proposed both for collective work at the ground level, and in the home itself. Arcades at the ground level prove to be a good solution for commercial activity in high density areas where wide circulation areas cannot be provided.

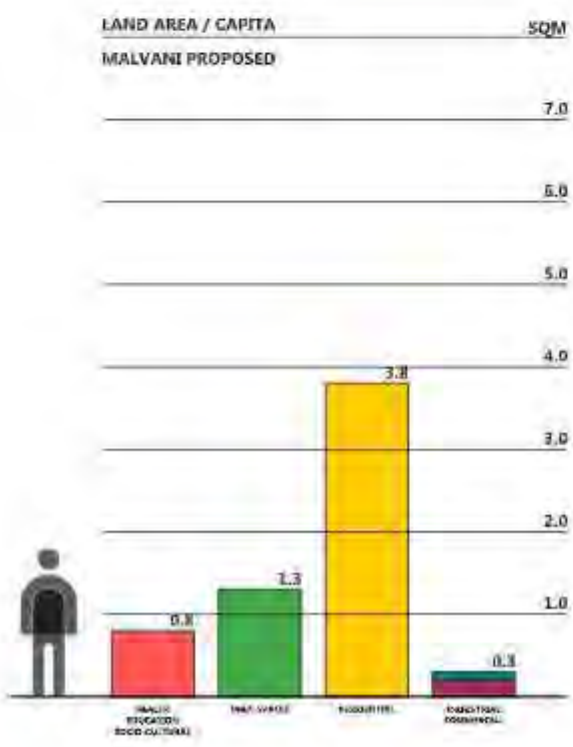
MALVANI EXISTING AND PROPOSED AREA COMPARISION

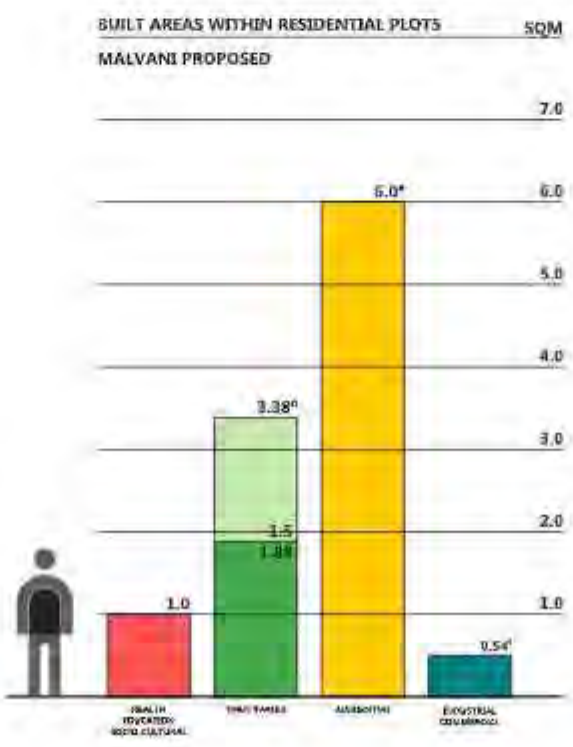
Graphs comparing existing and proposed (or pottential) land and built areas per capita in Malvani

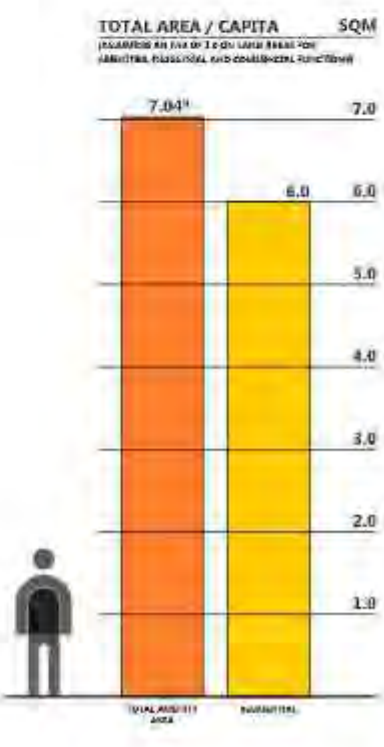












The graphs compare the existing areas available in Malvani per capita with proposed (or pottential) areas. The first graph graph (left) shows the existing and proposed land areas for health education and socio-cultural infrastructure (in pink); open spaces (green); residential land area (in yellow); and industrial and commercial areas (blue and purple). The second graph (second from left) shows the areas that exist (top) and can be achieved (bottom) within residential plots and the third graph (right) shows the total amenity areas (PGA or the sum of social infrastructure and all recreation areas); and the total average residential built area per person.

The comparision shows that an average of 7.04 sqm of PGA and 6.0 sqm of residential space can be achieved in Malvani with low rise walk up apartments and high density - free layout urban fabric.

a : total community level open spaces (5.4 ha / population

b : see appendix for a detailed breakup. Darker color indicates unauthorised space (estimated)

c : total built up health, education, socio-cultural, commercial and industrial areas — recreational land areas

d : total community level open spaces and semi-public roof area

e : authorised average residential area / capita

f : all areas are mixed use types and many areas have live-work dwelling units

g : total built up health, education, socio-cultural, commercial and industrial areas — recreational land areas

APPENDIX

Focused Group Discussions (FGDs)

The most formal mode of interaction with residents of Malvani for the surveys and formulation of proposals was through focused group discussions. After the different communities in the district were identified, two rounds of discussions were organised - first to understand needs and priorities, and later to discuss proposals. For large communities, multiple such meetings were organised, and the findings were synthesised. The Appendix B chapter presents all findings from the first round of FGDs.

The FGDs were useful in getting information about the reach and quality of urban services and infrastructure, the problems faced at an everyday level, hopes and aspirations, and developmental priorities. They also provided some crucial insights into how residents use spaces - for example, there are very few pre-primary schools in the area in the form of land use reservations, but numerous homes in the communities would be used for this purpose. FGDs also were very important in understanding socio-economic aspects, such as expenditure on basic necessities such as water, cooking fuel, sanitation and electricity where the dwelling unit is

Left top: FGD at Amboojwadi in April 2014

Left bottom: FGD at Babrekarnagar in April 2014

Right: FGD at Bhimnagar in May 2014

not on one of these formal networks. A household that buys water from (often illicit) private providers pay about a Rupee a litre, as compared to the municipal supply of Rupees 6 for 10,000 litres. An illicit electricity connection is provided at Rs. 300 per month per point, and kerosene for cooking is purchased at Rs. 80 a litre from the market, both end up being much more expensive compared to a resident who is connected to the formal system.

Naturally, the FGDs have limitations as a method. The reach of FGDs is quite small - the views of a tiny faction tend to represent the views of the entire community. Moreover, many of the meetings are dominanted by the more influential members of the community, who intimidate or restrict the participation of other members in concious and unconcious ways. The role of the people who organise the FGDs must also be examined - the local NGO is never a neutral agency and has its own goals and interests that does not always align with the community. However, in the absence of formal systems for democratic decision making and dweller control, the FGD is better than nothing.

Images:
Left top: FGD at Hanuman Nagar in November 2013

Left bottom: FGD at Kaccha Raasta in May 2014

Right: FGD at Rathodi Slum in December 2013

FGD DATA : RATHODI

Sr. No.	Particulars	Details		Remarks
1	Population	8000		
2	Number of Households	1500*		
3	Monthly income per household (average)	5000-6000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	no		
iii	Informal Manufacture	yes		women engage in making bangles, earrings, etc in their homes
iv	Informal Service	yes		
5	Employment type:			
i	Construction, hawking, domestic workers, auto rickshaw drivers, ferry, domestic industry			
	Dwelling Units			
6	Land ownership	private		
7	Security of tenure			
8	House construction	Self built		
9	House condition	Semi pucca		
10	Home ownership %	70		
11	Home rental %	30		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	7	5	
i	Aganwadi / Kindergarders	6	0	
ii	Vachanalya	1	0	
iii	Madrassa	0	3	
iv	Primary School (9-12 years)	3	2	
v	Secondary School (12-15 years)	0	0	
vi	junior college	0	0	
b	Health Amenities	6	7	
i	Dispensaries / Swastha Chowkie	0	0	
ii	Doctor	3	7	
iii	NGOs / Other	0	0	
c	Social Amenities	0	0	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	0	
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	0	0	
ii	Condition			
iii	Recreational Ground	0	0	
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / pucca)	kuccha		
ii	street lights			
iii	Bus stops			
iv	street furniture			
v	Parking areas	0	3	Rickshaw clearing
vi	Rickshaw stands			
b	Pedestrian Infrastructure			
i	Pedestrian infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		0	
ii	Weekly street markets		0	

Sr. No.	Particulars	Details	Remarks
	Municipal and Private Services		
15	Water		
i	Water supply	yes	
ii	Distance to nearest source		
iii	Water supply type	bore well	
iv	Monthly expenses for water	300	
v	Water consumption per household	45 liters / day / home	
vi	Quality of water	drinkable	
16	Electricity		
i	Electricity supply	yes	
ii	Provider	private (reliance)	
iii	Monthly expenses for electricity	450-1200	
17	Sanitation		
i	Sanitation availability	yes	
ii	Sanitation type (public / private toilets)	yes no	
iii	Usage	Free + pay and use	6 Mhada toilets, others built by community with contribution of 8000 from every society. Poor light and ventilation in toilets
iv	Maintainence	private	
v	Condition		
vi	Number of Toilets in the community	15	
vii	Total Number of Seats	150*	
viii	Water for Sanitation (at source / to be carried)	carried	
ix	Cleaning (municipal / self)		
18	Solid Waste		
i	SWM service available	no	Garbage is accumulated and burnt
ii	Service provider (public / private)	none	
iii	Monthly expenses for SW		
19	Markets		
i	Fish / meat markets	0 0	
ii	Vegetable Market	0 0	
20	Prefered / available modes of transportation	Public Private	
i	walking	yes	
ii	auto rickshaw	shared	
iii	taxi	shared	
iv	Bus	yes	
v	Bicycle	yes	
vi	Two wheeler		
vii	Private Car		
	Municipal Infrastructure		
21	municipal sewerage	yes	
i	open drain		
ii	sewer		
iii	septic tank	yes	
22	storm water drainage	no	
23	Community Priorities	Rank	
i	Shelter	6	
ii	Garbage Disposal	2	
iii	Social Amenities	8	
iv	Open Spaces	5	
v	Health Amenities	3	
vi	Educational Amenities	4	
vii	Water	1	
viii	Roads	10	
ix	Electricity	7	
x	Toilets	9	
xi			
xii			
xiii			
24	Concerns		
i	Request separate toilets for men and women		
ii	Unemployment amongst youth and addiction		
iii			
iv			

FGD DATA : NCC

Sr. No.	Particulars	Details		Remarks
1	Population	61000		
2	Number of Households	9100		125-130 households per plot. 70 plots in all
3	Monthly income per household (average)	3000-7000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	no		
iii	Informal Manufacture	yes		
iv	Informal Service	yes		
5	Employment type			
i	Construction, hawking, domestic workers, auto rickshaw drivers, electricians, etc			
	Dwelling Units			
6	Land ownership	Collector		
7	Security of tenure	secure		
8	House construction	Self built		
9	House condition	pucca		
10	Home ownership %	80		
11	Home rental %	20		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	32	5	
i	Aganwadi / Kindergardens	32	0	
ii	Vachanalya	0	0	
iii	Madrasa	0	0	
iv	Primary School (7-12 years)	0	4	
v	Secondary School (12-15 years)	0	4	
vi	Junior College	0	1	
b	Health Amenities	1	45	
i	Dispensaries / Sivastha Chavide	1	0	
ii	Doctor	0	45	
iii	NGOs / Other	0	0	
c	Social Amenities	0	8	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	5 Temples, 1 budh vihar, 2 mosques. Nearest police post in Malvani 5
iii	Religious	0	8	
iv	Welfare	0	0	
v	Festivities and Celebrations	0	1	
vi	Law and Order	0	0	
13	Open Recreation Areas	2	0	
i	Playgrounds	2	0	
ii	condition			
iii	Recreational Ground	0	0	
iv	condition			
v	Park and Garden	0	0	
vi	condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / pucca)	Semi pucca		
ii	street lights	yes		
iii	Bus stops	1		
iv	street furniture			
v	Parking areas			
vi	Rickshaw stands			
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas	yes		
ii	Weekly street markets			

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services	Public	Private	
15	Water			
i	Water supply	yes	yes	
ii	Distance to nearest source			
iii	Water supply type	municipal		
iv	Monthly expenses for water	300		
v	Water consumption per household			
vi	Quality of water	often undrinkable		
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private (reliance)		
iii	Monthly expenses for electricity	as per use		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)	Public		
iii	Usage	free		
iv	Maintainence	Public		15% households have private toilets
v	Condition	poor		
vi	Number of Toilets in the community	69		
vii	Total Number of Seats	700		
viii	Water for Sanitation (at source / to be carried)	carried		
ix	Cleaning (municipal / self)			
18	Solid Waste			
i	SWM service available	yes		
ii	Service provider (public / private)	MCGM		
iii	Monthly expenses for SW	20		
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw	shared		
iii	taxi	shared		
iv	Bus	yes		
v	Bicycle		yes	
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	yes		
i	open drain	some		
ii	sewer	yes		
iii	septic tank	yes		
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter	9		
ii	Garbage Disposal	3		
iii	Social Amenities	6		
iv	Open Spaces	4		
v	Health Amenities	2		
vi	Educational Amenities	5		
vii	Water	1		
viii	Roads	8		
ix	Electricity	-		
x	Toilets	7		
vi				
vii				
viii				
ix				
x				
24	Concerns			
i	Public toilets unsafe for women			
ii	Law and Order not present			
iii	Health amenities (maternity homes) needed			
iv	Common recreation and open spaces lacking			

FGD DATA : PATRA CHAWL

Sr. No.	Particulars	Details		Remarks
1	Population	2500		
2	Number of Households	400		
3	Monthly income per household (average)	7500		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	no		
iii	Informal Manufacture	yes		
iv	Informal Service	no		
5	Employment type:			
i	construction			
	Dwelling Units			
6	Land ownership	Collector		
7	Security of tenure			
8	House construction	Self built		
9	House condition	Semi pucca		
10	Home ownership %	60		
11	Home rental %	40		
	Public Spaces and Amenities	**Public**	**Private**	
12	Amenities			
a	Educational Amenities	0	0	
i	Aganwadi / Undergarderns	0	0	
ii	Vachanalya	0	0	
iii	Madrassa	0	0	
iv	Primary School (3-12 years)	0	0	
v	Secondary School (12-15 years)	0	0	
vi	Junior college	0	0	
b	Health Amenities	0	1	
i	Dispensaries / Swastha Chowkie	0	0	
ii	Doctor	0	1	
iii	NGOs / Other	0	0	
c	Social Amenities	0	1	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	1	
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	0	0	
ii	condition			
iii	Recreational Ground	0	0	
iv	condition			
v	Park and Garden	0	0	
vi	condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / pucca)	kuccha		
ii	street lights			
iii	Bus stops			
iv	street furniture			
v	Parking areas			
vi	Rickshaw stands			
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		1	
ii	Weekly street markets		0	nearest market is ambedjwadi and malvani 7

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	yes		
ii	Distance to nearest source			residents buy drinking water
iii	Water supply type	pure well		
iv	Monthly expenses for water		350	
v	Water consumption per household			
vi	Quality of water	often undrinkable		
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private		
iii	Monthly expenses for electricity	400-600		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)	yes	yes	
iii	Usage	free		
iv	Maintainence	Public		
v	Condition	poor		
vi	Number of Toilets in the community	3		
vii	Total Number of Seats	16		
viii	Water for Sanitation (at source / to be carried)	carried		
ix	Cleaning (municipal / self)	self		
18	Solid Waste			
i	SWM service available	yes		
ii	Service provider (public / private)	MCGM		
iii	Monthly expenses for SW	20		
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw	shared	-	
iii	taxi	shared	-	
iv	Bus	yes	-	
v	Bicycle	-	yes	
vi	Two wheeler	-	-	
vii	Private Car	-	-	
	Municipal Infrastructure			
21	municipal sewerage	yes		
i	open drain	no		
ii	sewer	no		
iii	septic tank	yes		
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter	1		
ii	Garbage Disposal	10		
iii	Social Amenities	5		
iv	Open Spaces	6		
v	Health Amenities	3		
vi	Educational Amenities	7		
vii	Water	2		
viii	Roads	4		
ix	Electricity	9		
x	Toilets	8		
xi				
xii				
xiii				
xiv				
24	Concerns			
i	Women's safety: beat post requested in the area			
ii	Drainage			
iii	Women's employment opportunities			
iv				

FGD DATA : MHB

Sr. No.	Particulars	Details		Remarks
1	Population	12700		
2	Number of households	2384		159 Chawls total. 10 Dilapidated (police chawls). 16 rooms per chawl
3	Monthly income per household (average)	8000-10000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	no		
iii	Informal Manufacture	yes		many factories have been setup
iv	Informal Service	yes		
5	Employment type:			
i	Construction, hawking, domestic workers, drivers, ferry, industry			
	Dwelling Units			
6	land ownership	MHADA		
7	Security of tenure			
8	House construction	Self built + RH		Initially MHADA built. Monthly tax of Rs. 95 is paid to the collector
9	House condition	Semi pucca		
10	Home ownership %	50		
11	Home rents %	50		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	0	10	
i	Aganwadi / Kindergarden	0	1	
ii	Vachanalya	0	0	
iii	Madrassa	0	4	
iv	Primary School (3-12 years)	0	4	
v	Secondary School (12-15 years)	0	0	
vi	junior college	0	1	
b	Health Amenities	0	12	
i	Dispensaries / Swastha Chowkie	0	0	
ii	Doctor	0	12	
iii	NGOs / Other	1	1	
c	Social Amenities	0	10	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	9	
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	1	does not function
13	Open Recreation Areas	0	0	
i	Playgrounds	0	0	
ii	Condition			
iii	Recreational Ground	0	0	
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / pucca)	pucca		
ii	street lights	partial		
iii	Bus stops	yes		
iv	street furniture			
v	Parking areas	0	0	
vi	Rickshaw stands			
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		2	vegetable and fish
ii	Weekly street markets		0	

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	yes		30% people have legal water connections. The rest buy water from others and incur expenses of Rs. 500 per month on water
ii	Distance to nearest source			
iii	Water supply type	MCGM + Private		
iv	Monthly expenses for water	500		
v	Water consumption per household			
vi	Quality of water	Poor + unpredictable		
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private reliance		
iii	Monthly expenses for electricity	1500		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)			
iii	Usage	Free		Residents pay Rs. 20 per month for getting toilets cleaned
iv	Maintainence	private		
v	Condition			
vi	Number of Toilets in the community	159		
vii	Total Number of Seats	636		
viii	Water for Sanitation (at source / to be carried)	carried		
ix	Cleaning (municipal / self)			
18	Solid Waste			
i	SWM service available	no		MCGM does not collect garbage from the community
ii	Service provider (public / private)	none		
iii	Monthly expenses for SW			
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw	shared		
iii	taxi	shared		
iv	Bus	yes		
v	Bicycle		yes	
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	yes		
i	open drain			Sewer not maintained by the MCGM
ii	sewer			
iii	septic tank			
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter			
ii	Garbage Disposal	2		
iii	Social Amenities			
iv	Open Spaces	4		
v	Health Amenities	3		
vi	Educational Amenities			
vii	Water	1		
viii	Roads			
ix	Electricity			
x	Toilets			
xi				
xii				
xiii				
xiv				
xv				
24	Concerns			
i	Health facilities			
ii	SHG for women empowerment			
iii	Garden and open spaces for children			
iv				

FGD DATA : AMBOOJWADI

No.	Particulars	Details		Remarks
1	Population	50000		
2	Number of Households	12000		estimates
3	Monthly income per household (average)	6000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		women usually engage in the domestic manufacture of pins, awings etc. Unemployment or underemployment is common
ii	Formal Service	no		
iii	Informal Manufacture	yes		
iv	Informal Service	yes		
5	Employment type			
i	Construction, hawkers, domestic workers, drivers, domestic industry			
	Dwelling Units			
6	Land ownership	Collector		
7	Security of tenure	insecure		
8	House construction	Self built		
9	House condition	makeshift		
10	Home ownership %	75		
11	Home rental %	25		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	8	14	
i	Aganwadi / Kindergardens	5	3	
ii	Vachanalya	0	0	Nearest primary school is 2-3 km away. Nearest secondary school is 4-5 km away
iii	Madrassa	0	9	
iv	Primary School (3-12 years)	3	0	
v	Secondary School (12-15 years)	0	0	
vi	Junior college	0	0	
b	Health Amenities	0	0	
i	Dispensaries / Swastha Chawkis	0	0	NGOs: Mobile Van and Satya Sai Trust
ii	Doctor	0	9	
iii	NGOs / Other	0	2	
c	Social Amenities	0	0	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	0	
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	0	0	
ii	Condition			
iii	Recreational Ground	0	0	Small playground outside temple
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / pucca)	kuccha		
ii	street lights	no		
iii	Bus stops	no		nearest rickshaw available more than 1 km away
iv	street furniture	no		
v	Parking areas	0	0	
vi	Rickshaw stands	no		
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		1	
ii	Weekly street markets		0	small market at community entrance

No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	private		
ii	Distance to nearest source			
iii	Water supply type	carriers		
iv	Monthly expenses for water	1500		
v	Water consumption per household	40 liters per day		
vi	Quality of water	contaminated		
16	Electricity			
i	Electricity supply	no		
ii	Provider	private (in places)		
iii	Monthly expenses for electricity	900-1800		
17	Sanitation			
i	Sanitation availability	no		
ii	Sanitation type (public / private toilets)			
iii	Usage	pay and use		
iv	Maintainence	public		
v	Condition	poor		
vi	Number of Toilets in the community	4		
vii	Total Number of Seats	40		
viii	Water for Sanitation (at source / to be carried)	to be carried		
ix	Cleaning (municipal / self)	self		
18	Solid Waste			
i	SWM service available	no		garbage dumped in clearing nearby
ii	Service provider (public / private)	none		
iii	Monthly expenses for SW			
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw	yes		
iii	taxi			
iv	Bus	yes		3 km to nearest mode of transportation
v	Bicycle		yes	
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	none		
i	open drain			
ii	sewer			
iii	septic tank			
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter	1		
ii	Garbage Disposal	7		
iii	Social Amenities	8		
iv	Open Spaces	10		
v	Health Amenities	6		
vi	Educational Amenities	5		
vii	Water	4		
viii	Roads	9		
ix	Electricity	3		
x	Toilets	2		
xi	Religious Amenities			
xii	Law and Order			
xiii	street lights			
xiv	Employment			
xv	Aganwadi / Kindergardens			
24	Concerns			
i	Child health			
ii	Women's safety and sanitation			
iii	Law and Order			
iv	Employment			

FGD DATA : AZMI NAGAR

Sr. No.	Particulars	Details		Remarks
1	Population	120000		
2	Number of Households	20000		
3	Monthly income per household (average)	7000-10000		estimates
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	few		
ii	Formal Service	few		
iii	Informal Manufacture	yes		
iv	Informal Service	yes		
5	Employment type:			
i	Construction, drivers, others			
	Dwelling Units			
6	Land ownership	private		
7	Security of tenure			
8	House construction	Self built		
9	House condition			
10	Home ownership %	50		
11	Home rental %	50		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	19	12	
i	Aganwadi / Kindergardens	19	0	
ii	Vachanalya	0	0	
iii	Madrassa	0	1	
iv	Primary School (7 12 years)	0	5	
v	Secondary School (12 15 years)	0	4	
vi	Junior college	0	0	
b	Health Amenities	0	30	
i	Dispensaries / Swastha Chowkie	0	0	
ii	Doctor	0	30	
iii	NGOs / Other	0	2	
c	Social Amenities	0	9	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	9	
iv	Welfare	0	1	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	1	0	
ii	Condition			
iii	Recreations Ground	0	0	
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kaccha / pucca)	pucca		
ii	street lights	no		
iii	Bus stops	no		nearest rickshaw available more than 1 km away
iv	street furniture	no		
v	Parking areas	0	0	
vi	Rickshaw stands	no		
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		0	
ii	Weekly street markets		0	nearest street market is Azminagar

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	Municipal + private		
ii	Distance to nearest source			
iii	Water supply type	carriers		15 minutes daily supply of drinking water
iv	Monthly expenses for water	500		
v	Water consumption per household			
vi	Quality of water	ocasionally smelly		
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private (in places)		
iii	Monthly expenses for electricity	varies		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)			
iii	Usage	pay and use		
iv	Maintainence	private		most people have private toilets in their homes
v	Condition	poor		
vi	Number of Toilets in the community	4		
vii	Total Number of Seats	40		
viii	Water for Sanitation (at source / to be carried)	to be carried		
ix	Cleaning (municipal / self)	self		
18	Solid Waste			
i	SWM service available	partial coverage		garbage is dumped near playground, cleared by MCGM
ii	Service provider (public / private)	MCGM		
iii	Monthly expenses for SW	20 / month		
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw			
iii	taxi	yes		
iv	Bus	yes		Nearest bustop Malvani Gate 7
v	Bicycle			
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	none		
i	open drain	yes		some places sewer connection is present, but many open drains
ii	sewer	yes		
iii	septic tank			
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter	1		
ii	Garbage Disposal	3		
iii	Social Amenities	9		
iv	Open Spaces			
v	Health Amenities	6		
vi	Educational Amenities	5		
vii	Water	2		
viii	Roads	4		
ix	Electricity	7		
x	Toilets	8		
xi	Religious Amenities			
xii	Law and Order			
xiii	street lights			
xiv	Employment			
xv	Aganwadi / Kindergardens			
24	Concerns			
i	women's safety a concern. Beat post requested			
ii	health posts for children			
iii	Educational Amenities			
iv				

FGD DATA : LAXMI NAGAR

Sr. No.	Particulars	Details		Remarks
1	Population	2500*		
2	Number of Households	250		
3	Monthly income per household (average)	3000-5000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	no		
iii	Informal Manufacture	yes		
iv	Informal Service	yes		
5	Employment type:			
	Construction, hawking, domestic workers, drivers, domestic work, industrial			
	Dwelling Units			
6	Land ownership	Collector		
7	Security of tenure	insecure		
8	House construction	Self built + PH		House Rent about Rs. 1000. Deposit of 15000
9	House condition	makeshift		
10	Home ownership %	40		
11	Home rental %	60		
	Public Spaces and Amenities	**Public**	**Private**	
12	Amenities			
a	Educational Amenities	0	0	
i	Aganwadi / Kindergardens	0	0	
ii	Vachanalya	0	0	There is one school in Hanuman Nagar (English and Marathi medium) that children go to.
iii	Madressa	0	0	
iv	Primary School (9-12 years)	0	0	
v	Secondary School (12-15 years)	0	0	
vi	Junior college	0	0	
b	Health Amenities	0	0	
i	Dispensaries / Swastha Chowkie	0	0	
ii	Doctor	0	0	
iii	NGOs / Other	0	0	
c	Social Amenities	0	0	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	No amenities in this area. No police facility. Sexual and other crimes common
iii	Religious	0	1	
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	0	0	
ii	Condition			
iii	Recreational Ground	0	0	Temple remains closed from 12 to 4 pm. Children not allowed to play.
iv	Condition			
v	Park and Garden	0	1	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads available (kuccha / pucca)	kuccha		
ii	street lights	no		
iii	Bus stops	no		
iv	street furniture	no		
v	Parking areas	0	0	
vi	Rickshaw stands	no		
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		0	2-3 km away
ii	Weekly street markets		0	

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	no		
ii	Distance to nearest source	2 km		People use the 2 ponds in the area for washing and bathing
iii	Water supply type	Tanker		
iv	Monthly expenses for water	1000		
v	Water consumption per household	40-100 liters per day		
vi	Quality of water	Drinkable		
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private		
iii	Monthly expenses for electricity	400-800		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)			
iii	Usage	day and use		
iv	Maintainence	private		people spend about Rs. 50 / month for maintainence
v	Condition	poor		
vi	Number of toilets in the community	1		
vii	Total Number of Seats	6		
viii	Water for Sanitation (at source / to be carried)	carried		
ix	Cleaning (municipal / self)	self		
18	Solid Waste			
i	SWM service available	no		burnt locally
ii	Service provider (public / private)	none		
iii	Monthly expenses for SW			
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw	shared		
iii	taxi			
iv	Bus	few		3 km walk to nearest mode of transport
v	Bicycle		yes	
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	none		
i	open drain			
ii	sewer			
iii	septic tank			
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter	2		
ii	Garbage Disposal	12		
iii	Social Amenities	10		
iv	Open Spaces	11		
v	Health Amenities	9		
vi	Educational Amenities	4		
vii	Water	1		
viii	Roads	13		
ix	Electricity	7		
x	Toilets	3		
xi	Religious Amenities	5		
xii	Law and Order	6		
xiii	street lights	8		
xiv	Employment	14		
xv	Aganwadi / Kindergardens	15		
24	Concerns			
i	Urgent need to address Women's safety			
ii	Play areas for children			
iii	Water problems			
iv	Insecure tenure			

FGD DATA : MHADA LIG

Sr. No.	Particulars	Details		Remarks
1	Population	180		
2	Number of Households	32		
3	Monthly income per household (average)	5000 to 10000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	yes		
iii	Informal Manufacture			
iv	Informal Service			
5	Employment type			
i				
	Dwelling Units			
6	Land ownership	MHADA		
7	Security of tenure	yes		
8	House construction	MHADA		
9	House condition	pucca		
10	Home ownership %	80		
11	Home rental %	20		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	0	1	
i	Aganwadi / Kindergardens	0	0	
ii	Vachanalya	0	0	
iii	Madrassa	0	1	
iv	Primary School (3-12 years)	0	0	
v	Secondary School (12-15 years)	0	0	
vi	Junior college	0	0	
b	Health Amenities	0	1	
i	Dispensaries / Shastha Chavkie	0	0	
ii	Doctor	0	1	
iii	NGOs / Other	0	0	
c	Social Amenities	0	2	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	2	1 jain temple and 1 mosque
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	0	0	
ii	Condition			
iii	Recreational Ground	0	0	
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / puccal	Semi-pucca		
ii	street lights			
iii	Bus stops	yes		
iv	street furniture	no		
v	Parking areas	0	0	
vi	Rickshaw stands	yes		
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)			
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		0	
ii	Weekly street markets		0	

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	yes		
ii	Distance to nearest source			
iii	Water supply type	MCGM		
iv	Monthly expenses for water	500		
v	Water consumption per household			
vi	Quality of water	mostly good		
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private		
iii	Monthly expenses for electricity	1000 to 2500		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)	yes		
iii	Usage	free		
iv	Maintainence	private		all houses have private toilets
v	Condition			
vi	Number of Toilets in the community			
vii	Total Number of Seats			
viii	Water for Sanitation (at source / to be carried)	at source		
ix	Cleaning (municipal / self)			
18	Solid Waste			
i	SWM service available	yes		
ii	Service provider (public / private)	MCGM		
iii	Monthly expenses for SW			
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw	yes		
iii	taxi			
iv	Bus	yes		bus and auto stands are nearby
v	Bicycle		yes	
vi	Two wheeler		yes	
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	no		
i	open drain			
ii	sewer			
iii	septic tank	yes		
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter			
ii	Garbage Disposal			
iii	Social Amenities			
iv	Open Spaces	5		
v	Health Amenities	3		
vi	Educational Amenities	4		
vii	Water			
viii	Roads	1		
ix	Electricity	2		(expensive)
x	Toilets			
xi	Religious Amenities			
xii	Law and Order			
xiii	street lights			
xiv	Employment			
xv	Aganwadi / Kindergardens			
24	Concerns			
i	roads must be repaired			
ii	schools			
iii	hospitals			
iv	Playgrounds			

FGD DATA : OCC

Sr. No.	Particulars	Details		Remarks
1	Population	25000		
2	Number of Households	3350		
3	Monthly income per household (average)	5000 9000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	no		
iii	Informal Manufacture	yes		
iv	Informal Service	yes		
5	Employment type			
i	Informal industrial work (embroidery) and retail (rags work and hawking)			
	Dwelling Units			
6	Land ownership	Collector		
7	Security of tenure	yes		
8	House construction	Self built		
9	House condition			
10	Home ownership %	90		
11	Home rental %	80		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	0	10-15	
i	Aganwadi / Kindergardens	0	0	
ii	Vachanalya	0	0	one vachanalya in Mahakali area
iii	Madrasa	0	10-15	
iv	Primary School (3-12 years)	0	0	
v	Secondary School (12-15 years)	0	0	
vi	Junior college	0	0	
b	Health Amenities	0	7	
i	Dispensaries / Swastha Chowkie	0	0	
ii	Doctor	0	5	
iii	NGOs / Other	0	2	
c	Social Amenities	1	11	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	5 temples, 4 mosques, 1 jain temple and 1 vihar.
iii	Religious	0	11	One labour welfare office.
iv	Welfare	2	0	One child shelter home
v	Festivities and Celebrations	0	0	
vi	Law and Order	1	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	0	0	
ii	Condition			
iii	Recreational Ground	0	0	
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / pucca)	pucca		
ii	street lights	no		
iii	Bus stops	yes		
iv	street furniture	no		
v	Parking areas	0	0	
vi	Rickshaw stands	yes		
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas	0	yes	
ii	Weekly street markets	0	0	ground level used for retail

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	MCGM		
ii	Distance to nearest source			
iii	Water supply type			Rs 200 - 300 per month for water
iv	Monthly expenses for water	yes		
v	Water consumption per household			
vi	Quality of water	poor		
16	Electricity			
i	Electricity supply	yes		
i	Provider	private (reliance)		
ii	Monthly expenses for electricity	as per use		
17	Sanitation			
i	Sanitation availability	yes		
i	Sanitation type (public / private toilets)	no	yes	
ii	Usage	free		
iv	Maintainence	public		40 % households have toilets at home. People prefer private toilets
v	Condition			
vi	Number of Toilets in the community	20		
vii	Total Number of Seats	400		
viii	Water for Sanitation (at source / to be carried)	at source		
ix	Cleaning (municipal / self)			
18	Solid Waste			
i	SWM service available	partial		MCGM collects waste from the street where garbage is dumped
i	Service provider (public / private)	MCGM		
ii	Monthly expenses for SW			
19	Markets			
i	Fish / meat markets	0	yes	
i	Vegetable Market	0	yes	
20	Preferred / available modes of transportation	Public	Private	
i	walking	yes		
i	Auto rickshaw	yes		
iii	taxi	yes		
iv	Bus	yes		
v	Bicycle	yes		
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	no		
i	open drain	yes		
i	sewer	no		
ii	septic tank	no		
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter			
i	Garbage Disposal	8		
ii	Social Amenities	5		
iv	Open Spaces	9		
v	Health Amenities	4		
vi	Educational Amenities	7		
vii	Water	2		
viii	Roads	1		
ix	Electricity			
x	Toilets			
xi	Religious Amenities			
xii	Law and Order			
xiii	street lights			
xiv	Employment			
xv	Agarwadi / Kindergardens			
24	Concerns			
i				
i				
ii				
iv				

FGD DATA : SQUATTERS COLONY

Sr. No.	Particulars	Details		Remarks
1	Population	20000		
2	Number of Households	4500		
3	Monthly income per household (average)	7000-10000		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	no		
iii	Informal Manufacture	yes		
iv	Informal Service	yes		
5	Employment type:			
i	drivers, vendors			
	Dwelling Units			
6	Land ownership	MCGM		
7	Security of tenure	yes		
8	House construction	Self built		
9	House condition	pucca		
10	Home ownership %	70		
11	Home rental %	30		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	0	3	
i	Aganwadi / Kindergardens	0	0	
ii	Vathanalya	0	0	
iii	Madrasa	0	2	
iv	Primary School (5-12 years)	0	0	
v	Secondary School (12-15 years)	0	0	
vi	Junior college	0	0	
b	Health Amenities	0	4	
i	Dispensaries / Swasthe Chowkie	0	0	
ii	Doctor	0	4	
iii	NGOs / Other	0	0	
c	Social Amenities	0	2	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	2	1 jain temple and 1 masque
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playground:	0	0	
ii	Condition			
iii	Recreational Ground	0	0	
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads availability (kuccha / pucca)	paved		
ii	street lights	no		
iii	Bus stops	no		sewage overflows into the road
iv	street furniture	no		
v	Parking areas	0	0	
vi	Rickshaw stands	no		
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas	-	0	
ii	Weekly street markets	-	0	

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	yes		
ii	Distance to nearest source			secured a connection after paying a bribe of 50000 100000 to MCGM officials
iii	Water supply type	MCGM		
iv	Monthly expenses for water	500		
v	Water consumption per household			
vi	Quality of water	undrinkable, smelly		
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private (reliance)		
iii	Monthly expenses for electricity	varies		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)	yes		
iii	Usage	free		
iv	Maintainance	private		35% households have toilets at home
v	Condition			
vi	Number of Toilets in the community	5		
vii	Total Number of Seats	60		
viii	Water for Sanitation (at source / to be carried)	to be carried		
ix	Cleaning (municipal / self)			
18	Solid Waste			
i	SWM service available	no		MCGM bins have been placed nearby and are cleared regulary
ii	Service provider (public / private)	MCGM		
iii	Monthly expenses for SW			
19	Markets			
i	Fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Prefered / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw	yes		
iii	taxi			
iv	Bus	yes		
v	Bicycle			
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal sewerage	no		
i	open drain	yes		very bad condition of sewer, overflows
ii	sewer			
iii	septic tank			
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter	9		
ii	Garbage Disposal	2		
iii	Social Amenities	8		
iv	Open Spaces	6		
v	Health Amenities	5		
vi	Educational Amenities	7		
vii	Water	1		
viii	Roads	3		
ix	Electricity			
x	Toilets	4		
xi	Religious Amenities			
xii	Law and Order			
xiii	street lights			
xiv	Employment			
xv	Agarwadi / Kindergardens			
24	Concerns			
i	drains and nallah to be cleaned			
ii	health posts nearby must function			
iii				
iv				

FGD DATA : BMC COLONY

Sr. No.	Particulars	Details		Remarks
1	Population	12500		
2	Number of Households	2542		BMC 1&2: 444 homes; BMC 3&4: 2000 homes; BMC 5: 98 homes
3	Monthly income per household (average)	15000 and over		
	Livelihoods and Employment			
4	Employment profile			
i	Formal Manufacture	no		
ii	Formal Service	yes		
iii	Informal Manufacture	few		
iv	Informal Service	few		
5	Employment type:			
i	MCGM employee:			
	Dwelling Units			
6	Land ownership	Collector		
7	Security of tenure	secure		
8	House construction	MCGM		
9	House condition	pucca		
10	Home ownership %	50		
11	Home rental %	50		
	Public Spaces and Amenities	Public	Private	
12	Amenities			
a	Educational Amenities	0	1	
i	Aganwadi / Kindergardens	0	0	
ii	Vacheniya	0	0	
iii	Madrassa	0	1	
iv	Primary School (3-12 years)	0	0	
v	Secondary School (12-15 years)	0	0	
vi	Junior college	0	0	
b	Health Amenities	0	0	
i	Dispensaries / Swastha Chowkie	0	0	
ii	Doctor	0	0	
iii	NGOs / Other	0	0	
c	Social Amenities	0	2	
i	Markets	0	0	
ii	Entertainment / Leisure	0	0	
iii	Religious	0	2	1 temple and 1 gurudwara
iv	Welfare	0	0	
v	Festivities and Celebrations	0	0	
vi	Law and Order	0	0	
13	Open Recreation Areas	0	0	
i	Playgrounds	1	0	
ii	Condition			
iii	Recreational Ground	0	0	MCGM land used as playground.
iv	Condition			
v	Park and Garden	0	0	
vi	Condition			
14	Open Service Areas			
a	Local Roads			
i	Surfaced Roads available (kuccha / pucca)	pucca		
ii	street lights	yes		parking area used as playground and recreation ground. Condition of road very bad, drains overflow onto the roads
iii	Bus stops	yes		
iv	street furniture	no		
v	Parking areas	0	0	
vi	Rickshaw stands	no		
b	Pedestrian Infrastructure			
i	Pedestrian Infrastructure (pavements)	no		
ii	Quality of pavements			
c	Bicycle Infrastructure			
i	Bicycle Infrastructure (tracks)	0		
ii	Bicycle Infrastructure (parking)	0		
d	Markets			
i	Street markets / Hawking areas		0	
ii	Weekly street markets		0	nearest street market is Ambivagar

Sr. No.	Particulars	Details		Remarks
	Municipal and Private Services			
15	Water			
i	Water supply	Municipal		some households have begun using private connections as they have faced water problems. They pay 220 for 3 months
ii	Distance to nearest source			
iii	Water supply type	MCGM + few private		
iv	Monthly expenses for water	35	220	
v	Water consumption per household			
vi	Quality of water			
16	Electricity			
i	Electricity supply	yes		
ii	Provider	private (reliance)		
iii	Monthly expenses for electricity	varies		
17	Sanitation			
i	Sanitation availability	yes		
ii	Sanitation type (public / private toilets)	yes	yes	
iii	Usage	free		
iv	Maintainence	Public		BMC 3 - 3 has toilets in every household. 400 seats shared by about 1000 households
v	Condition			
vi	Number of Toilets in the community	40		
vii	Total Number of Seats	400		
viii	Water for Sanitation (at source / to be carried)	to be carried		
ix	Cleaning (municipal / self)	self		
18	Solid Waste			
i	SWM service available	yes		
ii	Service provider (public / private)	MCGM		
iii	Monthly expenses for SW	free		
19	Markets			
i	fish / meat markets	0	0	
ii	Vegetable Market	0	0	
20	Preferred / available modes of transportation	Public	Private	
i	walking	yes		
ii	auto rickshaw			
iii	taxi			
iv	Bus	yes		Buses nearby
v	Bicycle			
vi	Two wheeler			
vii	Private Car			
	Municipal Infrastructure			
21	municipal coverage	yes		
i	open drain			
ii	sewer	yes		
iii	septic tank			
22	storm water drainage	no		
23	Community Priorities	Rank		
i	Shelter			
ii	Garbage Disposal	1		
iii	Social Amenities	6		
iv	Open Spaces	5		
v	Health Amenities	3		
vi	Educational Amenities	4		
vii	Water			
viii	Roads	2		
ix	Electricity			
x	Toilets			
xi	Religious Amenities			
xii	Law and Order			
xiii	street lights			
xiv	Employment			
xv	Aganwadi / Kindergardens			
24	Concerns			
i	provision store required nearby			
ii	security from theft			
iii	garbage collection creates mosquitos problem			
iv				

MALVANI EXISTING LAND AREAS BY COMMUNITY

Sr. No.	Community	Population	Land Area (sqm)	Gross Density p/Ha	Vacant Land*	Residential (RBPA)	Net Density	Commercial (CBPA)	Industrial (IBPA)	Health Amenity Area (HAA)	Educational Amenity Area (EAA)	Social Amenity Area (SAA)	Recreational Areas (RA)	Transit Areas
1	Ambavyadi	16,000	221,117.0	2,713.5	27,270.6	167,225.1	3,568.0	0.0	0.0	0.0	0.0	66.0	6,167.2	20,238.9
2	Azmi nagar	120,000	438,789.0	2,347.3	51,361.6	291,686.8	4,114.0	199.0	41,493.0	0.0	2,724.4	2,873.0	17,974.1	23,559.8
3	BEST	640	3,535.0	1,810.5	0.0	3,535.0	1,810.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Bhim nagar	2,500	2,492.3	10,030.9	0.0	2,427.9	10,297.0	64.0	0.0	0.0	0.0	0.0	0.0	0.0
5	BMC	12,500	66,277.3	1,886.0	0.0	50,381.1	2,481.6	599.0	0.0	0.0	0.0	845.3	8,658.1	4,836.0
6	Buddh nagar	4,000	24,421.5	1,637.9	0.0	14,933.0	2,678.8	4,124.0	0.0	0.0	0.0	0.0	0.0	5,364.2
7	Central Govt Quarters	1,280	12,454.0	1,027.8	0.0	2,484.0	5,132.3	0.0	0.0	0.0	0.0	0.0	9,938.0	0.0
8	Hanuman nagar	3,500	7,218.7	2,077.9	0.0	5,761.3	2,603.7	0.0	0.0	0.0	641.9	127.0	355.0	333.1
9	Hinuswadi	4,500	66,253.0	679.2	766.0	34,772.0	1,294.3	918.3	4,888.0	0.0	3,665.0	168.0	7,752.9	3,698.8
10	Juhu Wadi	2,000	63,859.8	313.2	7,490.0	30,460.0	656.6	791.2	3,873.0	1,142.5	4,367.7	1,052.4	3,313.3	3,059.9
11	Kaccha raasta	2,700	16,388.6	1,649.5	0.0	14,961.0	1,804.7	0.9	0.0	0.0	0.0	0.0	0.0	161.3
12	Khanadi village	200	10,605.1	188.6	386.0	8,835.0	226.4	1,143.0	0.0	0.0	0.0	0.0	240.0	0.0
13	Laxmi nagar	4,500	7,364.1	3,394.8	1,659.0	5,479.0	4,564.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Mhada LIG	15,450	315,892.3	489.1	109,226.7	145,986.0	1,058.3	0.0	0.0	0.0	0.0	55.0	44,026.3	21,166.4
15	Mhada MIG+Other	15,270	137,961.0	1,106.8	30,546.6	68,843.0	2,218.1	0.0	0.0	0.0	4,832.5	0.0	0.0	18,576.7
16	MHB	14,700	147,479.0	996.2	3,970.0	101,196.5	1,455.0	463.3	0.0	0.0	1,956.1	1,234.2	0.0	16,250.8
17	Misc	3,020	27,552.3	1,096.1	3,754.9	15,921.0	1,896.9	0.0	0.0	0.0	0.0	0.0	0.0	3,875.0
18	NCC	60,000	308,928.4	1,942.2	842.0	226,188.6	2,652.7	2,289.8	0.0	1,038.9	183,09.6	8,753.7	17,841.6	36,795.6
19	New babrekarnagar	7,000	26,689.5	2,622.8	4,358.1	20,386.8	3,433.6	0.0	0.0	0.0	0.0	32.0	0.0	1,724.8
20	OCC	25,000	105,215.7	2,376.1	0.0	90,805.3	2,753.3	1,100.0	0.0	0.0	800.3	1,089.7	3,555.5	8,954.8
21	Patra chawl	2,500	18,225.4	1,371.7	0.0	9,365.0	2,669.5	0.0	0.0	0.0	0.0	5,860.0	2,415.0	585.9
22	Police Quarters	1,240	12,784.5	2,335.1	0.0	8,285.6	3,863.8	0.0	0.0	0.0	560.0	0.0	4,389.4	0.0
23	Rahmdi Slum	6,000	69,748.9	1,254.9	5,295.2	47,074.3	1,699.4	0.0	5,909.5	0.0	0.0	1,142.0	3,080.8	1,246.2
24	Rathodi village	790	45,332.5	167.7	2,361.6	20,385.0	372.6	0.0	0.0	0.0	0.0	0.0	18,110.0	1,746.0
25	Samna Nagar	2,500	9,794.6	2,552.4	0.0	9,799.0	2,551.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Squatters colony	20,000	29,644.3	6,746.7	0.0	27,625.0	7,239.8	0.0	0.0	0.0	0.0	916.0	2,104.0	499.4
27	Wadarpada	3,800	47,147.0	806.0	6,776.4	30,017.0	1,265.9	0.0	1,457.0	0.0	0.0	2,177.0	7,280.2	903.8
	TOTAL	393,650	2,315,148.5	1,728.3	340,069.2	1,455,940.3	2,704.3	21,114.3	57,620.5	2,741.4	40,057.9	21,316.9	154,661.1	169,207.2

Sr. No.	Community	Total Buildable Plot Area (RBPA+CBPA+IBPA)	Total Amenity Area (HAA+EAA+SAA+RA)	Residential Land Area / Capita	Industrial Space / Capita	Commercial Space / Capita	Health Amenity Space / Capita	Educational Amenity Space / Capita	Social Amenity Space / Capita	Recreational Space / Capita	Total BPA / Capita	Total Amenity Area / Capita	Vacant Land / Capita	
1	Ambavyadi	167,225	6,233.3	2.8	0.0	0.0	0.0	0.0	0.0	0.3	2.8	0.1	0.5	
2	Azmi Nagar	333,381	23,571.7	2.4	0.3	0.0	0.0	0.0	0.0	0.2	2.8	0.2	0.4	
3	BEST	3,535	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	
4	Bhim nagar	2,492	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	
5	BMC	51,379	8,903.6	4.1	0.0	0.0	0.0	0.0	0.1	0.4	4.1	0.7	0.0	
6	Buddh nagar	21,057	0.0	3.7	0.0	1.5	0.0	0.0	0.0	0.8	5.3	0.0	0.0	
7	Central Govt Quarters	2,494	9,938.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	1.9	7.8	0.0	
8	Hanuman nagar	5,761	1,323.9	3.8	0.0	0.0	0.0	0.6	0.1	0.1	3.8	0.9	0.0	
9	Hinuswadi	40,579	13,580.3	7.7	1.1	0.2	0.0	1.3	0.0	0.9	9.0	3.0	0.2	
10	Juhu Wadi	42,246	10,225.9	15.2	1.9	4.0	0.9	2.2	0.5	1.5	21.1	5.1	3.7	
11	Kaccha raasta	14,961	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.1	5.5	0.0	0.0	
12	Khanadi village	9,978	240.0	44.1	0.0	5.7	0.0	0.0	0.0	0.0	49.9	1.2	1.9	
13	Laxmi nagar	5,479	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.7	
14	Mhada LIG	145,986	44,081.3	9.4	0.0	0.0	0.0	0.0	0.0	1.4	9.4	2.9	6.5	
15	Mhada MIG+Other	68,843	4,832.5	4.5	0.0	0.0	0.0	0.3	0.0	1.1	4.5	0.3	2.0	
16	MHB	101,460	3,190.4	8.0	0.0	0.0	0.0	0.2	0.1	1.4	8.0	0.2	0.3	
17	Misc	15,921	0.0	5.3	0.0	0.0	0.0	0.0	0.0	1.0	5.3	0.0	1.2	
18	NCC	448,978	40,949.8	3.8	0.0	0.0	0.0	0.3	0.1	0.6	3.8	0.7	0.0	
19	New babrekarnagar	20,387	32.0	2.9	0.0	0.0	0.0	0.0	0.0	0.2	2.9	0.0	0.6	
20	OCC	81,915	3,445.5	3.6	0.0	0.0	0.0	0.0	0.0	0.4	3.7	0.2	0.0	
21	Patra chawl	9,365	8,275.0	3.7	0.0	0.0	0.0	0.0	2.3	0.2	3.7	3.3	0.0	
22	Police Quarters	8,386	4,948.4	2.6	0.0	0.0	0.0	0.2	0.0	0.0	2.6	1.5	0.0	
23	Rahmdi Slum	52,984	4,222.6	0.9	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.5	0.7	
24	Rathodi village	20,385	18,110.0	25.8	0.0	0.0	0.0	0.0	0.0	2.3	25.8	22.9	2.1	
25	Samna Nagar	9,799	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	
26	Squatters colony	27,625	1,120.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.1	0.0	
27	Wadarpada	33,474	9,457.2	7.9	0.4	0.0	0.0	0.0	0.0	0.2	8.3	2.5	1.3	
	TOTAL	1,554,074	218,656.3	3.7	0.1	0.1	0.0	0.1	0.1	0.4	3.9	0.6	0.6	

MALVANI EXISTING LAND AREAS BY NEIGHBOURHOODS

Sr. No.	Neighbourhood	Population	Land Area (sqm)	Gross Density (p/Ha)	Vacant Land (sqm)	Residential (RBPA in sqm)	Commercial (CBPA)	Industrial (IBPA)	Health Amenity Area (HAA)	Educational Amenity Area (EAA)	Social Amenity Area (SAA)	Recreational Area (RA)	Utilities	Natural Areas	Primary Activity	Transport Facilities	Transit Areas
1	Ambojwadi	49,500	336,897.8	2,064.3	50,602.2	196,974.1	0.0	0.0	0.0	0.0	5,958.0	8,582.4	689.0	0.0	0.0	0.0	34,253.0
2	MHADA	49,800	762,330.0	653.3	217,699.4	338,340.1	263.3	0.0	0.0	10,727.2	1,269.6	60,412.8	4,414.5	17,749.6	0.0	27,641.0	83,620.3
3	Azmi Nagar	128,000	501,672.9	2,551.5	60,035.4	338,763.2	499.6	47,402.5	0.0	2,724.5	4,015.3	21,556.0	0.0	0.0	0.0	1,537.6	25,941.1
4	NDC / ODC	127,480	787,885.5	1,618.5	112,218.3	410,215.8	12,872.2	0.0	1,039.0	27,318.9	4,927.9	73,756.2	1,986.0	9,782.0	0.0	0.0	88,672.4
5	Kharodi	20,520	288,506.5	704.3	61,379.2	122,807.7	8,833.8	27,119.4	1,742.5	10,875.0	4,875.9	18,452.2	126.0	5,762.0	8,160.0	534.4	17,685.7
6	Villages	580	125,288.0	76.7	10,878.3	57,388.0	1,142.4	1,895.0	0.0	0.0	0.0	37,388.0	0.0	1,993.0	9,420.0	1,820.0	3,836.0
		396,560	2,894,985.5	1,434.1	552,992.6	1,484,689.3	23,109.7	76,416.9	2,781.5	51,845.6	24,466.7	241,587.0	7,215.5	35,264.6	17,580.0	31,352.4	255,479.1
	MALVANI TOTAL	396,560	2,818,507.7	1,407.0	552,992.6	1,484,689.3	23,109.7	76,416.9	2,781.5	51,845.6	24,466.7	241,587.0	7,215.5	35,264.6	17,660.0	31,352.4	267,635.5

Sr. No.	Neighbourhood	Total Buildable Plot Area (RBPA+CBPA+IBPA)	Total Amenity Area (HAA+EAA+SAA+RA)	Total Buildable Land Area TAA + TBPA	Vacant Land / Capita	Residential Land Area / Capita	Industrial Space / Capita	Commercial Space / Capita	Health Amenity Space / Capita	Educational Amenity Space / Capita	Social Amenity Space / Capita	Recreational Area / Capita	Transit Area / Capita	Total Amenity Area / Capita	Total Buildable Land Area / Capita	% Amenity Area of Buildable Land Area
1	Ambojwadi	196,976.1	14,540.3	211,517.0	1.5	2.83	0.00	0.00	0.00	0.00	0.00	0.17	0.45	0.21	3.04	6.87
2	MHADA	338,604.0	72,409.6	411,013.6	4.4	6.79	0.00	0.01	0.00	0.22	0.03	1.21	1.68	1.45	8.25	17.62
3	Azmi Nagar	386,364.7	27,794.8	414,159.5	0.5	2.65	0.37	0.00	0.00	0.02	0.03	0.18	0.20	0.22	3.24	6.71
4	NDC / ODC	442,887.2	132,642.5	575,529.7	0.9	3.36	0.00	0.10	0.01	0.22	0.0	0.75	0.69	1.04	4.50	23.05
5	Kharodi	158,758.9	35,829.6	194,584.5	3.0	6.04	1.46	0.43	0.09	0.54	0.24	0.91	0.87	1.75	9.58	18.45
6	Villages	60,364.4	37,368.0	97,932.4	11.2	59.98	2.07	1.19	0.00	0.00	0.00	33.53	1.44	38.05	102.08	36.13
		1,584,215.9	320,680.8	1,904,896.7	1.4	3.77	0.19	0.06	0.01	0.13	0.06	0.61	0.64	0.81	4.80	16.83
	MALVANI TOTAL	1,584,215.9	320,680.8	1,904,896.7	1.4	3.77	0.19	0.06	0.01	0.13	0.06	0.61	0.68	0.81	4.84	16.83

MALVANI PROPOSED LAND AREAS BY NEIGHBOURHOODS

Sr. No.	Neighbourhood	Population	Land Area (sqm)	Gross Density (p/Ha)	Vacant Land (sqm)	Residential (RBPA in sqm)	Commercial (CBPA)	Industrial (IBPA)	Health Amenity Area (HAA)	Educational Amenity Area (EAA)	Social Amenity Area (SAA)	Recreational Area (RA)	Utilities	Natural Areas	Primary Activity	Transport Facilities	Transit Areas
1	Ambojwad	89,500	545,778.7	2,008.1	0.0	104,637.4	0.0	1,361.7	7,085.0	5,826.1	30,712.5	94,012.8	5,455.5	0.0	0.0	1,301.6	31,799.3
2	MHADA	49,600	782,962.7	636.0	0.0	359,244.2	5,523.1	0.0	37,706.0	54,223.9	48,600.6	138,746.1	13,775.0	675.6	0.0	27,396.3	96,752.6
3	Azmi Nagar	128,000	546,040.0	2,357.3	0.0	309,535.5	199.0	45,795.5	6,220.0	10,159.1	8,275.8	81,418.8	3,308.1	0.0	0.0	4,387.5	73,011.3
4	NCC / CCC	127,980	824,701.8	1,551.6	0.0	427,657.0	10,751.2	0.0	17,044.1	51,446.0	39,920.9	140,384.5	10,758.9	0.0	0.0	2,917.3	119,773.0
5	Kharodi	20,380	285,100.3	7,127.3	0.0	118,921.3	8,729.3	25,087.0	6,652.0	14,229.6	7,897.1	59,684.2	3,804.9	0.0	621.3	1,052.7	26,153.2
6	Vitaran	960	125,213.4	767	0.0	102,236.1	0.0	4,270.0	0.0	0.0	0.0	13,977.7	0.0	0.0	0.0	1,497.2	2,101.9
		396,560	2,603,036.6	1,460.2	0.0	1,496,261.3	25,202.6	76,514.2	74,685.1	133,924.5	115,606.5	520,203.9	39,332.8	675.6	621.3	37,842.6	388,461.3
	MALVANI TOTAL	396,560	2,928,831.0	1,354.0	0.0	1,496,261.3	25,202.6	76,514.2	74,685.1	133,924.9	115,606.0	520,203.0	39,332.8	675.6	621.3	37,842.6	388,736.0

Sr. No.	Neighbourhood	Total Buildable Plot Area (RBPA+CBPA+IBPA)	Total Amenity Area (HAA+EAA+SAA+PA)	Total Buildable Land Area: TAA + TBPA	Vacant Land / Capita	Residential Land Area / Capita	Industrial Space / Capita	Commercial Space / Capita	Health Amenity Space / Capita	Educational Amenity Space / Capita	Social Amenity Space / Capita	Recreational Area / Capita	Transit Area / Capita	Total Amenity Area / Capita	Total Buildable Land Area / Capita	% Amenity Area of Buildable Land Area	
1	Ambojwad	108,019.1	95,614.4	238,633.5	0.0	2.66	0.05	0.00	0.30	0.06	0.35	1.06	0.75	1.36	4.08	33.71	
2	MHADA	364,767.8	279,418.8	644,243.9	0.0	7.21	0.00	0.11	0.76	1.09	0.98	2.71	1.90	5.83	12.94	43.48	
3	Azmi Nagar	353,529.8	108,113.7	461,643.5	0.0	2.42	0.34	0.00	0.05	0.08	0.06	0.63	0.57	0.84	3.61	23.42	
4	NCC / CCC	437,408.2	248,775.5	683,183.7	0.0	3.27	0.00	0.08	0.13	0.40	0.31	1.10	0.94	1.94	5.32	36.52	
5	Kharodi	152,747.6	96,462.9	251,210.5	0.0	5.85	1.23	0.43	0.33	0.70	0.39	3.43	1.34	4.65	12.36	39.20	
6	Vitaran	108,596.1	13,977.7	120,483.8	0.0	106.50	4.45	0.00	0.00	0.00	0.00	14.56	2.19	14.56	123.50	11.60	
		1,597,978.1	844,420.8	2,442,398.9	0.0	3.77	0.19	0.08	0.19	0.34	0.29	1.31	0.98	2.13	6.16	34.57	
	MALVANI TOTAL	1,597,978.1	844,420.8	2,442,398.9	0.0	3.8	0.2	0.1	0.2	0.3	0.3	1.3	0.5	2.1	6.2	34.57	

COMPARISION OF DWELLING UNITS BY COMMUNITY

Sr. No	Type	Number of Dwelling Units	Approximate number of residents	Household size	Residential Land Area Occupied**	Land Area / DU	DU / Ha	Land Area / Capita	Average Number of Stories	Building Footprint (% of Land Area)^	Net FAR	Built Up Area	Residential Space / Capita (Average)	Average Income level of Residents
1	Ambedkar wadi	12,000	60,000	5.00	167,225	14	718	2.79	1.25	0.75	0.94	156,779.7	2.61	6,000
2	Azmi Nagar	20,000	119,200	5.96	289,695	14	690	2.43	1.75	0.75	1.31	380,224.0	3.19	8,500
3	Azmi Nagar (Apts)	160	800	5.00	1,995	12	802	2.49	8.00	0.50	4.00	7,978.0	9.97	na
4	BEST	128	640	5.00	3,533	28	362	5.52	4.00	0.33	1.32	4,666.2	7.29	na
5	Bhim Nagar	400	2,500	6.38	2,428	6	1,296	0.97	2.00	0.85	1.70	4,127.4	1.65	4,500
6	BMC	2,542	12,500	4.92	30,782	20	501	4.08	1.75	0.75	1.31	86,648.9	5.33	20,000
7	Buddh Nagar	800	4,000	5.00	14,933	19	536	3.73	1.50	0.75	1.13	16,799.6	4.20	8,500
8	Central Govt Quarters	256	1,280	5.00	6,912	27	370	5.40	8.00	0.33	2.64	18,247.7	14.26	na
9	Hanuman Nagar	240	1,500	7.50	5,761	24	347	3.84	1.00	0.75	0.75	4,320.8	2.88	4,000
10	Hinduwadi	900	4,500	5.00	34,772	39	259	7.73	1.00	0.75	0.75	26,079.0	5.80	na
11	Julim Wadi	1,000	5,000	5.00	30,451	30	328	6.09	1.00	0.75	0.75	22,838.0	4.57	4,000
12	Kaccha Rasta	400	2,700	6.75	14,961	37	267	5.54	1.00	0.75	0.75	11,220.8	4.16	4,000
13	Khanda Village (Gaothan Houses)	10	50	5.00	8.865	884	11	176.70	1.00	0.10	0.10	886.5	17.7	na
14	Laxmi Nagar	250	2,500	10.00	5,478	22	456	2.19	1.50	0.75	1.13	6,163.9	2.47	4,000
15	MHADA LIG	3,090	15,450	5.00	145,986	47	212	9.45	2.00	0.50	1.00	145,986.0	9.45	7,500
16	MHADA MIG APTS	5,014	15,070	5.00	59,150	12	509	3.93	7.03	0.33	2.32	137,319.5	9.11	na
17	MHADA MIG BUNGLOWS	40	200	5.00	9,371	234	43	46.86	2.00	0.50	1.00	9,371.0	46.86	na
18	MHB	2,384	12,700	5.33	101,197	42	236	7.97	1.50	0.75	1.13	113,846.1	8.96	9,000
19	Misc	804	3,020	5.00	15,921	20	379	5.27	5.75	0.40	2.30	36,618.3	12.13	na
20	MOC	9,100	60,000	6.59	226,108	25	402	3.77	2.00	0.75	1.50	339,162.0	5.65	5,000
21	New babrekarnagar	900	7,000	7.78	20,387	23	441	2.91	1.30	0.75	0.98	19,877.1	2.84	6,500
22	OCC	3,250	25,000	7.69	90,805	28	358	3.63	2.00	0.75	1.50	136,207.5	5.45	7,000
23	Patra chawl	400	2,500	6.25	9,486	23	421	3.79	1.50	0.75	1.13	10,535.6	4.21	7,500
24	Police Quarters	648	3,240	5.00	12,220	19	530	3.77	7.00	0.33	2.31	28,226.2	8.71	na
25	Rathodi Slum	1,500	8,000	5.33	47,074	31	318	5.88	1.00	0.75	0.75	35,305.7	4.41	5,500
26	Rathodi Village (Apts)	122	610	5.00	4,593	37	269	7.53	6.60	0.33	2.18	9,872.9	16.19	na
27	Rathodi Village (Gaothan houses)	30	150	5.00	15,861	529	19	105.74	2.00	0.10	0.20	3,174.3	21.15	na
28	Samna Nagar	500	2,500	5.00	9,799	20	510	3.92	9.00	0.33	2.97	29,103.0	11.64	na
29	Squatters Colony	2,500	20,000	8.00	27,825	11	905	1.39	2.00	0.80	1.60	44,520.0	2.23	8,500
30	Wadarpada	780	3,810	5.00	30,017	39	259	7.90	1.00	0.75	0.75	22,512.8	5.92	na
	TOTAL / AVERAGE	67,788	396,410	5.85	1,463,225.89	22	463	3.69			1.36	1,848,289.44	4.66	

COMPARISION OF DWELLING UNITS BY TYPE

Sr. No	Type	Number of Dwelling Units	Approximate number of residents	Residents per DU	Land Area Occupied	Land Area / DU	DU / Ha	Land Area / Capita	Average Number of Stories	Building Footprint (% of Land Area)	Built Up Area	Residential Space / Capita (Average)	Average Tenment Size (SQM)
1	Bunglows	40	200	5.00	9,371	234	43	46.86	2.00	0.50	9,371.0	46.9	234
2	Gaothan Houses	40	200	5.00	24,696	617	16	123.48	1.00	0.10	2,469.6	12.3	62
3	Apartments	5,432	27,160	5.00	1,25,660	23	432	4.63	8.50	0.40	426,715.7	12.0	80
4	Row Houses	3,090	15,450	5.00	1,45,986	47	212	9.45	2.00	0.50	1,45,986.0	9.4	47
5	Site and Services	17,278	1,10,200	6.38	468,890	27	368	4.25	1.50	0.75	527,501.3	4.8	31
6	Site without Services	3,800	29,500	7.76	57,377	15	662	1.94	2.00	0.85	97,540.9	3.3	26
7	Informal	37,810	213,700	5.65	642,796	17	588	3.01	1.15	0.75	554,411.6	2.6	15

COMPARISION OF AMENITY NORMS (LAND AREA IN SQM PER CAPITA)

CATEGORY	UDPFI	DDA	NBCI	CIDCO	DP 1991*	CPS	MCGM DP=	MCGM DP *	MCGM ELU	PVD
HEALTH AMENITIES	0.855	0.3925	2.125	0.19	0.293	0.2375	0.034	0.385	0.26	0.79
URBAN HEALTH CENTRES										0.1
DISPENSARIES	0.07	0.1	0.07	0.06	0.013	0.0375				0.1
MATERNITY HOMES	0.05	0.03	0.05		0.03		0.034	0.385	0.26	0.05
HOSPITALS	0.24	0.2625	0.24	0.13	0.25	0.2				0.24
OTHER HOSPITALS	0.495		0.495							0.3
SPECIALITY HOSPITALS			1.27							
EDUCATIONAL AMENITIES	4.95	1.152	5.19	1.23	0.928	0.7	0.92	1.37	0.69	4.975
PRE PRIMARY SCHOOL	0.32		0.32							0.32
PRIMARY SCHOOL	0.8	0.4	0.8	0.39	0.464	0.3				1.6
INTEGRATED SCHOOLS	0.7		0.7							0.235
TECHNICAL SCHOOLS	0.08		0.08							0.04
SECONDARY SCHOOLS	2.13	0.6	2.4	0.39	0.464	0.4	0.92	1.37	0.69	2.13
HIGHER EDUCATION	0.32	0.152	0.4	0.45						0.65
SCHOOL FOR HANDICAPPED	0.11		0.15							
PROFESSIONAL EDUCATION	0.42		0.27							
UNIVERSITY[1]	0.07		0.07							
SOCIAL AMENITIES	2.78	1.493	3.097		0.14	0.11	0.2	0.44	0.2	
CEMETERY		0.015	0.13		0.03**					
RELIGIOUS ACTIVITY	0.08	0.16	0.5							
SOCIO CULTURAL FACILITIES	0.56	0.328	0.593							
FIRE STATION	0.04	0.13	0.05		0.03 - 0.05	0.05				
POLICE	0.2	0.06	0.394							
SHOPPING / RETAIL	1.9	0.8	1.43		0.04 0.1	0.06				
RECREATION AREA	11	4.5	6	3	4	3.1	1	2	1.24	4
TOTAL AMENITY AREA	8.585	3.0375	10.412	1.42	1.381	1.048	1.154	2.195	1.15	5.765
TOTAL AMENITY + RECREATION AREA	19.585	7.5375	16.412	4.42	5.361	3.148	2.154	4.195	2.39	9.765

+ FOR PLANNING SECTORS (10,000 - 100,000 PPL)
* AVERAGE FOR ISLAND CITY AND SUBURBS
[1] CITY LEVEL
** 15 Ha PER WARD (1500.0 Sqm / AVERAGE WARD POP FOR 2001 POPULATION)
* AVERAGE
** AREA SAME AS SUGGESTED FOR DISPENSARY
[1] 70 Ha FOR A CITY; DIVIDED BETWEEN 1,000,000 PEOPLE

UDPFI : URBAN DEVELOPMENT PLANS FORMULATION AND IMPLEMENTATION GUIDELINES
DDA : DELHI DEVELOPMENT AUTHORITY
NBCI : NATIONAL BUILDING CODE OF INDIA
CIDCO : CITY INDUSTRIAL DEVELOPMENT CORPORATION
CPS : COMMITTEE FOR PLANNING STANDARDS
MCGM DP : MUNICIPAL CORPORATION OF GREATER MUMBAI DEVELOPMENT PLAN
PVD : PEOPLE'S VISION DOCUMENT

COMPARISION OF AMENITY NORMS (NUMBER OF UNITS)

CATEGORY	UDPFI	DDA	NBCI	PVD
HEALTH AMENITIES FOR 100,000 PERSONS	10.06	10.1	12.06	14.17
URBAN HEALTH CENTRES				1.6
DISPENSARIES	6.66	7	6.66	10
MATERNITY HOMES	1-2.1	2	1-2.1	2.1
HOSPITALS	0.4	2.65	0.4	0.4
OTHER HOSPITALS	3	3.45	5	0.07
EDUCATIONAL AMENITIES FOR 100,000 PERSONS	88.46	31	88.73	81.79
PRE PRIMARY SCHOOL	50		50	50
PRIMARY SCHOOL	20	20	20	13.33
INTEGRATED SCHOOLS	2		2	2
TECHNICAL SCHOOLS	0.2		0.2	0.2
SECONDARY SCHOOLS	13.33	10	13.33	13.33
HIGHER EDUCATION	0.8		0.8	0.8
SCHOOL FOR HANDICAPPED	2.1	1	2.1	2.1
PROFESSIONAL EDUCATION	0.03		0.3	0.03
SOCIAL AMENITIES FOR 100,000 PERSONS	509.01	35.4	590.01	0
CEMETERY	0.4		0.5	
RELIGIOUS ACTIVITY		20.25	1	
SOCIO CULTURAL FACILITIES	29.78	13.55	30.66	
FIRE STATION	0.5		0.5	
POLICE	3.35	1.6	3.35	
LOCAL MARKET	475		554	
OPEN SPACES				
1000 - 5000 PERSONS	3 - 4		1	
5000 - 25,000 PERSONS	3 - 4		1	
25,000 - 125,000 PERSONS	2 - 3		1	
125,000 - 2,500,000 PERSONS	1			
2,500,000 - 5,000,000 PERSONS	1			

LAND USE DATA, AMENITY PERCENTAGES AND HDI OF WARDS IN MUMBAI

Sr. No	Ward	Population (2011)	RBPA	BPA*	Health Amenity Area	Educational Amenity Area	Social Amenity Area	Open Space Amenity Area	RBPA / Capita	BPA / Capita	Health Amenity / Capita	Edu Amenity / Capita	Social Amenity / Capita	Open Space / Capita	H+E+S	BPA* %	Health Amenity %	Educational Amenity %	Social Amenities %	Open Space Amenity %	Utilities and Transport %	HDI (2001)	HDI Rank
1	A Ward	1,85,014	60.83	186.80	10.92	25.08	17.05	14.88	4.37	10.10	0.59	1.09	0.92	4.05	2.60	30.40	1.78	3.27	2.78	12.21	26.99	0.58	18
2	B Ward**	1,17,295	44.50	75.95	2.24	3.16	6.91	2.03	3.50	5.97	0.19	0.25	0.54	0.16	0.97	49.44	1.85	2.05	4.50	1.32	37.66	0.71	5
3	C Ward	1,66,161	77.25	106.14	5.40	2.74	9.06	13.51	4.65	6.39	0.32	0.16	0.53	0.81	1.04	55.48	2.83	1.43	4.73	7.06	28.50	0.69	2
4	D Ward***	3,46,865	377.81	496.81	13.54	17.63	16.58	84.05	10.89	12.59	0.39	0.51	0.48	2.43	1.38	53.15	3.92	2.17	2.09	10.59	17.80	0.96	1
5	E Ward	3,93,286	192.84	364.59	46.06	28.35	34.94	41.43	4.90	9.27	1.17	0.47	0.88	1.08	2.07	50.13	6.33	2.52	2.05	5.88	28.46	0.54	14
6	FN Ward	5,29,034	402.58	433.78	18.28	39.86	13.37	51.97	7.61	8.20	0.35	0.75	0.25	0.98	1.35	39.13	1.65	3.60	1.21	4.68	23.00	0.41	21
7	FS Ward	3,60,972	233.82	473.98	41.86	26.75	10.73	26.60	6.48	13.13	1.16	0.74	0.30	0.74	2.20	48.42	4.28	2.73	1.10	2.72	29.40	0.67	8
8	GN Ward**	5,99,039	216.83	257.37	9.69	18.30	10.78	42.71	3.62	4.30	0.09	0.31	0.17	0.70	0.97	52.50	1.15	3.78	2.04	8.56	25.60	0.49	18
9	GS Ward	4,77,749	220.91	486.40	19.42	10.92	13.75	111.81	3.85	10.23	0.31	0.29	0.42	2.96	1.22	41.58	2.99	1.17	1.69	16.46	19.05	0.66	11
10	HP Ward	5,57,239	282.74	429.54	2.78	5.36	5.94	28.51	3.07	3.91	0.05	1.75	0.11	0.51	1.91	35.08	0.42	14.62	0.91	4.24	18.61	0.41	20
11	HW Ward	3,07,581	421.72	459.48	9.65	22.48	12.67	97.20	13.71	14.94	0.31	0.73	0.42	1.21	1.46	56.65	1.19	2.77	1.56	4.58	21.76	0.68	7
12	KE Ward	8,23,685	685.43	919.91	16.44	50.05	20.05	84.88	8.32	11.17	0.20	0.61	0.25	0.72	1.05	54.89	0.88	3.99	1.51	3.67	16.43	0.67	9
13	KW Ward	7,48,688	845.10	944.51	20.37	58.46	30.80	150.29	11.02	12.62	0.27	0.78	0.41	2.01	1.46	39.30	0.85	2.49	1.28	6.26	18.03	0.68	10
14	L Ward	8,02,225	544.91	764.98	7.54	34.88	12.63	67.36	6.04	8.70	0.09	0.39	0.13	0.75	0.60	55.34	0.54	2.48	0.83	5.78	18.57	0.29	25
15	ME Ward	8,07,720	571.12	847.97	9.85	23.31	27.35	42.88	7.07	10.49	0.12	0.29	0.34	0.53	0.75	38.81	0.46	1.09	1.28	2.01	17.70	0.05	24
16	MW Ward	4,11,893	381.93	651.10	5.60	18.56	13.52	46.23	9.52	20.66	0.14	0.45	0.33	2.34	0.87	48.91	0.32	0.95	0.78	5.47	26.59	0.33	22
17	N Ward	6,22,853	550.08	728.91	10.31	25.23	12.57	62.57	8.83	11.70	0.17	0.41	0.20	1.00	0.77	52.76	0.71	1.80	0.89	4.46	19.24	0.52	16
18	PN Ward	9,41,366	1,027.19	1,158.17	10.73	38.73	22.60	98.50	10.91	12.30	0.11	0.35	0.24	1.05	0.70	46.42	0.43	1.30	0.90	3.94	15.10	0.47	19
19	PS Ward	4,63,507	489.06	549.92	8.52	32.99	23.79	71.94	10.77	16.18	0.18	0.71	0.51	1.55	1.40	43.28	0.44	1.77	1.27	3.86	11.23	0.58	12
20	RC Ward	5,62,182	626.44	32.88	3.93	20.06	14.19	14.43	11.14	13.04	0.11	0.36	0.25	1.82	0.11	52.40	0.42	1.43	1.01	3.22	21.06	0.84	3
21	RN Ward	4,41,358	416.82	446.92	4.82	19.27	8.72	49.78	9.66	10.35	0.11	0.61	0.20	1.10	0.62	48.12	0.52	1.43	0.99	4.78	16.57	0.68	6
22	RS Ward	6,91,229	613.95	724.76	4.09	16.48	12.62	81.63	8.88	10.49	0.06	0.24	0.18	1.18	0.48	55.10	0.31	1.25	0.96	6.15	24.97	0.54	13
23	S Ward	7,43,283	662.62	911.92	1.89	232.39	18.65	9.15	8.91	12.25	0.11	3.12	0.25	1.06	3.48	30.62	0.21	7.61	0.63	266.03	34.62	0.51	17
24	T Ward	3,41,469	406.92	549.93	10.22	17.57	11.40	62.61	11.92	15.93	0.30	0.51	0.33	1.83	1.15	52.59	0.98	1.69	1.09	6.03	31.51	0.76	4

* BPA = Buildable Plot Area (Residential + Commercial + Industrial land Use)

** Excludes Railway Sidings and Dock Areas *** Excludes Tiger of Silence

Average per capita land area for health amenities in the top ten HDI wards: 0.34 sqm / person

Average per capita land area for health amenities in the bottom ten HDI wards: 0.32 sqm / person

Average percentage land area for health amenities in the top ten HDI wards: 1.74

Average percentage land area for health amenities in the bottom ten HDI wards: 0.82

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